ISSN No:-2456-2165

Profit Efficiency of Soybean Marketing Chain in North Central States of Nigeria

Abah, Emmanuel O.
Department of Agricultural Economics,
Federal University of Agriculture, Makurdi.

Abstract:- Analysis of profit efficiency of soybean marketing chain in North Central States of Nigeria is aimed at solving the problems of soybeans marketing. The objectives are to estimate profit efficiency of soybean marketers in the study area and to analyse the effect of socioeconomic factors on profit efficiency among soybean marketers. Purposive and multi-stage sampling were used to select 481 respondents. Data were collected through structured questionnaire and analyzed with stochastic frontier profit function. The study revealed that some marketers were efficiency as indicated by mean efficiency of 81.45% for wholesalers and 78.55% for producers marketers but processor and retailers were inefficient marketer with mean of 46.69% and 26.63% respectively. Among the small scale processors, transport cost (3.73477), storage cost (1.95338), sex (-1.787311) and years in school (-5.156828) significantly influence profit efficiency. For the wholesalers, market levy (2.76892) and cost of produce (-9.57957) as well as inefficiency factors of age (-2.83778) and schooling (2.43442) were significant. Among soybean retailers, the cost of produce (-4.07721) and bagging (-1.81227) were significantly related to profit. The result of producer marketers revealed that cost of bagging (-7.5945), transport (2.38061), market levy (12.4141) and cost of produce (-2.06000) significantly influence profit efficiency. Of the inefficient effects, years in school (-2.26556), membership of association (-1.97485), household size (2.15480) and marketing experience (3.35806) were related to profit efficiency. The study recommends that government should provide social amenities such as road, water supply and electricity for soybean marketers. Extension agents should teach soybean producers the best use of input such as fertilizers and agrochemicals. The result of research on soybean processing and utilization should be properly disseminated by extension agent.

Keywords:- *Profit Efficiency, Soybean Marketers, Stochastic Profit Function.*

I. INTRODUCTION

Agriculture is the main stay of the economy of most nations of the world. Agriculture provide inputs, food, employment opportunity, raw materials for other industries, provision of foreign earnings from exportation of surpluses and more importantly the enormous advantage of the value added in the various production process (Izuchukwu, 2011). In spite of the importance of agriculture to Nigeria's economy, the sector is clearly the most neglected when compared with other sectors. Abu (2012) observed that Nigerian agriculture has failed to supply sufficient food in quantity and quality to feed the constantly growing population.

The failure in agricultural sector could be attributed to the problem of inefficiency use of scare resources such as land, labour and capital in the production chain. In addition, Tiri and Ojoko (2012) observed high transaction costs and weak performance, resulting from high transportation cost, poor storage facilities and poor market infrastructure. Astewel (2010) also observed the flow of agricultural produce from the producer to the consumer involves a long chain of intermediaries, who without creating value-addition merely keep on stretching the chain. According to Zakeri and Lawal (2012), agricultural marketing system has obviously been charged as being inefficient and disorganized.

Abah and Abu (2020) opined that in other to tackle the challenges facing agriculture production, highly nutritious varieties of crops and livestock is advocated for world-wide. One of such crop is soybean (*Glycine max*). According to Amusat and Ademola (2013), soybean is generally considered as a highly versatile grain which has about 365 applications in the formulation of both human and animal foods and other industrial uses. Shalma (2014) discribed soybean as multipurpose crop and its importance ranges from its use in milk production, oil processing, livestock feeds, medicinal, industrial and human consumption and more recently, as a source of bio-energy. Ani (2015) observed that while soybean production has sustainably increased in some states, there is no information whether it is being marketed efficiently since the key players are very few.

Most empirical studies showed that socioeconomic factors usually determine the extent to which available resources are efficiently utilized in an enterprise. Musaka (2016) found that education level, credit access, land tenure, distance to market, storage facility and weeding were significant factors found to influence profit efficiency among groundnut farmers. Nzima and Dzanja (2015) used Cobb-Douglas production model to determine factors that affect soybean production. The analysis shows that labour, extension-farmer contact, volume of soybean in the previous (last) year, farm gate price and educational level also positively influenced soybean production. Therefore, the contention of this study is whether socioeconomic factors such as age, gender, household size, educational background, experience, income, etc. significantly affect profit efficiency among soybeans marketers. Several studies have been carried out on soybeans production, integration, utilization and acceptability. However, no specific research has been done on profit efficiency among soybean marketers in Benue and Nasarawa States, Nigeria. The specific objectives of this research are to estimate profit efficiency of soybean marketers in the study area and to analyse the effect of socioeconomic factors on profit efficiency among soybean marketers.

II. METHODOLOGY

This study was conducted in North Central States (Benue and Nasarawa States), Nigeria. Benue State is located between latitudes 6.5º and 8.5º N of the Equator and longitudes 7.5º and 10º E of the Greenwich Meridian. Benue State has a total land area of about 30,955km^2 and administratively it is divided into 23 Local government Areas (LGAs) and three Agricultural Zones (A, B and C). It has an estimated population of 5,741,815 inhabitants in 2016 (National Bureau of Statistics, 2017). Nasarawa lies between latitudes 7.45° and 9.25° N of the equator and between longitudes 7° and 9.37° E of the Greenwich Meridian. It has 13 LGAs and is also divided into three Agricultural Zones. Its land mass is 27,117km^2 and population of 2,523,395 inhabitants in 2016 (National Bureau of Statistics, 2017).

The two States have similar soil type, vegetation and climatic condition, with vast arable land for commercial farming, fishery development, wildlife and forestry conservation. Agriculture is the mainstay of the economy of the two States with over 70% of the population involved in subsistence and semi-subsistence agriculture. The States are major producer of food and cash crops like soybeans, cassava, yams, rice, maize and cowpea, cashew and oil palm. The sampling methods adopted include purposive, multi-stage and stratified sampling. In the first stage, the two states were stratified into three agricultural zones each. In the second stage, purposive selection of two LGAs from zone A and zone B and three LGAs were selected from zone C in Benue. Furthermore, purposive selection of two LGAs from northern and western zones and one LGA from southern zone of Nasarawa state was also done. In the third stage, the marketers were divided into producer marketers, wholesalers, retailers and small scale processors and 25% of them were proportionately selected according to the population of soybean marketers in the LGAs, bringing the total sample size of 481 respondents.Data for the study was collected by the use of structured questionnaire and analyzed using stochastic frontier profit function.

III. MODEL SPECIFICATIONS

➢ *Stochastic frontier profit function*

The explicit Cobb-Douglas functional form of the stochastic frontier profit model for the soybean marketers in the study area was specified as follows:

$$Ln\pi = \beta_0 + \beta_1 LnX_1 + \beta_2 LnX_2 + \beta_2 LnX_2 + \beta_3 LnX_3 + \beta_4 LnX_4 + \beta_5 LnX_5 + V_i - U_i \quad \text{..... (1)}$$

Where:
Ln = Natural logarithm to base 10
π = Total profit of the marketers (Naira).
βs = The parameters to be estimated.
X_1= cost of bagging (Naira)
X_2= cost of transport (Naira)
X_3= cost on market levies (Naira)
X_4= cost of soybean produce (Naira)
X_5= cost of storage (Naira)
V_i = Random errors which is assumed to be independently and identically distributed.
U_i = Non-negative random variable associated with technical inefficiency of production. This is assumed to be independently distributed such that U_i is obtained by truncation (at zero) of the normal distribution with variance δ^2 and mean U_i .

The inefficiency of production was modelled in terms of factors such as:

$$U_i = \sigma_0 + \sigma_1 Z_1 + \sigma_2 Z_2 + \sigma_3 Z_3 + \sigma_4 Z_4 + \sigma_5 Z_5 + \sigma_6 Z_6 + \sigma_7 Z_7 \quad \text{..... (2)}$$

Where:
σ = a vector of unknown parameters to be estimated.
Z_1= Sex (Dummy,1 if male; 0 otherwise)
Z_2 = age of soybeans marketers(years)
Z_3= Level of Education (number of years spent in formal education)
Z_4= household size (number of people living together in under a roof)
Z_5= Annual income (Naira)
Z_6= Marketing experience in Soybean (years)
Z_7= Membership of market association (Dummy,1 if member; 0 otherwise)

ISSN No:-2456-2165

IV. RESULTS AND DISCUSSION

- *Profit Efficiency of Soybean Marketers in the Study Area*

The analysis of the profit efficiency estimates was achieved through the Maximum Likelihood Estimation (MLE) and presented in table 1. Cobb-Douglass frontier profit model was adopted for analysis of the soybean marketers because it gives a better result in terms of efficiency when compared with result from other models attempted.

The result of the analysis revealed that 90.4% of soybean small scale processors had efficiency value of between 0.81 and 1.00. While 9.6% had efficiency value of between 0.61 and 0.80. The mean value of efficiency of processors stood at 0.467. This result implied that the small scale processors are operating at 46.7% of their potential. This is very low since there still 53.3% unused potential. The small scale processors need to tap into unused potential by adopting modern soybean processing facilities and methods. This result is below Abu *et al*. (2012) who realized average efficiency of 66.2% among sesame farmers in Nasarawa State, Nigeria.

The estimated profit efficiencies among soybean wholesalers showed that 54.7% of the sampled wholesalers had efficiencies of between 0.81 and 1.00, while 37.7% had efficiency range of between 0.61 and 0.80. Few wholesalers (5.7%) had efficiency value of between 0.41and 0.60. The mean efficiency of wholesalers stood at 0.8145. This implied that 81.45% level of market potential was explored by wholesalers. This result is below Ani *et al.* (2016) who recorded 90% and 138% mean efficiency among soybean marketers in Benue and Enugu States respectively. This is a pointer that the wholesalers are more efficient, though there is still 18.55% untapped profit potential.

Profit efficiency for Processors	**Frequency**	**%**
≤ 0.20	0	0.0
0.21 – 0.40	0	0.0
0.41 – 0.60	0	0.0
0.61 – 0.80	13	9.6
0.81 – 1.00	123	90.4
Total	**136**	**100**
Mean	0.4669	
Minimum	0.1034	
Maximum	0.8801	
Profit efficiency for Wholesalers	**Frequency**	**%**
≤ 0.20	0	0.0
0.21 – 0.40	1	1.9
0.41 – 0.60	3	5.7
0.61 – 0.80	20	37.7
0.81 – 1.00	29	54.7
Total	**53**	**100**
Mean	0.8145	
Minimum	0.3384	
Maximum	0.9334	
Profit efficiency for Retailers	**Frequency**	**%**
≤ 0.20	1	0.9
0.21 – 0.40	109	98.2
0.41 – 0.60	1	0.9
0.61 – 0.80	0	0.0
0.81 – 1.00	0	0.0
Total	**111**	**100**
Mean	0.2663	
Minimum	0.2129	
Maximum	0.4572	
Profit efficiency for Producers	**Frequency**	**%**
≤ 0.20	2	1.1
0.21 – 0.40	7	3.9
0.41 – 0.60	20	11.0
0.61 – 0.80	33	18.2

0.81 – 1.00	119	65.7
Total	**181**	**100**
Mean	0.7855	
Minimum	0.2014	
Maximum	0.9832	

Table 1:- Frequency Distribution of Profit Efficiency for the Marketers
Source: Field Survey, 2019

Majority (98.2%) of the sampled soybean retailers had efficiencies of between 0.21 and 0.40. The mean efficiency of soybeans retailers was 0.2663. This result revealed that value of efficiency for soybean retailers was 26.63% indicating a very poor performance since the retailers are operating far below the required level of efficiency, giving room for 73.37% unused capacity. The implication is that they are not making enough profit as required based on their capacity, hence they are inefficient marketers. This result contrast Shehu *et al.* (2010) where 95% average efficiency was realized among yam farmers in Benue State.

The result further revealed that 65.7% of soybean producer marketer had efficiency value between 0.81 and 1.00. Also 18.2% of producer marketers had efficiency value of between 0.61 and 0.80, followed by 11% with efficiency value of between 0.41 and 0.60. The mean efficiency of producer marketers was 0.786. This can be interpreted as 78.6% level of efficiency is being explored by the producer marketers in the study area. This indicated that most soybean producer marketers are operating at the threshold of profit efficiency. Though they are 21.4% below their full potential. Producer marketers need to improve their marketing skill to fully attain their maximum potentials. Similar result by Otitoju and Arene (2010) recorded 72.7% technical efficiency among soybean producers in Benue State, Nigeria.

In sum, the mean efficiencies of the four categories of soybean marketers are as follows: 46.7% for small scale processors, 81.5% for wholesalers, 26.6 for retailers and 78.6% for producer marketers. Comparably, we can conclude that soybeans wholesalers and producers marketers were more efficient marketers in the study area. The implication is that the wholesalers and producers are more efficient by making reasonable profit, reduce cost and have less exploitative tendency towards consumers and other marketers. However, soybean processors and retailers were inefficient marketers, which implied that they are under utilizing resources, under performing in terms of profit making and wasting cost.

- *Factors Influencing Profit Efficiency among the Soybeans Marketers*

The results of the inefficiency model were discussed in terms of significant of t-ratio and sign of coefficient of the parameters. The socio-economic attributes varies across all categories of soybean marketers in the study area. The result of this analysis was presented on table 2.

Variables	Parameter	Small-scale processors		Wholesalers		Retailers		Producer-marketers	
		Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
Constant	β_0	11.78878 (1.19891)	9.83293	27.98984 (1.01148)	27.67218	16.49602 (351.1039)	0.04698	10.23056 (0.53310)	19.1906
Bagging cost	β_1	-0.00712 (0.00759)	-0.93804	-0.03653 (0.06238)	-0.58561	-0.24395 (0.13461)	-1.81227*	-0.20913 (0.02753)	-7.5945***
Transport cost	β_2	0.33408 (0.08945)	3.73477***	-0.32376 (0.27167)	-1.19171	0.02498 (0.14267)	0.17511	0.11695 (0.04913)	2.38061**
Market levy	β_3	0.024094 (0.07066)	0.34099	0-61389 (0.22171)	2.76892***	0.10670 (0.08153)	1.30872	0.24701 (0.01989)	12.4141***
Cost of produce	β_4	-0.61432 (0.13415)	-0.04579	-2.14039 (0.22343)	-9.57957***	-0.67212 (0.16485)	-4.07721***	-0.07782 (0.03778)	-2.06000**
Storage cost	β_5	0.01899 (0.09726)	1.95338**	-0.06150 (0.05392)	-1.14047	0.02241 (0.01754)	1.27840	0.00200 (0.00671)	0.29894
Inefficiency effect									
Constant	X_0	0.49053 (0.34990)	1.40191	0.67532 (1.14930)	0.58758	1.41283 (351.1430)	0.00402	-2.76210 (1.27278)	-2.17014
Sex	X_1	-1.787311 (0.984636)	-1.815199*	1.14300 (0.88263)	1.29499	0.05428 (0.07472	0.72641	-0.11572 (0.22326)	-0.51831

Table 2:- Estimates of Cobb-Douglas Stochastic Profit Function among Soybean Marketers
Source: Field Survey, 2019

ISSN No:-2456-2165

Variables	Parameter	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
Age	X_2	-0.00667 (0.00669)	-0.99706	-0.11527 (0.04062)	-2.83778**	0.00285 (0.00756)	0.37734	0.01275 (0.02297)	0.55523
Years in school	X_3	-5.156828 (0.974218)	- 5.29329***	0.21078 (0.08658)	2.43442**	0.00666 (0.00819)	0.81230	-0.05844 (0.02579)	-2.26556**
Household size	X_4	0.01489 (0.01857)	0.80196	0.31257 (0.20841)	1.49979	-0.00754 (0.01861)	-0.40515	0.06939 (0.03221)	2.15480**
Annual income	X_5	0.000047 (0.000029)	1.58478	-0.00002 (0.00002)	-1.00500	-0.000001 (0.000001)	-1.31959	-0.000012 (0.000003)	-0.34066
Market experience	X_6	-0.02917 (0.01831)	-1.59353	-0.16659 (0.18915)	-0.88078	-0.00332 (0.01048)	-0.31647	0.11872 (0.35355)	3.35806***
Membership of association	X_7	-0.08334 (0.07413)	-1.12426	0.20223 (1.01005)	0.20021	0.08383 (0.08262)	1.01471	-0.56066 (0.28390)	-1.97485**
Sigma-square	δ^2	**0.10964 (0.01287)**	**8.52123**	**0.68218 (0.37059)**	**1.84076**	**0.13695 (0.01770)**	**0.77369**	**1.02194 (0.25791)**	**3.96244**
Gamma	**Y**	**0.01962 (0.07301)**	**0.26881**	**0.49296 (0.25305)**	**1.9481**	**0.16596 (38.07238)**	**0.00436**	**0.99687 (0.00128)**	**0.00078**

Table 2 continue
Source: Field Survey, 2019

Total Observation = 481
***Significant at 1%, ** significant at 5%, * significant at 10%. The figures in bracket are Standard Errors

Among soybean small scale processors, transport cost (3.73477) and storage cost (1.95338) were significant and positively affect profit efficiency. It implied that cost of transportation and storage increases in response to profit efficiency among processors. That is, as processor are making more profit, they expand the scale of operation making them to incure more cost. This result contrast Biye *et al.* (2018) where storage cost was signifant but negative among soybeans marketers in Gombe State, Nigeria. However, bagging cost, market levies and cost of produce were not significant probably because amount spent on such items by small scale processors was small in line with their scale of operations.

The inefficiency model indicated that two factors namely the sex of marketers and years spent in school significantly influence profit inefficiency among small scale processors. The Sex of marketer (-1.787311) was significant at 10% but negatively influence profit inefficiency. The inverse relationship of sex (dummy male=1 and female=0) with profit inefficiency implies that female processor are more efficient than their male counterpart. This is expected since female dominate processing sub-sector of agricultural value chain. This result conformed with Otitoju and Arene (2010) who found coefficient for sex to be significant and negative for soybean producer in Benue State, Nigeria.

The number of years spent in school (-5.156828) was significant at 1% and negatively related to profit inefficiency among small scale processors. This inverse relationship between education and profit inefficiency means that education increases profit efficiency of processors. This result is expected because education allow the marketers to know how to read and write and easily learn of new methods of processing and the resultant new products. However, this result contrasted Abu *et al.* (2012) where education positively impact inefficiency among sesame farmers in Nasarawa State, Nigeria.

For the soybean wholesalers, the result of the analysis revealed that two factors of the cost function, that is market levy and cost of produce significantly affects profit. While market levy (2.76892) was significant at 1% and positive, cost of produce (-9.57957) was significant at 1% but negatively affect profit. It implied that market levy is directly related to profit, meaning more profit attracts more levy, it is expected. However, cost of soybean produce was inversely related to profit, meaning that as more cost are incured in purchase of soybeans, profit decrease among wholesalers. It implied that as more cost is incured on purchase of produce, profit efficiency decreases probably due to improper management and combination of other input cost. However, this result confirmed Onya *et al.* (2016) who stated that transaction cost imposes extra cost burdens to the efficient conduct of the market.

The inefficiency effects indicated that two factors namely: age of marketers and years of schooling significantly influence profit inefficiency of wholesalers. However, sex of marketers, household size, income and membership of market association are not significant. The coefficient of age of marketers (-2.83778) was significant at 5% and negatively related to profit inefficiency. This could be interpreted that age of wholesaler is directly related to profit efficiency. This implied that as the wholesalers advance in age, their level of profit efficiency increases. This is expected since advance in age often comes with

experience. This finding agreed with Abu *et al*. (2012) where age was positively related to profit efficiency among sesame farmers. The years of schooling (2.43442) was significant at 5% and positively related to profit inefficiency among wholesalers. This result implied that increase in years of schooling decrease wholesalers profit efficiency. This could be attributed to desire by educated wholesalers to make excess profit at the expense of consumers and other marketers.

The result of the analysis of retailers revealed that cost of produce and bagging had significant effect on profit. Cost of produce (-4.07721) and bagging (-1.81227) were significant at 1% and 10% respectively but the both are negatively related to level of profit. That is, as costs of produce and bagging increases, profit efficiency decreases. This is expected since high cost usually decrease profit. However, cost of transport, market levy and cost of storage were not significant. As retailers, they usually buy and sell in smaller quantity. They hardly store, hence do not incure cost on storage and usually spend less on transport and market levy in line with their scale of practice as retailers.

The result of analysis of soybean producer marketers, revealed that four variables of the cost function (bagging, transport, levy and soybean produce) had significant effect on profit. Cost of bagging (-7.5945) and produce (-2.06000) were significant at 1% and 5% respectively, but negatively influence profit. That is high cost of bagging and produce will lead to low profit. This is expected since increases in cost usually lead to reduction in profit. However, transport cost (2.38061) and market levy (12.4141) were significant at 5% and 1% and positively affects profit. This implied that soybean producer marketers are paying more on transport and market levy as a result of increase in profit. It could be as a result of improper combination of other input cost.

Four factors of the inefficient effects were significantly related to profit inefficiency among producers marketers. These factors were years in school, household size, marketing experience and membership of market association. Years spent in school (-2.26556) and membership of market association (-1.97485) were significant at 5% but negatively related to profit inefficiency. It means that education and membership of market association directly influence profit efficiency. This result is expected, because educated producer should be more informed and innovative in the trade due their reading about best practices. This is in tandem with Shehu *et al* (2010) who realized that the coefficient of education was negative and significant among yam farmers in Benue State, Nigeria. Membership of market association was also directly related to profit efficiency. This result is expected due to share of knowledge and experience among members of market associations in line with Alkali (2017) where the coefficient of group membership was significant and positive among women soybean producers in Borno State, Nigeria.

The household size of soybean producer marketers (2.15480) and marketing experience (3.35806) were significant at 5% and 1% respectively and positively related to profit inefficiency. It implied that increase in household size is indirectly related to profit efficiency. That is, the higher the household size of soybeans producer marketer, the less profit efficient they will be. This agreed with Alkali (2017) who found coefficient of household size was positive and significant . The result also revealed that more marketing experience leads to profit inefficiency. This could be attributed to the desire by experienced producer marketer to make excess and exploitative profit at the expense of other market actors. This result disagreed with Abu *et al.* (2012) who noted that the coefficient of experience was negative among sesame farmers in Nasarawa State, Nigeria.

V. CONCLUSION AND RECOMMENDATIONS

Soybean marketing was influenced by socio-economic characteristics of the marketers. Soybean wholesalers and producer marketers were profit efficient, while small scale processors and retailers were inefficient in the study area. Among the small scale processors, transport cost (3.73477) and storage cost (1.95338) as well as sex (-1.787311) and years in school (-5.156828) had significant influence on efficiency. For the wholesalers, market levy (2.76892), cost of produce (-9.57957), age (-2.83778) and year in school (2.43442) had significant influence on profit efficiency. Among soybean retailers, the cost of produce (-4.07721) and bagging (-1.81227) were significantly related to profit. The result of producer marketers revealed that cost of bagging (-7.5945), transport (2.38061), market levy (12.4141) and cost of produce (-2.06000) significantly influence profit efficiency. Of the inefficient effect, years in school (-2.26556), membership of market association (-1.97485), household size (2.15480) and marketing experience (3.35806) had significant effect on profit efficiency.

The study recommend that government should provide social amenities such as motorable road, potable water and electricity which will assist soybeans processors, marketers and soybeans producing communities. Extension agents should teach soybean producers the best use of resources and input such as fertilizers and agrochemicals. The result of research on soybean processing and utilization should be disseminated by extension agent. This will encourage soybean production and consumption.

REFERENCES

[1]. Abah, E.O. and Abu O. (2020). Market Performance of Categorized Soybeans Marketers in Benue and Nasarawa States, Nigeia. *International Journal of Innovative Research and Development.* 9(2): 328-334
[2]. Abu, G.A., Ater, P.I. and Abah, D. (2012). Profit Efficiency among Sesame Farmers in Nasarawa State, Nigeria. *Current Research Journal of Social Sciences*. 4(4): 261-268.
[3]. Abu, O. (2012). Food Security in Nigeria and South Africa: Policies and Challenges. *Journal of Humanity and Ecology*. 38(1): 31-35.
[4]. Alkali, H. M. (2017). Analysis of Market Participation by Women Soybean Producers in Hawul Local Government Area of Borno State, Nigeria. M.Sc. thesis. Department of Agricultural Economics and Extension, University of Maiduguri, Nigeria. 74pp.
[5]. Amusat, A.S. and Ademola, A.O. (2013). Utilization of Soybean in Oniyo Community of Oyo State, Nigeria. *Global Journal of Science Frontier Research Agriculture and Veterinary.*13(7): 1-9.
[6]. Ani, D.P.(2015). Market Integration and Pricing Efficiency of Soybean in Benue and Enugu States, Nigeria .Ph.D. thesis. Department of Agricultural Economics, University of Nigeria, Nsukka, Nigeria.
[7]. Ani, D.P., Chidebelu, S.A.N. and Enete, A.A. (2016). Pricing Efficiency in Soybean Marketing: An Evaluation of Costs and Margins in Benue and Enugu States of Nigeria. *American Journal of Agricultural Science.* 3(4): 59-71.
[8]. Astewel, T. (2010). Analysis of Rice Profitability and Marketing Chain: The case of Fogera Woreda, South Gondar zone, Amhara National Regional State, Ethiopia. M.Sc. thesis. School of Graduate Studies of Haramaya University, Ethiopia. 133pp.
[9]. Biye, S.U., Mu'azu, L.Y. and Danladi, B.B. (2018). Economic Analysis of Soybeans Marketing in Billiri L.G.A. of Gombe State, Nigeria. *Scientific Paper Series Management, Economic Engineering in Agriculture and Rural Development.* 18(4): 59-64.
[10]. Izuchukwu, O. (2011). Analysis of the Contribution of Agricultural Sector on the Nigerian Economic Development. *World Review of Business Research.* 1(1): 191-200.
[11]. Musaka, M.C. (2016). Profit Efficiency of Groundnut Production: Evidence from Eastern Province of Zambia. *Journal of Economics and Sustainable Development.*7(8):38-53.
[12]. National Bureau of Statistics (2017). National Population Estimates. Demographic Statistics Bulletine. Retrieved from nigerianstat.gov.ng on 20/06/2019.
[13]. Nzima, W. M. and Dzanja, J. (2015). Efficiency of Soybean Markets in Malawi: Structure, Conduct and Performance Approach. *International Journal of Business and Social Science.*6(4): 162-170.
[14]. Onya, C.S., Oriala, S.E., Ejiba, I.V. and Okoronkwo, F.C. (2016). Market Participation and Value Chain of Cassava Farmer in Abia State. *Journal of Scientific Research and Reports.* 12(1): 1-11.
[15]. Otitoju, M.A. and Arene C.J. (2010). Constraints and Determinants of Technical Efficiency in Medium-scale Soybean Production in Benue State, Nigeria. *African Journal of Agriculture Research.*5(17): 2276-2280.
[16]. Shalma, H. J. (2014). Economic Analysis of Soya Bean Production under Sasakawa Global 2000 Project in Kaduna State, Nigeria. MSc. thesis. Department of Agricultural Economics, Ahmadu Bello University, Zaria, Nigeria.
[17]. Shehu, J.F., Iyortyer, J.T., Mshelia, S.I. and Jongur, A.A.U. (2010). Determinants of Yam Production and Technical Efficiency among Yam Farmers in Benue State, Nigeria. *Journal of Social Science*. 24(2): 143-148.
[18]. Tiri, G.D. and Ojoko. E.A. (2012). Analysis of the Structural Characteristics of Sweet Orange Market in Kano Metropolis. Proceedings of the 46 Annual Conference of the Agricultural Society of Nigeria 5th – 9th November, J.M. Jibrin, J.M *et al.* (Edited) Pp 134-138.
[19]. Zakeri.,M, and Lawal, A.T. (2012). Analysis of Marketing Efficiency of Onion Retail in Yankaba Market of Nasarawa Local Govt. Area of Kano, Nigeria. Proceedings of the 46 Annual Conference of the Agricultural Society of Nigeria 5th – 9th November, J.M. Jibrin, J.M *et al.* (Edited) Pp 643-649.