



COMPARATIVE ANALYSIS OF TOMATO MARKETING IN KARNATAKA STATE OF INDIA AND KANO STATE OF NIGERIA

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ABSTRACT

This study was carried out with the aim of comparing the profitability of tomato marketing in Karnataka state of India and Kano state of Nigeria. A total of 120 tomato growers (60 from each study area) were sampled through random sampling method and interviewed with structured questionnaire. Farm budgeting (net marketing margin) and cost concept techniques as used in India were used to analyze the primary data. The study revealed that in both study areas of India and Nigeria, tomato produced passes through several intermediaries in different marketing channels with little or no value being added before reaching the end users. Therefore, farmers were forced to capture a lower share of profit margin. In India, the producer's share in consumer's rupee across the different marketing channels were found to be 85.50%, 82.14% and 75.68%; and 70.68%, 63.66% and 36.92%% for Nigeria. Hence, based on findings of these research, the hypothesis that marketing channels with higher number of intermediaries reduces the producer share in consumer's rupee holds true in both study areas and it is hereby accepted.

Keywords: India, Karnataka, Kano, Marketing Channels, Nigeria, Price spread, Producer's share in consumer's rupee, Tomato.

INTRODUCTION

Agricultural marketing plays a vital role in agricultural development which is a pre-requisite for development in other sectors and for the overall development of the economy (FAO, 2011). The agricultural marketing is defined as the operations involved in the movement of food and raw materials from the farmers to the final consumer and the effect of such operations on producers and middlemen. In India, there exists an elaborate and inter-connected system of agricultural produce markets through which the produce flows from the producer to the consumer. The market system in India comprises 30,000 rural primary markets, 7,000 wholesale assembling markets at the secondary stage and terminal distribution markets in every urban city or town, (Basavaraja *et al.*, 2008). An efficient marketing is an essential condition in the economy of all countries, in general and of agricultural countries, in particular (FAO, 2011). It definitely exerts a powerful influence on a country's production and consumption pattern. Marketing perhaps has its greatest and most enduring role to play in the economic changes in developing countries. An efficient internal marketing system for agricultural commodities holds the key for rural development and for meeting the challenges thrown up by explosive growth of population in developing countries. Marketing holds the key for agricultural development which could determine the quality of urban life. Hence, this academic research paper makes an attempt to study the marketing system in terms of marketable surplus, marketing channels and the likes. Furthermore, an attempt has been made



to analyses marketing cost, marketing margin, price spread and marketing efficiency in both countries of study (Adeoye *et al.*, 2013).

MATERIALS AND METHODS

Purposive sampling was used in selecting the study areas because of high tomato production and marketing activities, from India, Karnataka state, and from Nigeria, Kano state were purposively selected. About 6 villages were selected (3 from Karnataka and 3 from Nigeria) purposively for the study. The village names in Karnataka are Jathavara, Anemadugu and Manchenahalli and in Nigeria are Karfi, Kosawa and Kura Local Government areas, respectively.

A total of 120 tomato growers (60 from each study area) were selected randomly and used for the study.

Selection of Market Intermediaries

Sampled of 48 tomato marketers (12 from study area of India and 27 from study area of Nigeria) and 12 consumers (6 from each study area) were randomly sampled.

Analytical Techniques

The data collected was entered, cleaned, processed and analyzed using Microsoft excel and SPSS software. The analytical tools used include;

1. Farm budgeting and financial ratios: These include detailed analysis of cost and returns of tomato marketing such as; gross marketing margin, net marketing margin, marketing efficiency, price spread (value addition), producer's share in consumer's rupee were used to examine the marketing analysis.
2. Net Marketing Income (NMI) analysis: It is the difference between the gross marketing income (GMI) and total cost (TC) of production. It is mathematically represented as;

$$[NMI = GMI - TCP] \quad \dots (1)$$

But,

$$[TCM = TVC + TMC] \quad \dots (2)$$

3. The Gross Marketing Income (GMI): This is obtained by adding the total revenue generated by selling tomatoes produced by the farmers, value of home consumed, value of given as gift and value of the byproduct.
4. Total Fixed Cost (TFC): Obtained from the cost of all fixed items or inputs used by the farmer during production process.
5. Family labour income: It includes net income or loss plus imputed value of wages for the labour of farmer and his family.
6. Market business income: It is the gross income minus total expenses of production excluding wages of family labour, interest on owned and rental value of land. It is measure of the earnings of a farmer and his family for their capital investment, labour and managerial work. It can be expressed as:

$$FBI = \text{Family labour income} + \text{interest on working capital} + \text{rental value of land} \quad \dots (3)$$

7. Investment income: Net income + Rent of owned stand + Interest on fixed capital ... (4)

8. Measures of cost concepts: Cost analysis is important in the study of agricultural production and marketing because it provides a basis for financial decision making of to produce or not to produce and how much to invest and produce. Hence in this study, the method of evaluation and costing which have become conclusive in the field of farm management studies in India was adopted and as used by Sharma (2003) and Baharumshah *et al.* (1994). These concepts are explained as: These concepts are explained as:

- i. Cost A1:



- This covers all the expenses incurred by an owner operator (operation cost). It includes;
- ii. Cost A2:
This is the sum of Cost A1 and the rent paid for leased land as;
Cost A1 + Rent paid for leased land.
 - iii. Cost A = (Cost A1 + Cost A2) = Total Variable Costs (TVC)
 - iv. Cost B = Total Fixed Cost (TFC)
Cost A2 + Rental value of owned land + Interest on fixed capital
 - v. Cost C:
Cost B + imputed value of family labor

RESULTS AND DISCUSSION

Marketing Cost and Price Spread in Tomato Production

An in-depth study on Tomato marketing system is necessary to understand the bottlenecks and complexities with strong view of providing sustainable and efficient services in the movement of the produce from ultimate producer to the final consumer. It can also minimize the cost and maximizes benefits between all actors in the channels.

Exchange Rate for Indian rupee (Rs) to Nigerian Naira (NGN)

For the study area in Nigeria, all currency values in this study area were converted from Nigerian Naira (NGN) to Indian Rupee (Rs.) base on the official exchange rate as of the current date of data processing which was on the 21st of July, 2016. Table 1 below shows the average rate for Nigerian Naira (NGN) to Indian Rupee (INR) on 21st July, 2016

Table 1: Official Exchange Rate for Indian rupee (Rs) to Nigerian Naira (NGN), 2016

Indian Rupee (Rs)	Nigerian Naira (NGN)	Date
1 INR	4.53717 NGN	21/07/2016

Source: Exchange Rates UK; mid-market rates update 15/02/2016 (INR/NGN Currency Exchange History)

Distribution of Cost per Hectare in Different Size Groups

All cost realized by the farmers during tomato cultivation were computed within all the different farm size groups from both study areas of the two countries (India and Nigeria) respectively, and the contribution of each input used in the total cost was also computed in percentage.

In India, the cost of tomato production per hectare for the small-scale farmers is greater than that of the medium farmers which is also greater than that of the larger farmers group in the study area. The cost of cultivating tomato for small, medium and large groups of farmers was found to be Rs46010.2/ha, Rs.45477.4/ha and Rs.44993.0/ha. The sample average cost of tomato cultivation in the area was Rs.45493.5/ha.

Marketable Surplus

This high marketable surplus was due to the perishable nature of tomato that it cannot be stored for a long period of time. Hence, the farmers cultivated tomato mainly for sale in the market to generate profit (commercial purpose), which resulted in high marketable surplus for tomato in the study area. Result on Table 2 reveals that, the marketable surplus for the small, medium and large group of farmers was found to be, 324.45, 337.53 and 356.89 quintals per farm constituting (98.92%), (99.86%) and (99.29%) to their total Tomato production. The marketable surplus was also found to be lower in small group as compared to medium and large

farm size groups. This increase in marketable surplus from small to large farms was due to somewhat more production at large farms as well as less family consumption in comparison to small and medium farms. On sample average, the marketable surplus for Tomato production in the whole area was estimated as; 339.62 quintal constituting (99.36%) to total production.

Table 2: Marketable surplus for Tomatoes (Qtls) for study area of India

Particulars	Size of Farms Group			Sample Average
	Small	Medium	Large	
Total yield produced (Qtls)	328 (100)	338 (100)	359.46 (100)	341.82 (100)
Quantity used at home (Qtls)	1.68 (0.51)	0.21 (0.06)	0.78 (0.22)	0.89 (0.26)
Quantity given out as gift (Qtls)	1.87 (0.57)	0.26 (0.08)	1.79 (0.50)	1.31 (0.38)
Marketable Surplus (Qtls)	324.45 (98.92)	337.53 (99.86)	356.89 (99.29)	339.62 (99.36)

Note: Figures in the parenthesis indicates percentage in total share

Source: Field Survey, 2016

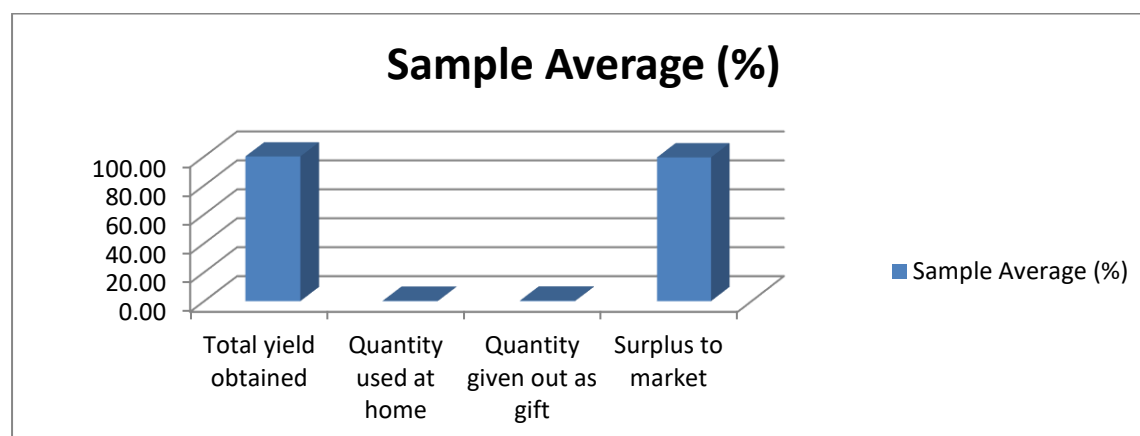


Figure 1: Sample average for *total yield obtained*, *quantity used*, *quantity given out as gift* and *marketable surplus* in study area of India

Source: Field Survey, 2016

This indicates that, the marketable surplus in small size group is less as compared to farms of medium and large size group (Table 2). So also, the percentage of marketable surplus to total production increased with an increase in the size of holding. Likewise, in Nigeria, study on marketing of any product is necessary in order to understand the problems and complexities involved in it with a strong view of providing an efficient service in the movement of the produce from ultimate producer to the final consumer with the sole objective of making profit. Hence, the surplus for tomato in the study area of Nigeria was found to be, 304.05, 248.95 and 237.55 quintals per farm constituting (98.85%), (73.65%) and (97.19%) to their total output. The marketable surplus was also found to be higher in the small group as compared to medium and large farm size groups. On sample average, the marketable surplus for Tomato production in the whole area was estimated as; 263.52 quintal constituting (97.84%) to total production

this disagree with the findings of Akinleye (2009) that food demand is higher than marketable surpluses. His findings can only be applicable to certain category of crops not a general perception on all food crops in northern Nigeria.

Table 3: Marketable surplus of Tomatoes (Qtls) for study area of Nigeria

Particulars	Size of Farms Group			Sample Average
	Small	Medium	Large	
Total yield obtained	307.69 (100)	338 (100)	244.41 (100)	269.33 (100)
Quantity used at home	0.68 (0.22)	2.31 (0.68)	1.97 (0.81)	1.65 (0.61)
Quantity given out as gift	2.87 (0.93)	4.71 (1.39)	4.89 (2.0)	4.16 (1.55)
Surplus to market	304.05 (98.85)	248.95 (73.65)	237.55 (97.19)	263.52 (97.84)

Source: Field survey, 2016

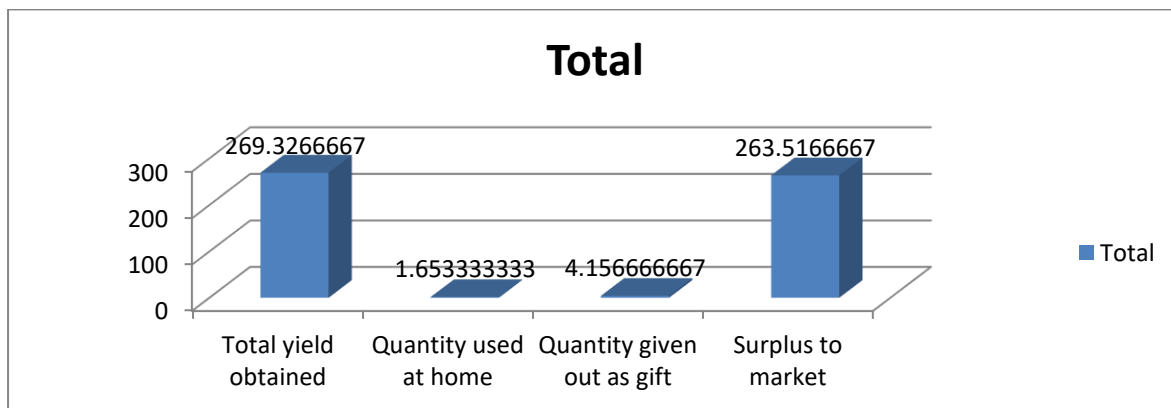


Figure 2: Sample average for *total yield obtained, quantity used, quantity given out as gift and marketable surplus study area of Nigeria*

Source: Field survey, 2016

Existing Tomato Marketing Channels in the study areas of India and Nigeria

In both study areas, three different types of marketing channels through which tomato from the study area passes from the producer to the ultimate consumer were being identified as:

Existing study area of India:

Channel 1; Producer – Consumer

Channel 2; Producer – Village trader (katchaarahatchia) – Wholesaler – Retailer – Consumer

Channel 3; Producer – Village trader (katchaarahatchia) – Retailer – Consumer

Existing study area of Nigeria:

Channel-I; Producer – Retailer – Consumer

Channel-II; Producer – Wholesaler – Retailer – Consumer

Channel-III; Producer – Village Assembler – Wholesaler – Retailer – Consumer



Estimated Marketing Cost, Marketing efficiency, and Price spread in Different Channels

Result obtained from the study area of Karnataka State of India (Table 4) reveals that, the total marketing cost, marketing margin, price spread, Producers share in consumer rupee and marketing efficiency in all the three marketing channels. The total market cost was higher in channel III (Rs.626.00) compared to channel-I (Rs.145.00) and channel-II (Rs. 305.00) respectively. A total marketing margin and price spread of Rs. 990.00 and Rs.1464.00 was realized in Channel II and III, respectively, which happens to be higher in channel-III than channel-II. This is because in channel-III there are four market intermediaries, where as in the channel-I and channel-II there is only one, and two market intermediaries. The producer share in consumer rupee was also higher in channel-I (85.50 %) than channel-II (82.14%) and channel-III (75.68%), respectively. Likewise, the marketing efficiency it was found to be higher in channel-I (5.90%) than channel-II (3.71%) and channel-III (1.56%), respectively.

Table 4: Marketing cost, marketing efficiency, and price spread for different channels in study area of India (Rs/qtls)

Particulars	Channel-I	Channel-II	Channel-III
Total marketing cost	145.00 (9.67)	305.00 (21.79)	626 (39.13)
Total marketing margins	-	990.00 (70.71)	1464.00 (91.5)
Price spread	145.00 (14.50)	1295.00 (92.5)	1426.00 (89.13)
Producer share in consumer rupee in %	85.50%	82.14%	75.68%
Marketing efficiency in %	5.90%	3.71%	1.56%

Note: Figures in parenthesis are % to total price paid by consumer

Source: Field survey, 2016

Table 5 shows result obtained from study are of Kano State in Nigeria and it reveals that, the total marketing cost, marketing margin, price spread, Producers share in consumer rupee and marketing efficiency in all the three marketing channels. The total market cost was higher in channel III (Rs.610.00) compared to channel-I (Rs.330.00) and channel-II (Rs.560.00) respectively. A total marketing margin and price spread are higher in channel-III and channel-II than channel-I. This is because in channel-III there are four intermediates, where as in the channel-I and channel-II there is only two and three intermediates. The producer share in consumer rupee was found to be higher in channel-I (70.68 %) than channel-II (63.66%) and channel-III (36.92%) respectively. Likewise, the marketing efficiency it was found to be higher in channel-I (3.19%) than channel-II (2.07%) and channel-III (1.82%), respectively this is in line with the findings of Abdullah *et at.* (2009).



Table 5: Marketing cost, marketing efficiency, and price spread for different channels in Nigeria

Particulars	Channel-I	Channel-II	Channel-III
Total marketing cost	330.00 (20.37)	560.00 (32.56)	610 (35.47)
Total marketing margins	640	854.00	2075
Price spread	650	1444	2825
Producer share in consumer rupee in %	70.68%	63.66%	36.92%
Marketing efficiency in %	3.91	2.07	1.82

Note: Figures in parenthesis are % to price paid by consumer
Source: Field survey, 2016

Hence, based on this study obtained, the hypothesis that marketing channels with higher number of intermediaries reduces the producer share in consumer's rupee holds true in both study areas and it is hereby accepted. This is in line with the report of Suryavanshi *et al.* (2006).

CONCLUSION AND RECOMMENDATION

It can be concluded that the profitability of tomato is higher in the study area of Nigeria as it had the highest Gross income and Net return (₦171,729.95/ha and ₦124,291.47/ha) to tomato production than in the study area of India (Rs.159,547.02/ha and Rs.114,053.50/ha) on an average. Hence, we can also see that there is a decrease in cost of production along the farm size groups from small, medium to the large group.

REFERENCES

- Abdullah, M. and Kalim, R. (2009). Determinants of food price inflation in Pakistan. *Paper presented in the conference of University of Management Sciences*, 1-21.
- Adeoye, I. B., DontsopNguezet, P. M., Amao, I. O. and Fajimi, F. O. (2013). Market Integration for Selected Vegetables in South – Eastern Nigeria. *International Journal of Vegetable Science*, 19(2): 99-108.
- Akinleye, S. O. (2009). Food Demand in Northern Nigeria: Implications for Food Policy. *Journal of Social Science*, 18(3): 209-215.
- Basavaraja, B, 1980, Economics of Karnataka hybrid tomato in Bangalore district. M.Sc. (Agri.) Thesis, (Unpublished), Univ. Agri. Sci., Bangalore.
- Baharumshah, A. Z. and Habibullah, M. S. (1994). Price efficiency in pepper markets in Malaysia; a co-integration analysis. *Indian J. Agril. Econ.*, 49(2): 205-216.
- FAOSTAT, FAO (2011). *Annual report on global tomato production*.
- Suryavanshi, B. P., Nagure, D. V., Yadav, M. U., Solanke, A. S. and Phuke, K. D. (2006). An economic analysis of tomato marketing in Latur District of Marathwada Region (M. S.). *Journal of Soils and Crops*, 16(1):135-138
- Singh, K. And Singh, R. V., 1999, Resource Use, Farm size and returns to scale in Indian Agriculture. *Indian J. Agril. Econ.*, 16(1): 32-46.
- Sharma, A. (2003) *Agriculture, trade and food security: A case study of India*. In: *WTO Agreement on Agriculture: The Implementation Experience (Developing Country Case Studies)*. Rome, Italy: Food and Agriculture Organization.