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ABSTRACT

The study was conducted to estimate marketing efficiency of agri-food along the agri-food supply chain in Tanzanian context. The study used time series data set of producer, wholesale and retail monthly prices of agri-food from 1981 to 2010 collected by the Ministry of Trade and Marketing, and National Bureau of Statistics in Tanzania. The Shepherd's Index formula was employed to estimates the marketing efficiency. The results revealed that chain IV of maize grains has highest marketing efficiency with magnitude of 29.05, followed by chain II (23.434), chain III (22.87255) and chain I (21.6167) respectively. The results also, show that chain IV of rice has highest marketing efficiency with magnitude of 27.69, followed by chain II (22.8557), chain III (22.51) and chain I (21.3822) respectively. The results for sorghum grains revealed that chain IV has the highest marketing efficiency with magnitude of 17.059, followed by chain II (14.7029), chain III (14.2914) and chain I (13.796) respectively. The results also, found that chain IV of wheat grains has the highest marketing efficiency with magnitude of 14.1656, followed by chain II (11.815685), chain III (11.0682) and chain I (10.7308) respectively. The results for dry beans showed that chain IV has the highest marketing efficiency with magnitude of 12.2483, followed by chain II (9.842), chain III (9.444) and chain I (8. 894), respectively. The highest marketing efficiency in chain IV was influenced by elimination of market intermediaries from the chain which reduces the marketing efficiency of agri-food along the agri-food supply chain.

Key words: Agri-food, Marketing efficiency, Supply chain, Tanzania.

1. INTRODUCTION

Marketing efficiency can be defined as the ratio of marketing output over input (Sheth et al. 2002). The efficiency of a marketing system is measured in terms of costs to the system of inputs (resources), to achieve a given amount of output. Analysis of marketing efficiency along the agri-food supply chain was carried out by employing Shepherd's index formula. The marketing efficiency of five agri-food grains, namely: - maize, rice, sorghum, wheat and dry beans were estimated through four supply chains. Chain I involved producers to wholesalers to retailers to final consumers, chain II involved producers to wholesalers to final consumers, chain III involved producers to retailers to final consumers and chain IV involved producers to final consumers. The period involved to calculate marketing efficiency is 30 years (360 months) of producers, wholesale, and retail monthly prices in Tanzanian context. The marketing costs involved were: grading, packing materials, loading and unloading, market levies, transportation, commission, and labour costs of filling food grains into bags. The study was conducted to measure marketing efficiency of agri-food along the agri-food supply in Tanzania. Moreover, the empirical study focused to bridge the knowledge gap in the marketing research of agri-foods.

2. METHODOLOGY

The time series data set (from 1981 to 2010) on producer, wholesale and retail monthly prices of agri-food commodities collected from agricultural commodity markets in 20 regions namely Dar-es-salaam, Arusha, Dodoma, Iringa, Mbeya, Morogoro, Kilimanjaro, Mwanza, Tabora, Tanga, Kagera, Pwani, Kigoma, Lindi, Mtwara, Mara, Shinyanga, Singida, Ruvuma and Rukwa were obtained from the Ministry of Industry, Trade and Marketing, and National Bureau of Statistics in Tanzania. However, in this study Shepherd's index formula developed by Shepherd (1965) was employed to measure the marketing efficiency of agri-food supply chain.

Shepherd's Index (SI) method

Shepherd's index formula can be depicted as:

$$ME = \frac{V}{I} - 1 \quad \ldots\ldots(1)$$

Where:

ME = Marketing Efficiency index

V = Value of goods sold in Tanzanian Shilling per kilogram (TZS/kg)

I = Total marketing cost in Tanzanian Shilling per kilogram (TZS/kg)

The higher the ratio, implies the higher the marketing efficiency and vice versa.

Producer share in consumer's price

It is the price received by the producer / farmer expressed as a percentage of the consumer price.

Producer share to consumer price can be calculated as expressed below:-

$$P_s = \left(\frac{P_f}{P_c} \right) * 100 \quad \ldots\ldots(2)$$

Farm gate price

It is the price received by the producer / farmer minus marketing cost borne by the producer / farmer at point of selling the produce.

Farm gate price can be calculated as:-

$$P_f = S_p - M_c \quad \ldots\ldots(3)$$

Where; P_s = producer share per consumer price (%), P_f = farm gate price paid to producers / farmers, (TZS/kg)

P_c = consumer price (price paid by consumers) (TZS/kg), S_p = Sale price (TZS/kg)

P_p = purchase price, M_c = marketing cost (TZS/kg).

Exchangeability of Tanzanian Shilling (TZS) into US$

1 US$ = 1400 TZS (2010 exchange rate).

3. RESULTS

Marketing efficiency of agri-food grains

The empirical results for marketing efficiency and producer share to consumer price of agri-food grains are presented in Table 1.

Table 1. Tanzania Mainland: Marketing efficiency of agri-food grains

Name of the product	Variable / channels	I	II	III	IV
Maize grains	Marketing efficiency	21.6167	23.434	22.87255	29. 05
	Producer share to consumer price	0.55 (55)	0.68 (68)	0.61 (61)	0.94 (94)
Rice	Marketing efficiency	21.3822	22. 8557	22.51	27. 69

	Producer share to consumer price	0.68 (68)	0.78 (78)	0.68 (68)	0.93 (93)
Sorghum grains	Marketing efficiency	13.796	14. 7029	14.2914	17. 059
	Producer share to consumer price	0.57 (57)	0.723 (72.3)	0.586 (58.6)	0.874 (87.4)
Wheat grains	Marketing efficiency	10.7308	11.815685	11.0682	14. 1656
	Producer share to consumer price	0.578 (57.8)	0.72 (72)	0.593 (59.3)	0.902 (90.2)
Dry beans	Marketing efficiency	8.984	9.842	9.444	12. 2483
	Producer share to consumer price	0.548 (54.8)	0.685 (68.5)	0.564 (56.4)	0.886 (88.6)

Note: Numbers in brackets are expressed in percentages

4. DISCUSSION

4.1 Marketing efficiency of maize grains

The results revealed that chain IV (producers to final consumers) of maize grains was the highest marketing efficiency of 29.05, followed by chain II (producers to wholesalers to final consumers) with marketing efficiency of 23.434, followed by chain III (producers to retailers to final consumers) with marketing efficiency of 22.87255 and lastly chain I (producers to wholesalers to retailers to final consumers), with marketing efficiency of 21.6167 (Table 1). The highest marketing efficiency in chain IV was influenced by elimination of market intermediaries from the chain which reduces the marketing efficiency of agri-food along the agri-food supply chain by a ratio of 5.616 to 7.4333. The producer share to consumer price was high in chain IV with the magnitude of 0.94 (94%), followed by chain II 0.68 (68%), chain III 0.61 (61%) and chain I 0.55 (55%) respectively (Table 1). The higher the producer share to consumer price in chain IV was due to the fact that market intermediaries who pocketed the producer share by 26% to 39% were eliminated along the maize grains supply chain.

4.2 Marketing efficiency of rice

The empirical results showed that chain IV (producers to final consumers) of rice was the highest marketing efficiency of 27.69, followed by chain II (producers to wholesalers to final consumers) with marketing efficiency of 22.8557, followed by chain III (producers to retailers to final consumers) with marketing efficiency of 22.51 and chain I (producers to wholesalers to retailers to final consumers) with marketing efficiency of 21.3822 (Table 1). The highest marketing efficiency in chain IV was influenced by elimination of market intermediaries from the chain which reduces the marketing efficiency by the ratio of 4.8343 to 6.3078 along the supply chain. The

producer share to consumer price was high in chain IV with the magnitude of 0.93 (93%), followed by chain II 0.78 (78%), chain III 0.68 (68%) and chain I 0.68 (68%) respectively (Table 1). The higher the producer share to consumer price in chain IV was due to the fact that market intermediaries who pocketed the producer share by 15% to 25% were eliminated along the rice supply chain.

4.3 Marketing efficiency of sorghum grains

The results revealed that chain IV (producers to final consumers) of sorghum grains was the highest marketing efficiency with magnitude of 17.059, followed by chain II (producers to wholesalers to final consumers) with marketing efficiency of 14.7029, chain III (producers to retailers to final consumers) with marketing efficiency of 14.2914 and chain I (producers to wholesalers to retailers to final consumers) with marketing efficiency of 13.796 (Table 1). The highest magnitude of marketing efficiency in chain IV was influenced by elimination of market intermediaries from the chain which reduces the marketing efficiency of agri-food by the ratio of 2.3561 to 3.263 along the supply chain. The producer share to consumer price was high in chain IV with the magnitude of 0.874 (87.4%), followed by chain II 0.723 (72.3%), chain III 0.586 (58.6%) and chain I 0.57 (57%) respectively (Table 1). The higher the producer share to consumer price in chain IV was due to the fact that market intermediaries who pocketed the producer share by 15.1% to 30.4% were eliminated along the sorghum grains supply chain.

4.4 Marketing efficiency of wheat grains

The results found that chain IV (producers to final consumers) of wheat grains was the highest marketing efficiency with magnitude of 14.1656, followed by chain II (producers to wholesalers to final consumers) with marketing efficiency of 11.815685, followed by chain III (producers to retailers to final consumers) with marketing efficiency of 11.0682 and lastly chain I(producers to wholesalers to retailers to final consumers) with marketing efficiency of 10.7308 (Table 1). The highest magnitude of marketing efficiency in chain IV was influenced by elimination of market intermediaries from the chain which reduces the marketing efficiency of agri-food by the ratio of 2.349915 to 3.4348 along the supply chain. The producer share to consumer price was high in chain IV with the magnitude of 0.902 (90.2%), followed by chain II 0.72 (72%), chain III 0.593 (59.3%) and chain I 0.578 (57.8%) respectively (Table 1). The higher the producer share to consumer price in chain IV was due to the fact that market intermediaries who pocketed the producer share by 18.2% to 32.4% were eliminated along the wheat grains supply chain.

4.5 Marketing efficiency of dry beans

The empirical results show that chain IV (producers to final consumers) was the highest marketing efficiency with magnitude of 12.2483, followed by chain II (producers to wholesalers to final consumers) with marketing efficiency of 9.842, followed by chain III (producers to retailers to final consumers) with marketing efficiency of 9.444 and chain I (producers to wholesalers to retailers to final consumers) with marketing efficiency of 8. 894 (Table 1). The highest magnitude of marketing efficiency in chain IV was influenced by elimination of marketing intermediaries from the chain which reduces the marketing efficiency by the ratio of 2.4063 to 3.3543. The producer share to consumer price was high in chain IV with the magnitude of 0.886 (88.6%), followed by chain II 0.685 (68.5%), chain III 0.564 (56.4%) and chain I 0.548 (54.8%) respectively (Table1). The higher the producer share to consumer price in chain IV was due to the fact that market intermediaries who pocketed the producer share by 20.1% to 33.8% were eliminated along the dry beans supply chain.

The similar results have reported by Massoud and Srinivasa (2012) for saffron marketing efficiency in Iran, Abdul et al. (2011) for apple marketing efficiency in Hamachal Pradesh, Jamu and Kashimir India. Barakade et al. (2011) for onion marketing efficiency in Satara district, Maharashtra India, Devi (2011) for fish marketing efficiency in Andhra Pradesh India. Sidhu et al. (2011) for green peas marketing efficiency in Punjab India, Ugwumba and Okoh (2010) for live-catfish marketing in Anambra state Nigeria. They pointed out that market intermediaries reduce marketing efficiency along the supply chain.

5. CONCLUSSION AND POLICY IMPLICATIONS

According to the empirical findings of the study market intermediaries reduce marketing efficiency of agri-food along the agri-food supply chain. Therefore, it is the role of the Tanzanian government to eliminate market intermediaries along the agri-food supply chain who pocketed the margins of agri-food producers. Moreover, producers could be able to maximize their margins if government intervened proactively in order to organize and streamline the marketing cooperatives unions whereby producers can use these unions to sell their produce at profit through spot and futures markets, and forward contract.

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REFERENCES

Abdul, R., Saraf, S.A and Wani, S.A. (2011). Economics of Production and Marketing of Apple in Himachal Pradesh, Jammu and Kashmir: A Comparative Study. *Indian Journal of Agricultural Marketing*. 25 (1): 97 – 119.

Barakade, A. J; Lokhande, T.N and Todkari, G.U. (2011). Economics of onion cultivation and marketing pattern in Satara District of Maharashtra, India. *International Journal of Agriculture Sciences.* 3 (3): 110-117.

Devi, P.U. (2011). Appraisal of Marketing Efficiency of Fish in Andhra Pradesh*. Indian Journal of Agricultural Marketing.* 25 (1): 88- 96.

Massoud, K. and Srinivasa, M.V. (2012). Marketing efficiency and Price spread for Saffron in Iran. *Journal of Trends in Agricultural Economics*. 5(1): 23-30.

Sidhu, R.S, Sidhu, M.S., and Singh, J.M. (2011). Marketing Efficiency of Green Peas under Different Supply Chains in Punjab. *Agricultural Economics Research Review*. 24: 267 -273.

Sheth, J.N., Sisodia, R.S and Sharma, A. (2002). Marketing efficiency: Issues and Analysis. *Journal of Business Research*. 55: 349-362.

Shepherd, G.S. (1965). *Farm Products-Economic Analysis.* Iowa State University Press, Iowa, USA. 254.

Ugwumba, C.O.A and Okoh, R.N. (2010). Price Spread and Determinants of catfish marketing income in Anambra state, Nigeria. *Journal of Agriculture and Social Sciences.* 6 (4): 73.78.