STRUCTURE OF DATE PALM MARKETERS IN JIGAWA STATE, NIGERIA

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ABSTRACT

The study examined the market concentration of date palm marketers in Jigawa State, Nigeria. Purposive sampling was employed due to high number of date palm marketers in the area and a total of 122 respondents were selected randomly. The Herfindahl-Hirschman Index (HHI), Gini-coefficient and Four-firm concentration ratios (CR4) were employed for the study. The HHI revealed market concentrations of 0.05 for Shuwarin, Babaldu (0.04), Gujungu (0.05), Maigatari (0.09), Hadejia (0.08), and Kazaure (0.13) which indicates low concentrations, while Gumel and Gwaram each had a market concentration of 0.25. The HHI revealed market concentration of 0.33 for Babaldu, Gumel (0.56) and Kazaure (0.50) had high concentrations and Maigatari market was moderately concentrated and Shuwarin (0.14) market had low concentration for Wholesalers. The Gini-coefficient index of 0.66 indicates high concentration with total revenue of ₦17, 224, 950 generated by retailers while total revenue generated by wholesalers was ₦19,843,500 with a Gini coefficient of 0.67 (high concentration) and marketing played by only about 16.7% of wholesalers. Retailers in Shuwarin, Babaldu, and Gujungu had low market concentrations of 20.55%, 19.92% and 28.16% respectively using the CR4, while Maigatari, Gumel and Hadejia were moderately concentrated market concentrations of 41.91%, 41.74% and 41.74% respectively and Kazaure market had high concentration with CR4 of 53.81% for retailer. Only Shuwarin market was computable for wholesalers with a CR4 of 58.36% which is a high concentration. It was concluded that retailers' income tends towards perfect competition while wholesalers had monopolistic competition based on HHI, while the Gini-coefficient portrays monopolistic competition for both retailers and wholesaler and the CR4 shows equality in the income of retailers while there is income inequality in the income of wholesalers.

Keywords: Marketing, Concentration and Date palm

INTRODUCTION

Date palm (*Phoenix dactylifera* Linn) is a significant fruit in human endeavours, highly adapted to harsh conditions of arid and semi-arid areas of the world with high health potentials. It is one of the fruits planted locally among other palms in the world and this could

be the reason why is one of the most valuable domesticated fruit trees (Johnson *et al.*, 2015). The date fruit is very important for food security, particularly in areas where they are food unsecured or malnourished. The fruit provides carbohydrates, protein, fibres, fats, various vitamins and minerals (Lemlem *et al.*, 2018). Zaid and de Wet (2002) stated that due to the high sugar content of date fruit, it is regarded as one of the most nutritious foods available to the inhabitants of arid and semi-arid areas of the world. Moreover, depending on the variety and stage of maturity the fruit contains 15% to 30% water.

Marketing of horticultural crops like date palm is very important because the fruit can be sold both in the local and export markets and it is also perishable and can deteriorate in quality when stored for a very long time (Lemlem *et al.*, 2018). The truth about supply of horticultural produce to the formal market is that the market is basically controlled by few firms and could be the reason why some of the producers and marketers were out of production and marketing business. However, financial assistance from government is very necessary in commercialization of the horticulture sector and incentive for commercial activities is provided by the market (Madisa, 2012).

No matter how coordinated and efficient the factors of production may be, it may be regarded as useless if it can't be sold in the market. A return to all market participants is absolutely dependent on effective agricultural market which is fundamentally important in the marketing channel from the producer to the consumer. Moreover, the main ingredient that increases the efforts of participant for sustainable agricultural production and marketing is good remunerative prices for their goods (Phuu, 2016). Market concentration refers to the number and relative sizes of buyers and sellers in a market. It is generally believed that higher concentration implies non-competitive behavior and thus inefficiency. However, interpretations of such relationship in isolation from other determinant factors like barriers to entry and scale economies (Scott, 1995). Poulton *et al.* (2009) drew the conclusion that fully competitive sectors initially give rise to higher prices to producers, which implies good incentives for increased production, but that they failed to provide production credits, inputs and extension services because of free riding on the part of farmers.

Monopolies do secure the provision of inputs and extension, but are slow in adapting to changes in market prices. Market based concentrated systems seem to be the ones showing best overall performance in input provision and price incentives for expanded production. However, concentrated systems tend to be unstable and move towards competitive systems when prices paid by existing companies decline; new companies will enter the sector, and credits and extension services will suffer. To maintain the efficiency of these systems they proposed regulatory structures, for example the erection of entry barriers through a license system where licenses are given to those companies which can assure provision of credit and extension services to farmers. Studies concerning concentration indexes usually involves one and in rear cases two indexes but the study focused on incorporating three major concentration indexes (HHI, Gini & CR4) commonly used as measures of concentration. This will add to literature and determine the difference and similarities in the results.

MATERIALS AND METHOD

Study Area

Jigawa state is located in the north-western part of the country between latitudes 11°.00′N to 13°.00′N and longitudes 8°.00′E to 10°.15′E. It shares boundary with Yobe state

to the northeast, Kano and Katsina states to the west, and Bauchi state to the east. Apart from national boundaries Jigawa state shares international boundary with Zinder territory in the Republic of Niger, this provides a chance for inter border trading activities. It has a long dry season and short rainy season. The rainy season at times begins from May, but usually starts in April, while larger part of the rain falls from June to September, the climate can generally be classified as semi- arid. The undulated land accompanied by Iggi, Hadejia and Kafin Hausa rivers and other rivers made the state conducive for agricultural production. That could be the reason why majority of people who were native of the state were mainly Hausa/Fulani, Kanuri and some indications of Badawa basically in north eastern areas were farmers and breeders of livestock (Mohammed, 2014). The state has a population of about 4.3 million with land area of approximately 22,410 Km² (National Population Commission [NPC] 2006). It has a maximum temperature of about 40°C in the months of March to September, and low temperature of 11°C between October and February with considerable variations during these times (Bidoli *et al*., 2012). The average rainfall is about 650mm with a minimum of about 600mm and a maximum of 1000mm. Greater proportion of the state lie within the Sudan Savannah in the southern part with elements of Guinea savannah in the southern part of the state. Majority of the inhabitants are farmers and animal breeders with about 80% engaged in subsistence farming and animal husbandry as their major economic activity (Bidoli *et al*., 2012).

Sampling Technique

Purposive and simple random sampling techniques were used in selecting marketers for the study. Eight markets were purposively selected from Maigatari, Shuwari (Kiyawa), Babaldu (Birnin Kudu), Gwaram, Gujungu (Taura), Gumel, Kazaure and Hadejia because there is large number of date palm fruit marketers in those markets. Marketers were then categorized into wholesalers and retailers. Simple random sampling technique was used in selecting marketers from each category making up of 18 wholesalers and 104 retailers. They were selected proportionate to the sizes of the markets making a sample size of 122 from a sampling frame of 305 as shown in Table 1. Respondents were selected using a sampling percentage of 40% in obtaining the sample.

Table1: Sampling procedure of respondents

Markets	Wholesalers		Retailers	
	Population	Sample	Population	Sample
Shuwarin	17	7	50	20
Babaldu	7	3	53	21
Gujungu	-	-	40	16
Maigatari	10	4	28	11
Gumel	5	2	30	12
Hadejia	-	-	30	12
Kazaure	5	2	20	8
Gwaram	-	-	10	4
Total	44	18	261	104

Source: Field Survey, 2015

Data Collection and Analysis

Data for the study were collected from primary sources with the use of questionnaire administered on 122 date palm fruit marketers.

Three concentration Indexes were employed for the study. These are; the Herfindahl-Hirschmanh index (HHI) as applied by Naldi and Flamini (2014), CR4 and the Gini coefficient were used to determine the concentration of marketers in the area. These 3 indexes were among the most widely used indexes.

The Herfindahl-Hirschman Index (HHI)

Market concentration was achieved by using the HHI. The study adopted model of HHI used by Naldi and Flamini (2014) where the HHI is obviously described as a positive figure and the market shares were expressed as fractions of the whole market, then we have $0 < HHI \leq 1$. The HHI was used to determine the concentration of marketers in the area.

The HHI is one of the most commonly used indicators to detect anticompetitive behaviour in industries. In fact, an increase in the value of the index is usually interpreted as an indicator of actions which may reduce competition or even create a monopoly. The market concentration could be expressed in percentages or in fractions. If the market shares are expressed as percentages, we have $0 < HHI – 10,000$ where 0 represents perfect competition while 10,000 is pure monopoly.

The U.S. Department of Justice provided its guidelines for measuring concentration when expressed in fractions, first in 1985 and later revised them several times, till the latest version in 2010, proposing in Section 5.3 of its 2010 version a classification of markets into three types, HHI competition level of <0.15 are Unconcentrated markets, 0.15- 0.25 are moderately concentrated markets and >0.25 highly concentrated markets (United State Department of Justice and Federal Trade Commission, 2010) and is expressed as:

$$HHI = \sum_{i=1}^{n} Si^2$$

Where:

       HHI= Herfindahl-Hirschman index
       Si = market share
       ∑ = summation sign
       i = number of marketers

And:

$$Si = \frac{market \;\; sales \;\; of \; a \; marketer}{total \; market \; sales \; of \; all \; marketers}$$

Gini Coefficient Analysis

The Gini coefficient is a measure of statistical dispersion used as a measure of inequality of wealth or product distribution. It is a numerical representation of the degree of inequality in a population which ranges from 0 and 1 used to assess the level of concentration in the market structure. A Gini coefficient of 0 indicates perfect equality while 1 indicates

perfect inequality, hence the higher the concentration, the higher the inefficiency in the market structure. The Gini coefficient is specified as:

$$GC = 1 - XY$$

Where:
GC = Gini coefficient
X = Percentage of marketers
Y= Cumulative percentage of marketer's income

The Lorenz curve is a graphical representation of the Gini index used for measuring inequality. However, the Gini coefficient was not calculated based on markets but we consider the category of wholesalers and retailers so that we can take the income range of respondents and was not applicable based on individual markets as in the case of HHI and CR4.

CR4 Concentration Ratio

Four-firm concentration ratio measures the percentage of market share owned by the 4 largest firms in the industry expressed as:

$$CR4 = S_1 + S_2 + S_3 + S_4$$

Where; $S_1 + S_2 + S_3 + S_4$ are the market share of the top four firms.

The measure is useful measure of concentration and competitiveness but it does not provide a complete picture of concentration since it provides market share of only four top firms and does not provide information about firm size distribution. To determine the CR4 concentration ratio the study adopted the rule of thumb developed by Kohls and Uhl (1985) indicating that 33-49 percent as weak oligopoly or low concentration while 50 percent or more is indicative of strong oligopoly or high concentration and less than 33 percent is not concentrated.

$$CR4 = \sum_{i=1}^{4} Si$$

Where:
    CR4= Four-firm concentration ratio
    Si = market share
    ∑ = summation sign
    4 = Top four marketers of the firm
And:

$$Si = \frac{market\ \ sales\ of\ a\ marketer}{total\ market\ sales\ of\ all\ marketers} \times 100$$

RESULTS AND DISCUSSION

Market Concentration of Retailers using the HHI

The market concentration of retailers in Shuwarin market is 0.05 which is a low level concentration. Retailers were categorized under low concentration in Shuwarin market because the value of HHI is less than 0.15. Retailers in Babaldu (0.04), Gujungu (0.05), Maigatari (0.09), Hadejia (0.08) and Kazaure (0.13) were all categorized under low concentration because the values of the HHI were less than 0.15 as indicated in Table 2. This is indication that the concentration of sales volume among retailers is low and retailers from these markets will not be able to control large shares of date palm fruit and could not be able to influence supplies by increasing or decreasing the quantity produced by each retailer. This conforms to Al- Ghamdi *et al*. (2014) employed the measurements of market share; Gini coefficient and Herfindahl Hirschman Index (HHI) in estimating the indicators of market structure and its performance. The result showed that the concentration of retail market is generally closer to pure competition with a small concentration in some areas with a low Gini coefficient which indicates low concentration, as well as the value of the concentration index of 77 was relatively low for retailers because the value of HHI is up to 10,000 in case of full monopoly. Retail marketing means a series of actions carried out by the retailer to encourage and stimulate cognizance and trade of produce. The component of retail trade involves vending the produce to the consumer or buyer frequently from fixed spot. Retail marketing uses a frequent assumption of marketing such as produce, cost, location and offer. The importance of retail marketing makes the produce to be well known or to be distributed evenly (Obadimu and Obadimu, 2015).

Generally, the low concentration is an indication of relatively high number of buyers and sellers in the markets, and no barriers for entries and exists in the markets and no sellers have control over business decisions in the markets and could eventually lead to innovations and improved technologies in their businesses. The result is not in accordance with Obadimu and Obadimu (2015) in their study marketing of dates among retail traders in north-western Nigeria employed the Gini coefficient in determining market concentration and found that retailers market is oligopolistic in structure signifying a high level of inequality in income among traders.

However, Gumel market has concentration of ratio 0.25 and Gwaram market has concentration ratio of (0.25) which were within moderate (0.15-0.25) concentrations and this is an indication that concentration of sales in the markets is moving towards controlling large shares of date palm fruit and may relatively influence supplies of date palm fruit in the markets.

The low concentration is an indication of perfection and good market performance, with equality in the earnings among marketers and less scope for middlemen to exploit either the consumer by charging them higher prices or the marketers by paying them lower prices and is an indication of efficiency in the market structure of respondents in the area. The results indicate that retailers can be categorized as low concentration which coincides with the study of Mani (2014) studied the structure, conduct and performance of date palm marketing in Katsina State, Nigeria and observed that retailers of date palm marketers in Katsina State had low concentration which was ascertained by the low values of Gini coefficient and Four-firm concentration ratio. However, the study also revealed that marketers had equality in their income distribution.

Table 2: Market concentration of respondents using Herfindahl-Hirschman Index

Markets	Retailer		Wholesaler	
	HHI	Concentration level	HHI	Concentration level
Shuwarin	0.05	Low	0.14	Low
Babaldu	0.04	Low	0.33	High
Gujungu	0.05	Low	-	-
Maigatari	0.09	Low	0.25	Moderate
Gumel	0.25	Moderate	0.56	High
Hadejia	0.08	Low	-	-
Kazaure	0.13	Low	0.50	High
Gwaram	0.25	Moderate	-	-

Source: Field Survey, 2015

Market Concentration of Wholesalers Using HHI

The market concentrations for wholesalers indicates that only Shuwarin market had low (0.14) concentration i.e. (<0.15), while Maigatari market had moderate (0.25) concentration value. Babaldu (0.33), Gumel (0.56) and Kazaure (0.50) all had a high (>0.25) concentrations. The concentration of wholesalers can be generally regarded as high concentration as shown in Table 4.11. This is indication that the concentration of sales volume among wholesalers is low and wholesalers from these markets will be able to control large shares of date palm fruit and could be able to influence supplies by increasing or decreasing the quantity produced by individual wholesaler. The result conforms to Obadimu and Obadimu (2015) examined the performance of dates palm among retail traders in north-western Nigeria. They employed the use of Gini-coefficient and reached a conclusion that there was high degree of inequality among traders which means unequal income distribution among traders (high concentration). Also, Afolabi (2009) shows a high concentration with a Gini-coefficient of 0.4426 which greater than 0.35 and the high level of concentration is indication of inefficiency in the market structure which is not in accordance with the findings of this study and Ngigi (2008) suggested that grain trade feature very high concentration, i.e., the grain trade is in the hands of relatively few traders and was ascertained by the Lorenz curves for all grains, sorghum, and maize meal, respectively. The results show that, overall, the grain market is very concentrated with a Gini Coefficient of 0.7, indicating that the largest 11.29 % of traders accounts for 39.06% of grain trade, but the smallest 11.29% accounts for only 0.06%. The trade for sorghum is relative more concentrated with a Gini Coefficient of 0.91. The largest 12.5% account for 70.7%, but the smallest 12.5% account for only 0.11%. The market for maize meal is relative less concentrated with a Gini Coefficient of 4.87, which means that the volume of trade is relatively more equitably distributed among traders. However, Adetunji and Adesiyan (2008) obtained Herfindahl index of 0.123 (i.e. 12.3%) which is low index number signified low concentration of market shares and that was a situation of structurally perfect competition. Also, Ebe (2014) obtained a Gini coefficient for harvesters, wholesalers and retailers to 0.16, 0.24 and 0.11 respectively, which indicate low concentration and implies that none of the harvesters, wholesalers and retailers could control a large share of supply or influence supplies increase/decrease thereby influencing price. Moreover, Kaur and Assad (2008) employed the CR of the 4 largest firms (CR4) to measure the market structure and found that the general concentration is below 40, indicating

that the industry is competitive, with a number of firms competing with each other and none has owning substantial proportion of the market.

Generally, finding indicates a low concentration for retailers and a higher concentration for wholesalers which is contrary to Taru *et al.* (2010) realized a higher value in retailing than wholesaling with Gini-coefficients of 0.74 and 0.53 respectively.

Market Concentration of Retailers using Gini-coefficient

The result of the Gini-coefficient indicates that the total revenue generated from sampled 104 retailers is ₦17, 224, 950. Thirty-eight respondents had sales range of ₦10,000 to ₦80,000 with a total monthly sale of ₦1,500,250 and had contributed to 36.5% of the total respondents while 33 respondents had sales range of ₦80,001 to ₦150,000 with a total sale of ₦3,425,500 and had contributed to 31.7% of the total respondents and 10 respondents had sales range of ₦150,001 to ₦220,000 with a total sale of ₦1,866,000 and had contributed 9.6% of the total respondents. Six respondents had the sales range of ₦220,001 to ₦290,000 with a total sale of ₦1,520,000 and had contributed 5.8% of the total respondents while one respondent had sales range of ₦290,001 to ₦360,000 with a total sale ₦294,000 and had contributed only 1% of the total respondents, two respondents had the sales range of ₦360,001 to ₦430,000 with a total sale of ₦752,000 and had contributed 1.9% of the total respondents, nine respondents had the sales range ₦430,001 to ₦500,000 with a total sale of ₦427,200 and had contributed 8.7% of the total respondents and five respondents had the sales range of more than ₦500,000 with a total sale of ₦7,440,000 and had contributed 4.8% of the total respondents as indicated in Table 3. This implies that date palm marketing was played by only 4.8% of the total respondents. The result revealed that the overall industry is towards perfect inequality with a Gini coefficient of 0.66 which is more than 0.5 and is an indication of an unequal distribution of market share among the competing firms.

Table 3: Gini- coefficient of retailers by monthly sales in Jigawa State

Monthly sales	No. of retailers	% of retailers (X)	Cum.% of retailers	Total value of monthly sales	% of total sales	Cum.% of total sales (Y)	ΣXY
10000-80000	38	36.5	36.5	1500250	8.7	8.7	0.031755
80001-150000	33	31.7	68.2	3425500	19.9	28.6	0.091613
150001-220000	10	9.6	77.8	1866000	10.8	39.4	0.037824
220001-290000	6	5.8	83.6	1520000	8.8	48.2	0.028942
290001-360000	1	1	84.6	294000	1.7	49.9	0.00543
360001-430000	2	1.9	86.5	752000	4.4	54.3	0.010792
430001-500000	9	8.7	95.2	427200	2.5	56.8	0.087
>500000	5	4.8	100	7440000	43.2	100	0.047059
Total	104	100		17224950	100		0.340413

Gini Coefficient (GC) = 1-ΣXY;   1-0.340413= 0.659587 ≈ 0.66

The result coincides with Obadimu (2010) on socio-economic analysis of date palm in Kaduna and Kano States of Nigeria employed Gini coefficient and indicated high concentration among respondents in the areas. Mani (2014) employed the use of Gini coefficient in determining the concentration of date palm marketers and obtained Gini coefficients of 0.52, 0.47 and 0.56 for importers, wholesalers and retailers respectively. This is an indication that both importers and retailers had high concentrations while wholesalers had relatively lower concentration. Obadimu and Obadimu (2014) identified the performance

of dates among retail traders in North-western Nigeria and obtained a Gini coefficient of 0.52 which indicated a high degree of inequality in the income distribution of retailers and an implication of oligopolistic market structure. Kudi *et al*. (2006) determine the economic analysis of sesame marketing in Jigawa State and obtained a Gini coefficient of 0.14 which is a low concentration and indicated that there are large number of buyers and sellers, with a common product differentiation and freedom of entry into the market and finally concluded that there is perfect competition in sesame markets of the State.

Market Concentration of Wholesalers using Gini-coefficient Analysis

The result of the Gini-coefficient indicates that the total revenue generated from sampled 18 wholesalers was ₦19,843,500. Eight respondents had sales range of ₦90,000 to ₦500,000 with a total sale of ₦1,322,500 and had contributed to 44.4% of the total respondents while 2 respondents had sales range of ₦500,000 to ₦910,000 with a total sale of ₦1,241,000 and had contributed about 11.1% of the total respondents and only 1 respondents had the sales range of ₦910,001 to ₦1,320.000 with a total sale of ₦1,000,000 and had contributed 5.6% of the total respondents. Four respondents had the sales of range of more than ₦1,320,000 to 1,730,000 with a total sale of ₦5,760,000 and had contributed 22.2% of the total respondents and 3 respondents had sales range of more than ₦1,730,000. The Gini coefficient of 0.67 is more than 0.5 which indicates an unequal income distribution and inequality in the market share among the competing firms. The Gini coefficient of both retailers and wholesalers is almost the same value with 0.66 and 0.67 respectively which indicates inequality in the income distribution for both categories of marketers as shown in Table 4.

Table 4: Gini- coefficient of wholesalers by monthly sales in Jigawa State

Monthly sales	No. of retailers	% of retailers (X)	Cum.% of retailers	Total value of monthly sales	% of total sales	Cum.% of total sales (Y)	ΣXY
90000-500000	8	44.4	44.4	1322500	6.7	6.7	0.029620671
500001-910000	2	11.1	55.5	1241000	6.3	13	0.014353987
910001-1320000	1	5.6	61.1	1000000	5.0	18	0.009976679
1320001-1730000	4	22.2	83.3	5760000	29.0	47	0.104411464
>1730000	3	16.7	100	10520000	53.0	100	0.166666667
Total	18	100		19843500			0.325029468

Gini Coefficient (GC) = 1-ΣXY;   1- 0.325029468= 0.674970532 ≈ 0.67

The Gini coefficient can further be explained by the Lorenz curve which graphically shows equality of inequality of income distribution of marketers. The closer the curve is to line of equality indicates equality in income and the far the curve is to the line of equality indicated unequal income distribution of date palm marketers. The Lorenz curve for both retailers and wholesalers were shown in Figures 1 and 2 respectively. The extent of the deviation of the curve indicates that no particular market participant is large enough to have market power to set price in the market and only a few marketers handle major share of income in the date palm market. This conforms to Ngigi (2008) in analysis of structure, conduct and performance of commodity markets in South Sudan identified that overall market was very concentrated with Gini coefficient of 0.7 which shows disparity in the income distribution of respondents in South Sudan. Mani (2014) employed the use of Gini coefficient to determine the market concentration of wholesalers and obtained a Gini

coefficient of 0.47 for wholesalers of date palm in Katsina State which indicated the result had pointed towards low level of concentration which is against the result obtained in Jigawa State which had pointed toward high concentration.
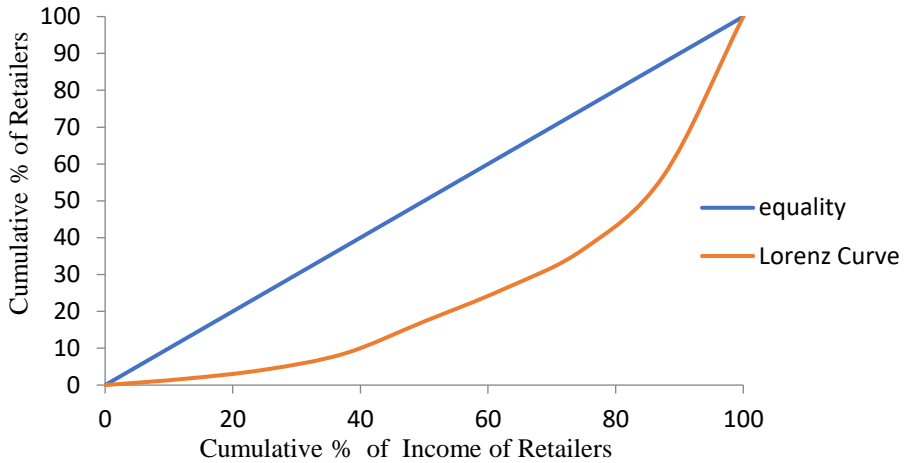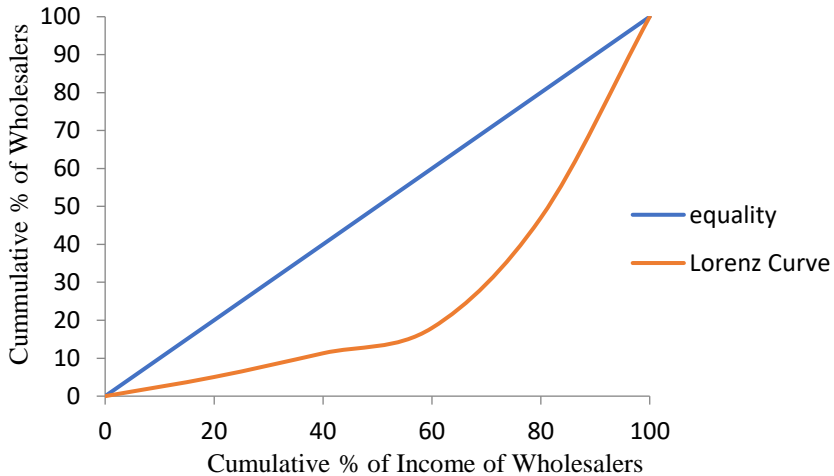

Figure 1: Lorenz Curve of Retailers

Figure 2: Lorenz Curve of Wholesalers

Market Concentration using the CR4 Ratio

The result of revealed that only Shuwarin market was computed for wholesalers due low number of respondents and the CR4 value of about 58.36% was obtained which is a High concentration or strong oligopoly structure. The values of 20.55%, 19.92% and 28.16% concentrations values of were obtained for Shuwarin, Babaldu, and Gujungu respectively and

were all under not concentrated for retailers which is in line with the study of Mani (2014) who obtained a CR4 value 38.8% with is an indication of weak oligopolistic market structure. Kazaure market was highly concentrated with CR4 value of 53.81% for retailers while Maigatari, Gumel and Hadejia had market concentrations of 41.91%, 41.74% and 41.74% respectively and were under the category of moderate concentration. This indicates that wholesalers in Shuwarin market have full control of the market and there is barrier to entry in and out of the market but retailers in Shuwarin, Babaldu and Gujungu have no control of the market and no barrier to entry in and out of the market. Moreover, the level of concentrations of Maigatari, Gumel and Hadejia have moderate control in and out of the market for retailers as indicated in Table 5.

Table 5: Market concentration using four-firm concentration ratio (CR4)

Markets	Wholesalers		Retailers	
	Concentration %	Level	Concentration %	Level
Shuwarin	58.36	High	20.55	Not Concentrated
Babaldu	***	-	19.92	Not Concentrated
Gujungu	-	-	28.16	Not Concentrated
Maigatari	***	-	41.91	Moderate
Gumel	***	-	41.74	Moderate
Hadejia	-	-	33.39	Moderate
Kazaure	***	-	53.81	High
Gwaram	-	-	***	-

*** cannot be computed Using CR4 due to low number of marketers

CONCLUSION

In conclusion, applying different indexes to determine market concentrations will result to differences, similarities and in some cases inapplicability of some tools in some of the markets. Based on the HHI, retailer's income tends to equality exhibiting perfect competition within marketers while wholesalers tend to monopolistic competition resulting obtaining higher profits from retailers and consumers. The Gini-coefficient portrays monopolistic competitions and for both wholesalers and retailers to remain in business, the monopoly has to reduce for continuity especially in retailers. Based on the CR4, there is equality in income of retailers while their income inequality in markets by wholesalers. The high concentration will give room for middlemen exploit the market by charging high price to consumer and paying less to producers.

Modern processing factories and packaging factories should be established by philanthropist, investors and marketers through their union. To reduce wastage of the produce during peak periods when date palm is cheap and this will encourage exportation and standardization hence their income.

In markets where there are high concentrations, there is higher scope for exploitation by the middlemen hence exposed the market to higher profit. This should be reduced through providing loans to marketers at lower interest rates to remain in business and reduce disparity in income of marketers.

Government should assist in building market structures and like shops and modern ware houses where products can be stored without spoilage so that marketers can have bulk purchase during the seasons when the products are cheap.

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