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Assessment of Operational Efficiency Among Wholesalers and Retailers of Vegetables in Igalaland of Kogi State, Nigeria

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Abstract

Assessment of operational efficiency among wholesales and retailers is one of the many measures of market performance. The costs of operations are heightening by cost of transportation on the bad roads. Vegetables are perishable products and needs to be distributed as quickly as possible. The objective of the study is to assess the operational efficiency of vegetable distribution in Igala land of Kogi State. The wholesalers and retailers of vegetables from each of the three main markets of the commodity were randomly selected for the study. Analysis of data collected by use of questionnaire was accomplished through employing analytical models such as relative operational efficiency, operational efficiency coefficient, marketing margin and multiple regressions. Results showed that operational efficiency varied among the two classes of middlemen in the three markets and was significantly affected by experience, speed of distribution and total value of sales. Better results can be achieved if production and consumption are stimulated through efficient distribution system.

Key words: Assessment of operational efficiency; Operational efficiency; Operational efficiency coefficient; Multiple regression; Wholesalers and retailers of vegetable

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INTRODUCTION

For any business enterprise to be successful, it has to try all its possible best to satisfy the needs and wants of its customers efficiently and profitably. It means that the enterprise or the seller identifies the uses of its products and try to use an efficient distribution system to deliver the goods to the ultimate consumers at the right time, in the right quality at the right place and at the right prices (Kotler, 2004).

The steps that goods follow on the way to the consumers are made up of intermediaries (wholesalers and retailers). Only 10 percent of the dollar volumes of all goods to the ultimate consumer are made directly from the producer. Therefore the bulk of all products sold pass through these intermediaries (Jefkins, 2003). Similarly, vegetables sales are made through marketing intermediaries because of the large number of buyers.

Vegetable production is on the increase in most countries of the world, for instance, in Nigeria, vegetable growth rate stood at 2.18 percent between 1970 and 1980. It however increased to 5.7 percent between 1980 and 2000. Between 2000 and 2006, it rose to about 14.0 percent. Vegetable production constitutes about 4.64 percent of the total stable food production between 1970 and 2006 in Nigeria (CBN, 2007).

Vegetables are cultivated almost every where in Igala land of Kogi State; but these are largely grown, and also in commercial quantities along the river basin. Both river niger and river benue pass through Igala land. The rivers confluence between Lokoja and Shintaku, both towns in kogi state. Along the banks of these rivers, vegetables are grown in very large quantities. They are cultivated in several farm settlements along the basin of the rivers especially in Omala, Bassa, Ofu, Idah, Ibaji and

Dekina Local Government. Igala land consists of nine local government areas, all in Kogi State. Vegetables produced in the riverine areas are by far cheaper than those grown in the mainland. Not only are they cheaper, they are greener, fresher and of better quality than those from the mainland. Therefore, several dealers rush on daily basis to the river bank to meet farmers who sell vegetables on wholesale basis as early as 6.30am. These vegetables sold to wholesalers were harvested in the early hours of the same day. The products are transported from the farm by the wholesalers with pick-up vans and trucks to the retailers waiting in the various markets. Thus, the researcher intends to study the operational efficiency of vegetables distribution in Igala land of Kogi Stale with emphasis on spinarch distribution; that are grown along the river basin in Igala - land.

STATEMENT OF THE PROBLEM

Vegetables, especially spinarch are perishable products and may last effectively for only 24 hours, after which they dry up and become unusable.

Therefore, for distribution system to be efficient,the product need to get to the final users within 24 hours after the harvest by the farmers.

The cost of operations are heighten as wholesalers travel almost every day from their locations to the river basin where the farmers are and also travel to the market where the retailers are waiting for the product. It is the responsibility of retailers to transport the product to the market where the product is sold to the ultimate users,

The challenges facing the middlemen are how to hold an optimal level of stock on a daily basis. This is particularly so because there is the problem of surplus (gap from unsold) and Problem of shortage (gap from demand).

Also, the farmers have successfully passed the losses of the unsold items unto the middlemen. This is particularly true, because the farmers only harvest the product needed by the wholesalers and retailers. Anything that happens with the product after the sales becomes the responsibility of the middlemen.

Several customers find it difficult to obtain vegetables to buy in the evening hours especially from 6 p.m. There is no adequate storage facility; consequently the middlemen buy from the farmers as much quantity that can be sold the same day. Also, there is the problem of non standardized weight of measurement.

OBJECTIVES AND SIGNIFICANCE OF THE STUDY

The objectives of the study are to assess operational efficiency of wholesalers and retailers, estimate distribution costs and returns, and determine factors which affect operational efficiency in distribution of vegetable in Igala land of kogi state.

Wholesalers and retailers are important in the distribution of vegetables in Nigeria. Empirical information on operational efficiency will assist them in their day-to-day decisions to operate at levels that will bring about the desired efficiency in distribution management. Others utilize such information to foster their various interest. It is hoped that the study would add to the existing literature and also act as raw materials for anybody who would like to do more work in this area in future. Generally, it is intended to serve as a contribution to knowledge among middlemen, farmers, consumers, marketing scholars and practitioners at home and beyond.

VEGETABLES IN IGALA LAND

According to Tindall (1993), vegetables are those plants consumed in relatively small quantities as a side dish or a relish with staple food. Nutritionally, vegetables are important source of vitamins and minerals, especially A, C, Niacin, Riboflavin and Thiamine, and minerals such as calcium, iron as well as supplementing protein and calories (Udoh, 2005) and varieties of flavour to diet.

Vegetable distribution as form of enterprise has always been held in high esteem due to their special attributes, high cash value, more productivity, high quality foods, better employment opportunities and their suitability for small land holding. Vegetables distribution helps in increasing the income of both the wholesalers and retailers substantially. Though vegetables are seasoned, thus affecting consumption, availability in the market and quality; nevertheless they grown throughout the year along the bank of rivers niger and benue in igala land.

The Igalas have an unusually and richly endowed environment. They are within the middle belt of Nigeria which has an advantage of the climate of the drier savannah vegetation to the north and the wet forest regions to the south. This area lies within the warm humid climate zone of Nigeria also, due to the highly distinct wet dry season dichotomy with a rainfall of about 50” a year; it makes the mainland favourable for the farming of vegetables. However, the river basins are the most suitable environment for the cultivation of vegetable in Igala land. The soil is fertile and there is constant water along the bank of rivers niger and benue basins. The marketing of vegetables in igala land is a situation where the demand for the crop meets with the supply and hence is taken to those who need them. The distribution follows a process or definite order that goes thus:

1st. Matured vegetables are harvested by farmers from the farm settlements along the river bank. It is a process that requires more physical skills. Also, here, more of family manual labour is employed.

2nd. The harvested vegetables are separated from grasses (if any) by the farmers.

3rd. The roots of the harvested vegetables are washed

with water, and then tied together in bundles with rope by the farmers. Each bundles cost about one hundred naira.

4th. The bundles of vegetables are packed inside very large baskets by the wholesalers. A wholesaler may have as many baskets as he wishes to buy.

5th. The baskets of vegetables are loaded inside a waiting truck or pick—up van. Payment for loading is done by the wholesalers.

6th. The product is moved from the farm to the main market where the retailers are waiting.

7th. The bundles of vegetables are sold to retailers in bundles who in turn sells to final consumers in bits. A bit may cost ten naira or twenty naira depending on the quantity the consumer wants to buy. However, in most cases, the farmer also acts as the retailer for vegetables grown in the mainland. In this case, the product may be sold directly by the producer to the consumers.

METHODOLOGY

The area of study, Igala land of Kogi State is situated within latitude 6°30 and 7°40 east, (Oguagha, 2007) and has comparative advantage in producing vegetables. The population of the study includes the wholesalers and retailers of vegetables identified by Market Association Officials in Igala land of Kogi State. Consequently, the population of the study consists of 730 middlemen. Three main markets of vegetables namely, Dekina, Idah and Ankpa were judgementally selected. These are three federal constituencies in lgala land. From a survey conducted in the area, 35 regular wholesalers from Dekina, 23 wholesalers from Idah and 24 wholesalers from Ankpa were identified by Market Association officials. Also, 228 regular retailers were listed for Dekina, and the list for ldah and Ankpa contained 214 and 206 retailers respectively. An arithmetical formular has been used to arrive at the sample size of 400 (Ezirini, 2004).

$$n = \frac{N}{I + N(e^2)}$$

Where:

n = sample size

N= population

e = level of significance

$$n = \frac{730}{1 + 730(0.052^2)}$$

$= 400$

Based on the sample size, a random sample consisting of 45 wholesalers and 355 retailers were selected using an arithmetic formular below:

$$\frac{82}{730} \times 400 = 45 \text{ wholesalers}$$

$$\frac{648}{730} \times 400 = 355 \text{ retailers}$$

The wholesalers comprise 19 from Dekina market, and 13 each from Idah and Ankpa market, while 125 retailers were from Dekina market; 117 retailers from ldah and 113 retailers from Ankpa markets. Primary data collected through the use of questionnaire included costs of distribution and sales, and the socio economic characteristics of wholesalers and retailers.

Two approaches were used to assess the operational efficiency of wholesalers and retailers in the area.

The approach by Aihonsu and Akorede (2009) was used to find out whether the distribution is operationally efficient. This is given mathematically as:

ROE: $\frac{UP}{UC}$

Where:

ROE : relative operational efficiency for individual middlemen

UP= Unit price (#)

UC= unit cost (#)

Distribution is operationally efficient if ROE ≥ 1

The second approach is a measure of the impact of cost of marketing on sales or revenue of retailers and wholesalers. It is stated mathematically as:

OEC: $\frac{TACM}{TAS(R)}$

Where:

OEC : Operational efficiency coefficient

TACM= Total annual cost of marketing (#)

TAS (R) = Total annual sales or revenue (#)

High value is associated with high impact of cost on sales or revenue.

Net returns to wholesalers and retailers were estimated using the formula:

$NMM = GMM - \sum x_1$; $GMM = SP - PP$.

Where:

NMM = net marketing margin (#)

GMM = gross marketing margin (#)

x = cost of marketing (#)

SP = selling price (#)

PP = Purchase price (#)

Factors which affected operational efficiency were determined by use of a multiple regression model. Cost was used as proxy for operational efficiency as reduction in cost is synonymous with operational efficiency. Output in this case is assumed constant 'the explicit model is stated as:

$Op = a + b_1 x_1 + ... + b_8 x_8 + e$—linear.

Where:

Op = dependent variable (cost used as proxy for operational efficiency)

X_1 = age

X_2 = gender

X_3 = speed of distribution
X_4 = experience
X_5 = total value of sales (N)
X_6 = total value of investments (N)
X_7 = location of market
X_8 = education
a = intercept
b = coefficients
e = error term

RESULT AND DISCUSSIONS RELATIVE OPERATIONAL EFFICIENCY

Table 1 shows that the wholesalers and retailers in the three main markets of vegetables in Igala land were operationally efficient since the value of relative operational efficiency exceeded I in each case. Variations among wholesalers and retailers in each market reflect to some extent the nature of interactions among buyers and sellers, demand and supply of the commodity, nearness to sources of supply, resources utilization, and the level of waste.

The proportion of annual sales or revenue taken up by costs of marketing among wholesalers and retailers in Table 2 shows little variation within and between them. Transportation of goods constitute the bulk of the marketing cost.

Table1
Relative Operational Efficiency of Wholesalers and Retailers

Market	Wholesalers	Retailer
Dekina	1.3	1.4
Idah	1.2	1.2
Ankpa	1.4	1.5
Average	1.3	1.4

Sources: Research survey 2013

Table 2
Operational Efficiency Coefficient of Wholesalers and Retailers

Market	Wholesalers	Retailers
Dekina	0.8	0.7
Idal	0.9	0.8
Ankpa	0.7	0.8
Average	0.8	0.77

Source: researcher survey 2013

Returns to Wholesalers and Retailers

Average net return in the three markets shown in table 3 was higher for the retailers than wholesalers. Retailers paid higher purchase price than wholesalers since they purchase the items from the wholesalers. Also, the marketing cost was higher in wholesalers than the retailers. The turnover resulting from the economic of large scale selling by wholesalers could compensate for the low net return to them.

Table 3
Costs and Returns of one Basket of Vegetable Among Wholesales and Retailers

Market	Selling price #		Purchase price #		Marketing margin #		Marketing cost #		Net return #	
	Wholesaler	Retailer	Wholesaler	Retailer	Wholesaler	Retailer	Wholesaler	Retailer	Wholesaler	Retailer
Dekina	7500	9200	6000	7500	1500	1700	700	600	800	1100
Idah	7700	9300	6000	7700	1700	1600	800	700	900	900
Ankpa	7600	9200	6100	7600	1500	1600	750	750	750	850
Average	7600	9233	6033	7600	1566	1633	750	683	816	950

Source: researcher survey 2013

Table 4
Coefficients of Multiple Regression of Factors Affecting Operational Efficiency

Variables	Coefficient	Standard Error	t-value
Constant	-0.047	0.419	-0.113
x_1 Age	0.013	0.222	0.058
Gender	-0.192	0.159	-1.206
Speed of distribution	0.322	0.210	6.317
Experience	0.123	0.064	1.917
Total value of sales	0.955	0.471	20.580
Total value of investments	0.097	0.091	0.877
Location	-0.023	0.081	-0.286
Education	-0.045	0.0123	-0.363

Significant at five percent (.05%)

FACTORS AFFECTING OPERATIONAL EFFICIENCY

In table 4, coefficients of age, experience, total value of sales, speed of distribution and total value of investments are positive; while the remaining others are negative. Total value of sales, positively and significantly affected operational efficiency. This is an indication that an increase in total sales value also leads to an increase in operational efficiency. This implies that both price and quantity are important determinants of operational efficiency in the area.

The findings show that:

1st. The wholesalers and retailers in the three main markets of vegetables in Igala land were operationally efficient since the value of relative operation efficiency exceed 1 in each case.
2nd. Average net return in the three markets was higher for the retailers than wholesalers. Retailers paid higher purchase price than wholesalers since they purchase the items from wholesalers. Also, the marketing cost was higher in wholesaler than the retailers.
3rd. The coefficients of total value of sales, speed of distribution and total value of investments are positive, and therefore, significantly affected operational efficiency.
4th. Both price and quantity are important determinants of operational efficiency.

CONCLUSION AND RECOMMENDATIONS

In the Study, wholesalers and retailers in Igala land operated efficiently, notwithstanding the variation between them. This measure of performance is necessary but not sufficient. It is also necessary as in developed marketing systems to stimulate consumption and production through efficient distribution system. The marketing margins from the three markets were positive, indicating return on investment to marketing intermediaries.

To enhance the production and efficient distribution of vegetables in the study area, farmers and distributors should be assisted in putting in place storage facilities to help increase the storage life of the harvested vegetables and the problem of transportation should be eased to encourage vegetable marketers. Vegetable distribution in Igala land is a profitable enterprise and the entrepreneurs could still improve the level of their profitabi1ity: when given adequate incentives and skill in form of seminars and or workshops. Below are recommendations to help vegetable distributors increase operational efficiency:
1st. Obtain the product from the farmers as soon as they are harvested.
2nd. Obtain the product early enough, possibly during the early hours of the morning.
3rd. Ensure there is speed in distributing the product among the retailers and consumers.
4th. Purchase as much product from the farmers as you can sell on daily basis.
5th. Storage van can be purchased by wholesalers forming cooperative society.
6th. Bundles and bits can be translated into size and weights by obtaining a weighing machine.

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