

ANALYSIS OF PRODUCER'S SHARE IN CONSUMER'S RUPEE IN MARKETING OF SELECTED VEGETABLE THROUGH DIFFERENT SUPPLY CHAINS.

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Abstract

Agriculture is the back bone of Indian economy as three fourth of Indian population depends on it for their livelihood. The demand for horticulture is increasing significantly as consumers have become more health consciousness and farmers shifting from low value cereal crops to high value horticulture crops especially fruits and vegetables. The post harvest losses were estimated to the tune of 35-40 % resulting reduced share of producer in consumer rupee. Presence of intermediaries also reduce the producers' share in consumers' rupee. Hence present study was conducted to analyze producers' share in consumers' rupee in marketing of vegetables in north Karnataka. For the study three supply chain formats namely Traditional, Cooperative and modern formats were selected. Five districts viz., Belagavi, Dharwad, Bijapur, Kalaburgi and Bellary districts were study areas. Total of total of 60 farmers, 4 intermediaries, 15 retail formats and 60 consumers were selected from all the supply chains operating in different districts under study. For the homogeneity, Cabbage, Carrot, capsicum and Tomato were selected as they dealt in large quantities in all supply chains under study. The results indicate that the producers 'share in consumers' rupee was found to be highest in marketing of vegetables through Modern Supply Chain in all the district under study. The Modern Supply chain in Bellary district imparted highest share for producers in marketing of tomato (96.67%). This was followed by Vijayapur, Belagavi, Kalaburgi and Dharwad Districts. Farmers prefer traditional supply chain though it is inefficient as they offer various facilities.

Key Words: Producer's Share, Marketing, Fruits & Vegetables, Supply chain Efficiency.

INTRODUCTION

Agriculture is the back bone of Indian economy as three fourth of Indian population depends on it for their livelihood. The sustenance of agriculture and allied sector is the only option for economic growth on large scale and on a sustainable basis. Agriculture industry continues to lives in medieval times and was operating at low scale with low productivity and high uncertainty despite the rapid growth in industrial and service sector.

In India, it is noticed change in consumption pattern from low value cereals to high value fruits and vegetables due to increased consciousness. As a result demand for horticulture crops particularly fruits and vegetables increasing and forcing farmers to cultivate vegetable crops. The Fruits and vegetables sector known for high productivity, higher returns, higher value addition prospects, scope for employment generation, opportunities for exports and adaptable to diverse climatic conditions. The horticulture crops found to have much higher input-output ratio than field crops. (**Baba *et al.*, 2010; Gaurav Sharma and Singh, 2011**).

The vegetable production in India contributes approximately 14.0 percent in the world production and stands second in world next to china with total production of 167 Million Tonnes (**NHB, 2015**). Karnataka is regarded as the “Cafeteria of Horticultural Crops”. During 2013, the Department of Horticulture, Government of Karnataka has accomplished distinction of being first in the country to launch program called **Suvarna Bhoomi Yojana (SBY)**, for motivating 0.25 million small and marginal farmers to transform their pattern of cultivation from growing low-value crops to high-value horticultural crops. At present in Karnataka horticulture crops occupy 1.87 Million Hectares of area with 17.80 million MT of production, accounting for 7.40% of horticultural production of the country.

Globalization of production and consumption due to economic reforms and liberalization in the Indian agriculture sector have reiterated the need for designing comprehensive supply chain model covering innovations at the farm level, that ensures sustainable profits under dynamic conditions (**Rao and Punwar, 2004, Sazzad Parwez, 2014**).

Agriculture supply chain is broadly categorized into these sub-systems; input supply, production, processing, sales and distribution to consumer, quality and safety measures. Integration between these components is negligible throughout the agriculture sector in the country. In practice most of the components act independently and flow of information between different components is missing or very poor. Due to lack of coordination between various subsystems, the agriculture system operates inefficiently at each stage of supply chain (**Sazzad Parwez, 2014**).

Although India has made tremendous progress in vegetable production and ranks second in the world next to China, unable to meet minimum requirement of 300gms of vegetables/day/capita. This can be attributed to adoption of ineffective supply chain, resulting into substantial post harvest loss to the tune of 25-35 per cent. This results in instability of prices in the market, improper remunerative prices to the producers, rural impoverishments culminating in farmers’ frustrations and suicide (**Shivashankar, 2014**). Major challenge is to reduce post harvest losses to enhance share of producer in consumer rupee by adopting improved supply chain practices.

The post harvest losses can be reduced by designing effective supply chain which assists farmers by providing cost effective cold storage facilities in markets and at farm levels, which increases shelf life

of horticulture produces. The value addition to horticultural crops is thrust area in order to maximize their returns. The wastages of fruits and vegetables reduced significantly by practicing advanced supply chain management in agriculture. This increases returns for producers on one hand and consumers by decrease in prices on the other hand (**Sajjad Parwez**). The study was conducted keeping these points in view with following objectives

1. To analyze producers' share in consumers' rupee in marketing of vegetables with different districts of North Karnataka.

REVIEW OF LITERATURE

Saurav Negi and Neeraj Anand (2016) concluded from the study on major issues and challenges of fruits & vegetables supply chain in Uttarakhand (India) that the problems pertaining to post-harvest losses and wastages were due to longthier and disintegrated supply chain, lack of proper transportation, inadequate cold chain facilities, dependency on intermediaries, poor marketing and distribution network, weak linkage between supply chain partners, inefficient mandi system, high cost of packaging, etc. due to which producers realize poor price and consumers pay unreasonable prices.

Jaiprakash Bisen (2015) the research was undertaken to study "Supply Chain Management in Fruit and Vegetable Markets in Hisar and Karnal district of Haryana State: A Comparative Analysis. They found that though the producers benefitted from modern supply chain but they faced major challenges such as lack of contracting agencies, inadequate standardization and grading facilities, unethical practices followed by intermediaries and non-availability of proper packaging materials, inadequate cold storage facilities in Traditional supply chain. Thus, development of market infrastructure to curtail the existing markets inefficiency, government should promote contract farming, direct marketing channels to minimize the gap between producer and consumer were some recommendations of the study.

Usha Rani Gori and Sheela Kharkwal (2016), carried out research to compare structure and performance of two major fruits and vegetables markets under Uttarakhand APMC. It is revealed from the study that the proportion of costs incurred by producers for marketing fruits and vegetables varied between 38 per cent and 58 per cent of the total cost incurred for marketing of different vegetables. Marketing efficiency index reported to be significantly high for marketing of potato, tomato and cabbage in Dehradun. Whereas, this index was high for apple in Haldwani arket. The price spread for Apple varied from 105 to 116%, while it was lowest in case of potato i.e., 58.81% in Dehradun market.

An exploratory study was conducted on supply chain management in vegetable marketing in Belgaum city of Karnataka (**Shivashankar, 2014**) and reported that the cost incurred by farmers for marketing of their produce in traditional and modern supply chains was Rs.1.6 per Kg and Rs.0.46 per

Kg respectively. Whereas, the marketing cost incurred by retailers were Rs.1.60 per Kg and Rs.0.80 per Kg of vegetable in traditional and modern supply chains respectively. The modern supply chain has recorded significantly highest net returns compared to traditional formats. The modern supply chain was found to be more efficient with lowest price spread of Rs. 4.10 per kg when compared to traditional formats having significantly highest price spread i.e., Rs. 8.31 per kg. He suggested the farmers based on the findings to trade vegetables through modern supply chain and even through cooperative supply chain like HOPCOMS, Safal etc.

Shilpa (2008) studied comparative analysis of different supply chains in vegetable marketing in Bangalore. The study involved three supply chain formats namely traditional supply chain, cooperative supply chain and modern supply chains. Sample size of 45 producers, 4 middlemen, 5 retail formats and 60 consumers were picked for the study and found that the average cost incurred for marketing per quintal of vegetables by farmers in traditional, cooperative and modern supply chain was Rs. 116.96 per quintal, Rs. 83.57 per quintal and Rs.42.86 per quintal respectively. This difference in marketing cost was due to presence of more middlemen in the chain resulting longer length of the chain. The index of marketing efficiency for traditional, cooperative and modern supply chain was estimated to be 1.97, 2.10 and 4.32 respectively. The study indicated that the farmers are advised to transact through modern supply chain and cooperative supply chain as they found to be efficient of less operational expenses and reduced wastages due to mechanical losses in the supply chain. As a result producers gain more prices to total gross marketing margins.

Research Methodology

The study was conducted in five districts of North Karnataka namely Dharwad, Belagavi, Vijayapur, Kalaburgi and Bellary. The widely practiced three supply chain formats by farmers were selected viz., Traditional, Cooperative and Modern Formats. In every district, sample size of a sample size of 20 farmers, 4 intermediaries, 5 traditional retail formats and 20 consumers from all three formats. Total of total of 60 farmers, 4 intermediaries, 15 retail formats and 60 consumers were selected from all the supply chains operating in different districts under study. Four vegetables namely carrot, cabbage, capsicum and tomato were selected for study.

Producer's Share in Consumer's Rupees

Producer's Share in Consumer's Rupee refers to the share of vegetable producers in consumer's rupee is dynamic and subject to change. There is positive relation exists between producer's share and marketing efficiency. Higher the producer's share greater would be the marketing efficiency or vice versa. This specifies the price received by the vegetable producer and indicated in percentage of rupee paid by the consumer's. It is estimated using the following formula;

$$F_s = (F_p / C_p) \times 100$$

Where, F_s = Farmer's share in consumer rupee (percentage)

F_p = Farmer's net selling price

C_p = consumer's price

Results and Discussion

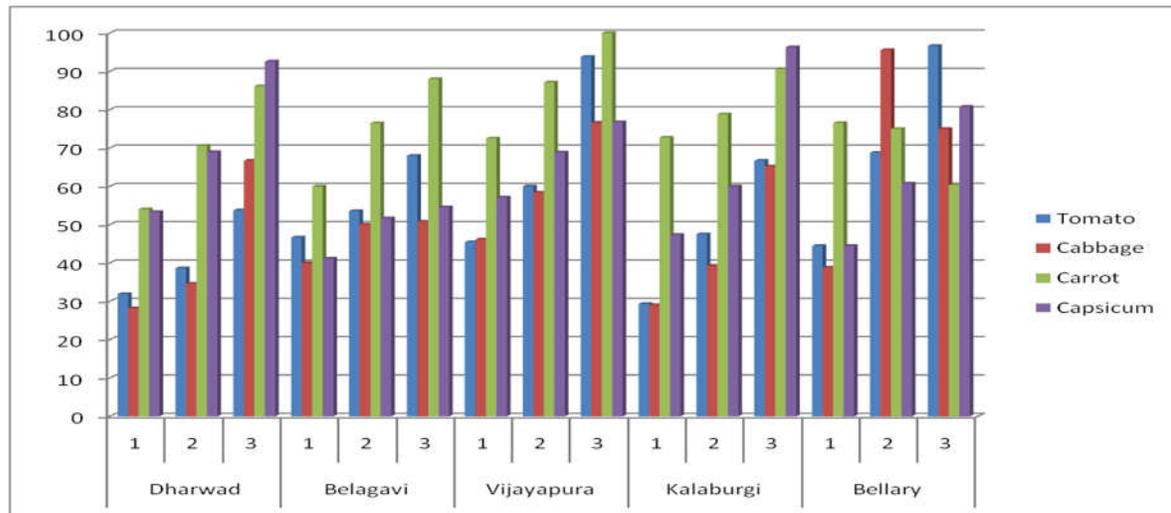
Table No.1.Producer's share in consumer's Rupee of selected Vegetables in different Supply Chain formats in North Karnataka

Sl. No	Vegetables	Dharwad			Belagavi			Vijayapura			Kalaburgi			Bellary		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1	Tomato	31.9	38.6	53.8	46.7	53.6	68.0	45.5	60.0	93.8	29.3	47.5	66.7	44.4	68.8	96.7
2	Cabbage	28.2	34.6	66.7	40.0	50.0	50.8	46.2	58.3	76.6	29.0	39.3	65.2	38.8	95.6	75.0
3	Carrot	54.1	70.6	86.2	60.0	76.5	88.0	72.5	87.1	100.0	72.7	78.8	90.6	76.5	75.0	60.3
4	Capsicum	53.3	69.0	92.6	41.2	51.7	54.6	57.1	68.8	76.7	47.4	60.0	96.3	44.4	60.7	80.7
	Average	43.4	53.3	74.8	47.5	58.9	64.9	57.7	70.6	86.1	46.4	58.2	82.00	51.7	64.0	87.0

The study was conducted in North Karnataka to analyze producers' share in consumers' rupee in marketing of vegetables through different districts of North Karnataka is presented in Table No.1 and Figure No.1.

The results indicate that the producers 'share in consumers' rupee was found to be highest in marketing of vegetables through Modern Supply Chain in all the district under study. The Modern Supply chain in Bellary district imparted highest share for producers in marketing of tomato (96.7%). This was followed by Vijayapur, Belagavi, Kalaburgi and Dharwad Districts. The cooperative supply chain (68.8%) and Traditional supply chain (44.4%) were next in order.

Figure No.1.Producers share in Consumers Rupee of selected Vegetables in different Supply Chain formats in North Karnataka



1. Traditional Supply Chain, 2.Cooperative Supply Chain, 3. Modern Supply Chain.

The marketing of capsicum through modern supply chain reported highest producers' share of 80.8% and Cabbage (75.0%). The realization of price by producers was highest as cost of marketing in modern supply chain is significantly low due to absence of intermediaries and reduced post harvest losses. Farmers prefer to trade their vegetables through traditional supply chain though it is inefficient as they offer various facilities. The inefficiencies in traditional supply chain could be attributed to higher total marketing cost resulting from intermediaries present in chain and also due to highest post harvest losses. In Bellary district, farmers prefer to trade through modern supply chain as they are aware of its importance in increasing their returns. The Bellary district is situated adjoining to Bangalore and closer to Hyderabad. Therefore more number of modern firms involve in buyback agreement with farmers and farmers enjoying the benefits of modern supply chains. These results corroborate the findings of **Shivashankar (2014)**, **Vinayakumar (2010)**.

In Vijayapur District, the producers recorded highest share in consumers' rupee (93.75%) from tomato trading in modern Supply chain. But their return was 100% from marketing of Carrot. The producers' share in Consumers rupee in marketing of cabbage was at par with capsicum. Next to modern supply chain, farmers preferred to sell their vegetables with cooperative supply chain. The increased efficiency of modern and supply chain could be due to reduced marketing cost as a result of absence of commission charges paid to various intermediaries operating in supply chain when compared to traditional format. Higher marketing efficiency of modern supply chain could be due to absence of intermediaries. The highest producer's share of modern and cooperative formats can also be due to reduced post harvest losses which enhanced the net profit of farmers. Similar results are also obtained by **Jaiprakash Bisen (2015)**.

The Producers' of Carrot and Tomato in Belagavi district received highest share in consumers' rupee i.e., 88.0% and 68.0 % respectively, due to reduced post harvest losses and absence of intermediaries. The percentage of producers' share in marketing of capsicum (54.6%) was at par with cabbage (50.8%). The next highest producers' share was found with cooperative supply chain and traditional supply chain with respect to all vegetables under study. This can be attributed to traditional supply chain which is lengthy channel due to involvement of large number of intermediaries at every level intern is imparting to total cost. This is not entertained in modern and cooperative supply chain formats. The results are in agreement with the outcome of **Shivashankar K (2014)**.

The trading of capsicum and carrot through modern supply chain were proved to impart highest share to producer in Kalaburgi district i.e., 90.6% and 96.3 % respectively. The producers' share of Tomato in modern supply chain was 66.7% and at par with Cabbage i.e., 66.7%. The cooperative supply chain recorded highest producers' share. Whereas, traditional supply chain was ineffective as marketing cost was highest due to presence of intermediaries. the producers' share in consumers' rupee has increased in modern supply chain owing to reduction of total cost which resulted into efficient supply chain. The results corroborate the findings of **Parthasarathi et al. (2014)**.

The producers' share in consumers' rupee was highest from marketing of capsicum through modern Supply chain in Dharwad district. Carrot (86.15%), Cabbage (66.67%) and Tomato (53.75%) were next in order. From the study it can be concluded that the modern format was proved to be most efficient with highest producers' share and smallest price spread which can be attributed to reduced cost on marketing of vegetables because of reduced length of the supply chain. Further the traditional format found to be inefficient with lowest producer's share and highest price spread due to involvement of numerous intermediaries. This results in lengthier supply chain and contributing for increased total marketing cost.

CONCLUSION

The study reveals that Majority of the farmers in all the districts marketed their produce through the traditional supply chain as they are situated near to their disposal and credit facility; though need to pay huge commission charges to the tune of 8 percent. This results in lowest percentage of producer's share when compared to modern supply chain. The awareness need to be created among producers about benefits of adopting modern supply chains. The modern supply chain help in reducing the total marketing cost through coordination and integration between various supply chain partners through sharing of information. Government bodies must establish cold storage and transportation facilities to reduce the losses and make the vegetables available to meet the demand.

Forward and backward integration is should be encouraged which help in sharing information of customers with suppliers and in turn meet the demand.

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