Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 14, Issue 3, 2014
PRINT ISSN 2284-7995, E-ISSN 2285-3952

DETERMINANTS OF MARKETING EFFICIENCY FOR PACKAGED WATER IN IMO STATE, NIGERIA: MAXIMIZING FIRMS ASSETS TO IMPROVE CONSUMER WELFARE

Ogbonnaya Ukeh OTEH[1], Etomchi Maria-stella, NJOKU[2]

[1]Michael Okpara University of Agriculture, Department of Marketing, Umudike; E-mail: ogboteh@gmail.com
[2]Michael Okpara University of Agriculture, Department of Agribusiness and Management, Umudike, Abia State, Nigeria; E-mail: mariastellanjoku@yahoo.co.uk

Corresponding author: ogboteh@gmail.com

Abstract

Competition is necessary for enhanced customer welfare and efficiency. This study focused on marketing efficiency of packaged water in Imo state Nigeria. It specifically examined the socio-economic profile of the respondents; levels of marketing efficiency of packaged water and its determinants. The study employed purposive and multistage sampling technique in the selection of location and respondents respectively from whom information were elicited. Analytically, descriptive statistics, schematic diagram and OLS multiple regression models were used. Results showed that the respondents were predominantly married male adults, with average household size of 7 persons. They were fairly educated and experienced in the business. The study further revealed that age, education, household size and income were the major determinants of marketing efficiency of packaged water marketing in the area. The result also showed that net income, marketing cost, and marketing margin were higher in urban area, which implies that marketer in semi-urban areas were operating below optimum efficiency levels. This study therefore suggested the need to incorporate integrated logistics management and marketing strategies as a measure to reduce unnecessary marketing costs; capacity enhancement programmes for marketers and improvement in infrastructural development as a means of addressing marketing efficiency and customer welfare.

Key words: *channel, cost, efficiency, marketing, marketing cost, marketing margin, water*

INTRODUCTION

Today, access to improved water supply is a major challenge in the world. Although significant progress has been recorded in terms of number but practically more than 780 million people globally lack access to improved drinking water sources (UNW-DWP, 2012) [45]. In Nigeria, the current water supply service coverage is 58 per cent, which covers only about 87 million people and implies that more about 73 million Nigerians lack access to potable water [33]. A development which has encourages alternative sources of improved water supply and distribution; and has opened up huge market opportunities for many businesses to package water in readily available sachets and bottles, competing side by side. Today, drinking of packaged water has become essentially part of our culture. According to NAFDAC (2014) [27], the daily consumption expenditure on water in Nigeria has hit 10 billion from 8 billion Naria in 2013.

The increase in demand for packaged water in recent times was bolstered by the rising health awareness among consumers, and the inadequate performance of public utilities providers which has led to lack of public supply of safe drinking water in the cities, nay rural areas. Rising disposable incomes, new launches (particularly cheaper domestic brands), promotional activities and increase in formal education have also impacted positively on the demand for packaged water (NADFAC, 2014) [27] [26]. Health issues are currently being used in advertisement to spur up demand for packaged water against demand for soft/mineral drinks. Interestingly, producers find this concept an irresistible business opportunity and social marketing platform to educate people about health and weight loss [47, 26]; thus giving bottled water an edge over most mineral drinks. The growth

in this industry is expected to rise in the forecasted period surpassing its total volume Compound Annual Growth Rate (CAGR) relapse of 7% between 2011 and 2012 (Euromonitor, 2012) [18].

Globally, packaged water market is expected to expand by more than 27% in the five-year period ending 2015 generating more than $126 billion in revenue. Although the industry has grown exponentially, it is yet to fully maximize its potential given that it is constrained by inefficient marketing system. The marketing of packaged water is characterized by poor marketing infrastructure, inadequate or low level of understanding of market requirements and supply chain related challenges that hinder prompt delivery of products. High cost of production is also another challenge which needs to be handled so as to reduce the number of people without access to safe and portable drinking water. These may have contributed to the reduction in the total volume Compound Annual Growth Rate (CAGR) of 7% in 2011 (Euromonitor, 2012) [18]. Marketing efficiency is considered to be a pre-requisite for prompt delivery of goods [38]. Prompt delivery of goods at a reasonable price is possible only when the market work in a competitive way; because absence of competition entrench inefficiency. It is expected that marketing efficiency will address the issue of efficiency and enhance overall welfare of consumers, since according to [46], there is no room for a firm which is inefficient and ineffective in marketing.

The degree of efficiency is often a criterion by which marketing systems are measured. [42] suggested that the objective of being efficient and effective is to get loyal customer at low marketing cost and consequently increase profit [36]. According to [2], marketing efficiency is necessary because consumers derive the greatest possible satisfaction at the least possible cost. To the consumer, marketing efficiency may mean getting his commodities at the lowest price while from the producer's perspective; it may imply selling at the highest price. For this study, marketing efficiency therefore refers to the movement of goods and services from the producers to consumers at the lowest price consistent with the provision of the service consumer's desire/demand [12].

The efficiency of the marketing system has a link with customer welfare and by implication overall economic development of a country. Efficiency is an important factor of productivity growth as well as stability of production especially in developing economies [21]. Its contributions to improved (agricultural) productivity and performance for the welfare and satisfaction of consumers have been highlighted in several studies and literature [*eg.* 4, 8, 6, 37, 1, 9].

Marketing efficiency and performance are often regarded as synonymous. They are hinged on the overall economic performance of a firm based on its marketing activities that result in cost and can affect its long run profitability. The extent of a firm's achievement of the above depends on the evaluation of marketing enterprises for structure, conduct and performance (S-C-P) framework; that percolates in the form of capital formation, investment, income and savings.

Many studies on marketing efficiency [*eg*., 6, 7, 10, 20] have focused on food related agricultural chain, and water is an extension in that conduit. The channel structure of packaged water market shared almost the same unique similarity with many agricultural markets. Only in a simplest marketing system will a producer sell directly to the final consumer, whose interest is pivotal to the demand for improve marketing efficiency.

It is in view of this that this study considers it imperative to look at the level of efficiency in the performance of marketing of packaged water in South-Eastern Nigeria with specific focus to (i) examine the marketing system and channel of packaged water in the study area; (ii) determine the levels of marketing efficiency and profitability of packaged water; and estimate the determinants of marketing efficiency of packaged water in the study area.

Theoretical Framework

Water is an essential commodity of life, hence it is important that it should be available to

consumers at the right place, right time, right price, in the right quality and quantity. Unfortunately, this is not the case as millions of people around the world lack access to portable drinking water, which raises serious concern among development experts and authorities. The zeal to improve access to safe drinking water has driven private businesses to exploit the gap in demand and supply for safe drinking water to package and distribute water in readily available sachets and other formats. Marketing therefore serves as a sort of a gearbox, which makes a profitable connection between demand and supply for products. According to [5] marketing systems play a decisive role in vibrant economies as mechanisms for both exchange (necessary for specialization and hence leads to higher economic growth) functions and the proper coordination of the exchange (through price signals) which reflect and shape producer and consumer incentives in supply and demand interaction. If small scale domestic producers are to take advantage of the projected domestic demand growth, then marketing systems in the supply chains linking producers to consumers must be able to support low of cost production and timely delivery of the product. According to [43], the primary aim of being efficient and effective is to get loyal customers at low marketing costs.

Unfortunately, it will be impossible to achieve the above glorious results without serious competition. Competition has an influence on firm's ability to effectively manage its resources. According to [38] competition in marketing is desirable for the reason of customer welfare and efficiency. In terms of customer welfare, it hands control to consumers and coerces sellers to offer an ever lower price in order to attract sales [19]. Furthermore, it optimizes marketing performance by addressing those constraints to efficient service delivery and marketing system. Increasing access to safe drinking water will be impossible without efficient marketing system, because, marketing efficiency is considered a pre-requisite for prompt delivery of goods. Prompt delivery of goods at a reasonable price is possible only if the market works in a competitive way – allowing traders freedom to exercise their actions.

Despite the enormous contributions of marketing to customer welfare, many criticize and argue that marketing activities increase cost, and as such are inefficient, wasteful and costly. The cumulative effect of this justifies a study on marketing efficiency.

The concept of marketing efficiency can be approached from three different perspectives, which include:

(i)Maximization of input-output ratio

Among the early scholars that follow this perspective include [25, 11, 42]. Marketing efficiency was analyzed by [25] on the basis of optimizing behaviour of economic agents. It is the maximization of input-output ratio, output being consumer's satisfaction and input as labour, capital and management that marketing firms employed in the productive process. In this light, marketing efficiency is seen as the ratio of marketing output divided by the input.

(ii)Competition or effective market structure

According to [38] the three components of effectiveness, cost and their effect on performance on marketing functions and services which in turn affect production and consumption constitute marketing efficiency. To [24] marketing efficiency signifies the effectiveness or competence with which market structure performs its designated functions. The desirability of competition in promoting the operation of the markets, customer welfare, and productivity is no longer in doubt [38, 46]. Accordingly, when you destroy competition, you are invariably encouraging inefficiency. [46] opined that in a competitive market, there is no room for any firm which is inefficient and ineffective in marketing.

(iii)Lower price spread or marketing margin

The higher the price spread, the greater the inefficiency in the marketing system and a minimum price spread denotes an efficient marketing system. One can consider a marketing system efficient if it performs the following functions as observed by [41],

(a)An adequate marketable surplus to be ensured.
(b)Prevalence of lower price spread.
(c)Accessibility of agricultural inputs to be ensured to farmers at a reasonable price.

In practice, it is difficult to delineate a clear area of stoppage among these approaches because they are all relevant and intertwined. But the challenge lies on the acceptable balance of measurement for marketing inputs in delivering goods promptly. [35] mentioned marketing margin or farm to retail, price spread, and market integration as two major ways of measuring marketing efficiency in a given competitive market. This study adopts the same view - marketing margin analysis. This choice is sequel to the nature, type and length of channels through which packaged water passes. This margin method makes calculation of price spread less complex. This is consistent with the one adopted by [14].

Marketing margin is the difference between the product's value and retail price. It represents payments for all marketing activities such as assembling, processing, transporting and retail charges added to the products [15]. It is powered by marketing cost. The earliest attempt to evaluate performance focused on the cost of inputs used in the marketing process. Although, there is lack of precision in the use of cost as a measurement for performance, here, cost is seen in relation to returns on investment. Again, marketing margin usually suggest a cost-effective approach to measure performance. The notion of cost-effectiveness was first suggested by [17], who first used the term economic efficiency – net output per unit of input.

Marketing costs are measured in terms of marketing margin which simply reflect the share of the consumers currency that is required to cover the cost incurred in the marketing process [14]. It is total cost incurred on marketing by producer – seller and by the various intermediaries involved in the sale and purchase of the commodity till the commodity reaches the ultimate consumer [2].

MATERIALS AND METHODS

The study area was Imo state. Imo state is situated in the south eastern geopolitical zone of Nigeria. The state lies between latitude 4^0 45^1 and 7^0 15^1 north of equator as well as between longitude 6^0 50^1 and 7^0 25^0 east of Greenwich meridian. It is therefore in the tropical rainforest zone. The state parades many rivers such as Imo, Otamiri, Njaba and Urashi while the major lakes are Oguta lake in Oguta Local Government Area and Abadaba in Obowo Local Government area. The vegetation of the state, which was normally forest, has reduced to secondary vegetation and palm bush, otherwise known as low forest. In the northern part of the state along rivers banks, the vegetation is a rich savanna and tropical rainforest [28]. It has estimated population of 3.9 million with a growth rate of 2.8% per annual and the population density varies from 230-1, 400 people per square kilometer (IMSPEC, 2004) [22].

The opportunities opened by the increasing demand for improved water quality have opened the window for many businesses to open factories in the state. At present there are more than 20 registered packaged water factories in Imo state, Nigeria.

To realize the objective of the study, purposive and multi-stage random sampling techniques were employed. The first stage, involved the purposive selection of three local government areas (LGAs), one from each of the three zones in the State. For this purpose, Okigwe was chosen for Okigwe zone, Owerri-North was selected for Owerri zone and Orlu was picked for Orlu zone. These choices were informed by the nature of products understudy and the cosmopolitan nature of these cities. The second stage involved random samplying of 40 respondents from trade unions identified in the LGAs under study. This aggregated to 120 respondents used for this study. The respondents are traders of packaged water in the study area

Analytical Procedures

According to [44], four methods can be used to measure marketing efficiency. They include Shepherd's method; Acharya and

Aggarwal's method; Composite Method and Marketing Efficiency Index method.

Shepherd Method:

ME= (V/I) – 1 .....……..... (1)

Where V= value added by marketing activities (value of goods sold)

I = total marketing cost

Acharya and Aggarwal's method:

E = (O/I) x 100 or Nets price received by the traders

Marketing cost + marketing margin …… .....(2)

Where E is marketing efficiency; O is output of the marketing system and I is cost of marketing including margin of intermediaries.

Composite Method:

$MEI = R_j/N_j$ ……..... (3)

In this method, the percentage of producer's price, marketing cost and marketing margin to consumer's price are calculated and these are assigned ranks.

Marketing Efficiency Index method

ME = 1 + (marketing margin / marketing cost)

……. ..... (4)

In estimating marketing efficiency, this study tried three methods [*equations 1, 2, and 4]*. As per the formulas, higher values/ratio denotes higher level of efficiency and vice versa [44, 2, 16, 39].

In order to calculate marketing costs, which are measured in terms of marketing margin, the study employed

$C = C_f + C_{m1} + C_{m2} + C_{m3} + \ldots\ldots C_{mi} \ldots$ (5)

Where

C = total cost of marketing of the commodity,

C_f = cost incurred by the producer from the time the product leaves the factory and

C_{mi}= cost incurred by the i^{th} middleman in the process of buying and selling the product.

This formula followed the one adopted by [2, 7].

In the analysis of determinants of efficiency four functional forms of multiple regression models were tried. The implicit form was stated as follows:

$Y = f(X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7$ ……..... (6)

Where: Y =Marketing efficiency (%)

X_1 = Age (years)

X_2 = Education (years)

X_3 = Household size (No of persons)

X_4 = monthly Income (Naira)

X_5 = Marketing cost per bottle (Naira)

X_6 =marketing margin per bottle (Naira)

X_7 = Membership of marketers/ traders unit/ (1 for members and 0 for non members)

e_1 = sample error term

Four functional forms of multiple regressions were employed in order to select the one that provided the best fit. The forms included linear, double-log (Cobb Douglas), semi-log and exponential. The choice of which to adopt depended on the magnitude of the R^2 value, the significance and sign of the regression coefficient as they conform to *a prior* expectation. This method is consistent with the [13], who employed same in their study.

RESULTS AND DISCUSSIONS

Marketing Channel for Packaged Water in the Study Area

The complex network of participants in the marketing system of packaged water include: the factories from which goods moved to others – depot, sales force, traders/distributors, wholesalers, retailers, hawkers down to the final consumer. These people were necessary in fulfilling the four basic marketing system alternative goals: maximizing consumption, customer satisfaction, and choice and life quality. The nature of water compounds the task of marketing intermediaries, making their task more demanding and complex. Therefore, efficiency of the marketing system in enhancing the prompt delivery of goods cannot be overemphasized.

The emphasis on marketing channel and system analysis is to show the systematic linkages in performing marketing functions

and cost spread in moving water from the producer to the consumer and the quantity of services rendered to facilitate the flow. This study identified the following target markets for packaged water in the study area: 1.School children, 2.Workers, 3.Business places, 4.Worship centers, 5.Market places, 6.Eateries and local restaurants and hotels, 7.Formal gathering events, 8.Parties and celebrations.

Table 1.Socio-economic characteristics of the respondents in Imo State, Nigeria

Variables	Frequency	(percentage)
Age (years)		
20 – 29	14	11.67
30 – 39	58	28.33
40 – 49	29	24.17
50 – Above	19	15.83
Total	120	100
Education level		
No formal education	17	14.17
Primary education	45	37.50
Secondary education	53	44.17
Tertiary education	5	4.16
Total	120	100
Household size		
1 - 5	55	45.83
6 - 10	47	39.17
11 - Above	18	15.00
Total	120	100
Trading experience		
1 -10	65	54.17
11- 20	42	35.00
21 - 30	11	9.17
31 – Above	2	1.66
Total	120	100
Marital status		
Single	20	16.67
Married	78	65.00
Divorced	9	7.50
Widowed	13	10.83
Total	120	100
Sex		
Male	69	57.50
Female	51	42.50
Total	120	100

Source: Computed from Field Survey, 2013.

Socio-Economic Profile of Respondents

Table 1 showed that the traders were mostly males. About 52.5% were mainly within the age range of 30-49 years. This implies that the traders are very active and fall within the productive age bracket. Majority were married with a mean household size of 7 persons per household. This implies that the traders have fairly large household sizes. They have had formal education as well as marketing experience ranging from 1-20 years. The implication is that the area was dominated by literates, with reasonable trading experience to manage their business effectively. The level of education attained not only increases productivity but also enhances the ability to understand and adopt methods of operations [32, 3]. This result is consistent with the findings of [34], that male processors were technically more efficient than their female counterparts.

Estimates of Marketing Efficiency and Profitability

Table 2 and 3 shows that the net marketing margin (Naira) ranged from N0.90 in Orlu local government to N3.46 in Owerri-North on per bottle basis. The margin was highest in Owerri-North probably because that local government area is predominantly urban area where turnover rates are high due to increased

demand emanating from population density, than in Okigwe and Orlu local government areas where demand for packaged water is less. Urban areas were mostly inhabited by people who prefer portable and safe drinking water and as such, it was not surprising that the margin was high there also. However, Orlu is greater as per marketing efficiency using Acharya and Aggrawal's method; It was highest in Okigwe using Shepherd's method and the average marketing efficiency was also highest in Owerri-North (2.84) and lowest in Orlu local government (2.28).

Table 2. Estimate of marketing efficiency of packaged water in Imo State, Nigeria

LGA	TR (₦)	TC (₦)	AR (₦)	AC (₦)	MM (₦)	MC (₦)	NM (₦)	ME (Acharya and Aggrawal Method)
Owerri-North	368,561	301,082	113.11	105.55	7.56	4.10	3.46	8.70
Okigwe	296,007	265,978	104.25	99.61	4.64	3.50	1.14	11.81
Orlu	302,296	296,096	103.91	99.51	4.40	3.45	0.90	12.24
Total	966,864	863,156	321.27	304.67	16.60	11.05	5.50	

Source: computed from field survey, 2013

NB: TSP/TR = Total Selling Price; TCP/TC = Total Cost Price; ASP/AR = Average Selling Price; ACP/AC = Average Cost price; MM = Marketing Margin; MC = Marketing Cost; NM = Net margin; ME = Marketing Efficiency

Table 3. Estimate of Marketing efficiency of packaged water in Imo State

LGA	ME Shepherd's method	ME index method
Owerri-North	26.59	2.84
Okigwe	28.76	2.33
Orlu	29.12	2.28

Source: Computed from field survey, 2013

The poor efficiency noticed in Owerri-North as shown in the table above is evidenced from the fact that total marketing cost was highest in this area. This result is in line with *a prior* expectation. An efficient market according to [2], when there is increase in competition, improve transportation system and improve customer relations. An efficient market also improve in response to demand and price change.

Determinants of Marketing Efficiency of Packaged Water

Four functional forms of multiple regression models were employed to estimate the determinants of marketing efficiency in the study area. The factors considered were Age (years), Educational level (years), Household size (No), Income (Naira), Marketing cost (Naira), Net margin (Naira), Membership of traders union (Dummy). The result of the analysis was presented in Table 4.

On the basis of statistical and econometric criteria such as R^2, F-Ratio, the number and signs of significant variables, the double log functional form gave the best fit and was chosen as the lead equation. The R^2 value indicated that the variable explained 73% variability in efficiency among traders sampled. The f ratio was highly significant at 1% indicating regression of best fit. At various levels, the coefficients of age, education, household size and income were statistically significant, while membership of union and net marketing margin is not significant, which suggest that they do not influence marketing efficiency in the study area.

The coefficient of age (-0.030) had negative sign and was significant at 1.0 percent level. This conforms to *a priori* expectation. Increase in age, by implication, will bring about decrease in marketing efficiency of packaged water. This result is inconsistent with the findings of [29] that increase in age leads to increase in marketing efficiency.

In terms of education, there was positive relationship between marketing efficiency and education. The coefficient of education (0.252) was positive and statistically significant at 1.0% risk level. The result implies that any 0.25% increase in education will engender 1% increase in marketing efficiency. This result is in agreement with the findings of [29] who observed that higher

level of education enables a marketer to process information and adopt innovation faster. The coefficient of household size (0.976) was positive and statistically significant at 1.0% risk level. In line with *a priori* expectation, large household sizes are virtually seen as advantage in terms of contributing to labour and as such, perceived as a source of cost reduction.

Table 4.Determinants of packaged water marketing efficiency

Variables	Linear	Double	Semilog	Exponential
Constant	-80.203	0.858 ***	0.001	0.784 ***
	(-0.350)	(8.455)	(0.274)	(5.896)
Age (X_1)	3.593	-0.030	1.021	0.006
	(13.662)***	(2.308) ***	(39.274) ***	(0.193)
Education (X_2)	0.249	0.252	0.001	0.002
	(0.604)	(3.073) ***	(0.101)	(0.186)
HH size (X_3)	0.003	0.976***	0.168***	0.001
	(0.942)	(6.550)	(2.730)	(-0.268)
Income (X_4)	5.869***	0.318***	0.894*	0.177***
	(27.942)	(4.282)	(1.989)	(2.931)
MC (X_5)	0.003***	-0.266	0.320**	0.011
	(7.912)	(1.589)	(2.256)	(0.071)
NM Margin (X_6)	0.010	0.010	0.038	0.894*
	(1.064)	(1.064)	(0.204)	(-1.989)
Membership(X_7)	0.156	0.104	0.040	0.140
	(0.623)	(0.538)	(0.507)	(1.638)
R^2	0.45	0.73	0.51	0.68
F-Ratio	12.85	23.85	19.79	21.69

Source: computed from field survey, 2013
N/B ***, ** &* represents significant levels at 10%, 5% and 1% respectively. Values in parenthesis are t-values.

Although, this outcome is in disagreement with the findings of [30] who opined that large household sizes impose pressure on family income. Consistent with *a priori* expectation, the coefficient of income was positive and statistically significant at 99% confidence level. Thus 3.185% increase in income contributes 1% increase in the marketing efficiency. This result consolidates the findings of [31] that had a similar outcome.

CONCLUSIONS

This study critically examined efficiency of packaged water marketing in Imo state, Nigeria. The study became necessary because of its contributions in enhancing the realization of the water component of millennium development goals (MDGs) of United Nations to which Nigeria is a signatory and improving customer overall welfare. Realizing this important goal requires an efficient marketing system that will match demand and supply in a balanced manner. The finding of this study that marketers in the semi urban areas are operating below optimum efficiency levels as depicted by efficiency index of Orlu and Okigwe local government areas is important in designing effective distribution strategies that will enhance greater access to water in these areas. The varied influence of age, education, household size and income on marketing

efficiency have huge implication for improving on economic well being of the marketer in the study areas. Therefore, this study suggests spread of education especially to marketers through capacity building seminars and workshop. There is also need to put in place a very robust and effective measure in order to eliminate wasteful marketing costs or competence of market structure. It is vital to note that if efficiency increases without a corresponding increase in effectiveness, the system has not succeeded in achieving anything. The link between education and productivity cannot be over emphasized; hence this study recommends periodic capacity building workshops and seminars for employees, distributors and marketers as a means of enhancing their productivity. Finally, the state of our infrastructure and other policies that inhibit smooth business operations and competition must be address by government. This has become necessary in order to reduce marketing cost occasioned by poor infrastructural development.

REFERENCES

[1]Abay, C., Miran, B., Gunden, C., 2004,
An analysis of Input Use Efficiency in tobacco production with respect to sustainability: The case study of Turkey, Journal of sustainable Agriculture Vol 24 (3) Pgs 123-126.

[2]Acharya, S.S., Agarwal, N.L., 2006, Agricultural Marketing in India. New Delhi: Oxford and IBH Publishing Co. Pvt. Ltd.

[3]Agwu, N.M., Nwachukwu, I. N., Onyeweaku, C. E. , Elekwa, A., Asoronye, C. N., 2008, Impacts and Determinants of Demand for Agribusiness Credit in Ebonyi State. Proceedings of the 42nd Conference of ASN held at EBSU Abakiliki, 19th-23rd October.

[4]Ali, M., Chaudry, M. A., 1990, "Inter Regional Farm Efficiency in Pakistan's Punjab: A Frontier Production Study", Journal of Agricultural Economics, 14: 45 – 60.

[5] Andrew, D., Jonathan, K., Colin, P., 2008,
Village Chickens in Household and National Economies. World development report.

[6]Ashok, P., Ali, F., Shah, M.M.K., 1995, Measurement of Economic Efficiency in Pakistani Agriculture, American Journal of Agriculture, 77: 675 685.

[7]Babu, D., Verma, N. K., 2010, Value Chains of Milk and Milks Products in Organized Sector of Tamil Nadu – A Comparative Analysis., Agricultural Economic Research Review. 23: 497-486

[8]Bravo-Ureta, B., Pinheiro, A., 1993, Efficiency Analysis of Developing Countries Agriculture: A review of the Frontier Function Literature Agriculture and Resource Economic Review 22 (1), 88-101.

[9]Chavas J.P., Petrie, R., Roth M., 2005, Farm House-hold Production Efficiency: Evidence from the Gambia. American Journal of Agricultural Economics 87(1) 160-179.

[10]Chahal, S.S., Gill, K.S., 1991, "Measurement of Marketing Efficiency in Farm Sector:
A Review", Indian Journal of Agricultural Marketing, 5(2,): 138-143.

[11]Charnes, A., Cooper, W.W., Rhodes, E., 1978, Measuring the Efficiency of Decision Making Units. European Journal of Operational Research, 3: 429-444.

[12]Crawford, I. M., 1997, Marketing and Agribusiness business Text 2. Food and Agricultural Organization's Publication

[13]Daniel, J. D., Sanda, A. A., Adebayo, E. F., 2010, Net Income Analysis and Efficiency Resource use among Cotton Farmers in the Southern Part of Adamawa State, Nigeria Agriculture and Biology Journal of North America, 1 (6): 1215-1222

[14] Downey, W.D., Erickson, S.P., 1987,
Agribusiness Management, McGraw Hill Inc.

[15]Elitzak, V., 1996, Food Cost Review, Agricultural Economics Review Report No. 729 (US Department of Agriculture, Washington, DC.)

[16]Emam, A. A., 2011, Evaluating Marketing Efficiency of Tomato in Khartoum State, Sudan, Journal of Agriculture and Social Science, 7:21-24

[17]Engel, N. H., 1941, Measurement of Economic and Marketing Efficiency, Journal of Marketing, 5 (April), 335 – 349

[18]Euromonitor International, 2012, Bottled Water in Nigeria.
http://www.euromonitor.com/bottled-water-in-nigeria/report: Aceesed on 5/09/2012.

[19] Fu W., 2003, Applying The Structure-Conduct-Performance Framework in the Media Industry Analysis. International Journal on Media Management. 5 (4) 275-284

[20]Gandhi, V. P., Namboodiri, N. V., 2002, Fruit and Vegetables Marketing and its Efficiency in India: A study of Wholesale Markets in the Ahmeddabad. www.iiranhd.ernt Accessed 10/10/08.

[21]Hazarika, C., Subramaniam, S. K., 1999,
"Estimation of Technical Efficiency in
Stochastic Frontier Prodcution Function Model" An Application to Tea Industry in Assan Industry. Agricultural Assan 54(2) 1-2.7

[22]Imo State Planning and Economic Commission (IMSPEC), 2004, Imo State Statistical Year Report, Owerri: Imo State Planning and Economic Commission.

[23]Iweke, C. C., 1987, Farmer Related Factors Influencing the Adoption of Innovation in Imo State.

Unpublished Ph.D Thesis. Department of Agricultural Extension, University of Nigeria, Nsukka.
[24]Jasdanwalla, Z. Y., 1966, Marketing Efficiency in Indian Agriculture, Bombay: Allied Publishers
[25] Kohls, R.L., Uhls, J.N., 1967, Marketing of Agricultural Products. Macmillan Publishing Company, New York.
[26] Klessing, L., Grossman, Z., 2004, Bottled Water Industry., accessed at www.academic.evergreen.edu/g/grossmaz/klessi11
[27]National Agency for Food and Drug Administration and Control (NAFDAC), 2014, N10bn Water Business Thrives in Nigeria Daily. Accessed on April 17, 2014 from www.punchng.com/news/n10bn-water-business-thrives-in-nigeria-daily-nafdac
[28] Nigeria Galleria, 2013, Imo State of Nigeria. Accessed from www.nigeriagalleria.com/Nigeria/States_Nigeria/Imo_State.html on 23/05/2013
[29]Nwachukwu, C., 2002, Economics of Yam Marketing in Umuahia Zones. Unpublished B. Agric Thesis. Department of Agricultural Economics, Michael Okapra University of Agriculture, Umudike. Abia State.
[30]Nwachukwu, I. N., Onyenweaku, C.E., 2007, Economics Efficiency of Fadama Telferia Production in Imo State, Nigeria. A Translog Profit Function Approach. Journal of Agricultural Research and Politicies, Nigeria. 2(4): 87-93.
[31]Nwachukwu, I. N., Ezeh, C.I., 2007, Impact of Selected Rural Development Programmes on Poverty Alleviation in Ikwuano L.G.A. of Abia State, Nigeria. African Journal of Food, Agricultural, Nutrition and Development, Kenya 7 (5): 1-17.
[32]Obasi, P. C., 1991, Resources Use Efficiecy in Food Crop Production; A case of the Owerri Agricultural zone of Imo State. M. Sc. Thesis University of Ibadan, Nigeria.
[33] Ochekpe, S., 2012, Can Nigeria Meet its Water Demand? National Mirrior Newpapers, February 2, 2013. Accessed from http://nationalmirroronline.net/new/can-nigeria-meet-its-water-demand/
[34]Okoye, A. C., Okoye, F. U., 2013, Determinants of Technical Efficiency of Traditional Cocoa Bean Processing in Ikwuano Local Government Area of Abia State. Nigeria Agricultural Journal, Vol. 44(1&2), pp. 118-125
[35]Prasad J., 1999, Encyclopedia of Agricultural Marketing, Vol. 6. Mittai Publication, New Delhi.
[36] Rust, R.T., Ambler, T., Carpenter, G.S., Kumar, V., Srivastava, R.K., 2004, Measuring Marketing Productivity: Current Knowledge and Future Directions. Journal of Marketing, 68: 76-89.
[37] Seyoum, E.T., Battase, G.E., Flemming, E.M., 1998, Technical Efficiency Productivity of Maize Producers in Eastern Ethiopia: A Study of Farmers within and outside the Sasakawa Global 2000 Project. Agricultural Economics, 19 341- 34
[38]Shaw, E. H., 1987, Marketing Efficiency and Performance: An Historical Analysis, Proceedings of the Third Conference on Historical Research in Marketing.
[39]Shepherd, G.S., 1965, MarketingFarm Products: Economic Analysis. Iowa College Press, Iowa, USA.
[40]Shehu, J.F; Tashikalma, A.K., Gabdo, G.H., 2007, Efficiency of Resource use in Small Scale Rain-Fed Upland Rice Production in Northwest Agricultural Zone of Adamawa State, Nigeria. 9th Annual National Conference of Nigeria Association of Agricultural Economics (NAAE) Held at ATBU, Bauchi, Nigeria.
[41]Singh, G.N, Singh, D .S., Rain, I. S., 1987, Agricultural Marketing in India, Analysis, Planning and Development, Chugh Publication, Allahabad, India.
[42]Sheth, J.N., Sisodia, R.S., Sharma, A., 2000, The Antecedents and Consequences of Customer-Centric Marketing. Journal of the Academy of Marketing Science, 28(1): 55-66.
[43]Sheth, J.N., Sisodea, R.S., Sharma, A., 2002, Marketing Productivity: Issues and Analysis. Journal of business Research. 55: 349-362.
[44]Thamizhselvan, K., Murugan, S. P., 2012, Marketing of Grapes in Thein District. International Journal of Marketing and Technology, 2(9):96-111
[45]UNW-DWP (United Nations Water Decade Programme on Capacity Development), 2012, MDG Update on Drinking Water and Sanitation. UNW-DPC's Quarterly magazine, May Issue No. 14
[46] Verma, H. V., 2013, Brand Management: Tesxt and Cases. New Delhi: Excel Books,
[47]Zenith International, 2008, Global Bottled Water. Zenith Annual Report.
www.zenithinternational.com Accessed 15/09/2008