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Impact of Marketing Losses on Marketing Efficiency in Transacting Banana in Kurnool district

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ABSTRACT

Banana (*Musa Paradisiaca L*) is the fourth largest fruit crop cultivated in the World. India is the largest producer of banana in the world producing 28.45 million tonnes from an area of 0.796 million ha which accounted for 15.48 and 27.01 per cent of world's area and production respectively. In India, the leading banana growing states include Tamil Nadu, Gujarat, Maharashtra, Andhra Pradesh, Karnataka, Bihar, Madhya Pradesh, West Bengal, Assam and Odisha. In Andhra Pradesh, Kurnool district ranks third in the production of banana in Rayalaseema region of Andhra Pradesh. It was cultivated in 5765 hectares with an annual production of 2.01 lakh tonnes in the year 2012-13. This district was purposively selected for this in depth study, as the researcher hails from this area. A sample of two mandals, four villages and 120 sample farmers were selected for collection of requisite data using pre-tested schedule. For eliciting the information pertaining to the marketing aspects of banana in Kurnool district, three marketing channels were identified. Price spread analysis and marketing efficiency indices were worked out across the three marketing channels considering with and without marketing losses so as to analyze the impact of inclusion of marketing losses on price spread, FSCR, GMMs, NMMs and Marketing Efficiency Indices. The analysis revealed that, marketing efficiency indices were high without considering MLs compared to considering MLs indicating that, there exists inverse relationship between MLs and marketing efficiency in transacting banana in Kurnool district.

Key words : Gross Marketing Margins, Marketing Losses, Marketing costs, Net Marketing Margins.

Banana (*Musa paradisiaca L*) is the fourth largest fruit crop cultivated in the world. It is grown in more than 130 countries across the world with an area of 5.14 million ha producing 105.32 million tonnes of banana in the year 2011-12 Dadamiya *et al.,* (2005). India is largest producer of banana in the world producing 28.45 million tonnes from an area of 0.796 million ha with a productivity of 35.7 MT/ha and accounted for 15.48 and 27.01 per cent of the world's area and production respectively Radha *et al.,* (2006). India is succeeded by China and Philippines in the world in the production of banana and it accounts for nearly 32 percent of the total fruits production in the country (www.nhb.gov.in). The leading banana growing states in India includes Tamil Nadu, Gujarat, Maharashtra, Andhra Pradesh, Karnataka, Bihar, Madhya Pradesh, West Bengal, Assam and Odisha. In Andhra Pradesh, the major banana growing districts include East Godavari, Kadapa, Ananthapur, West Godavari, Viziayanagaram, Kurnool and Guntur. Kurnool district ranks third in the production of banana in Rayalaseema region of Andhra Pradesh. It was cultivated in 5765 hectares with an annual production of 2.01 lakh tonnes in the year 2012-13. In the agricultural year 2012-13, the district stood third in both in terms of area and production of banana in Rayalaseema region of Andhra Pradesh. In view of the potentiality of banana crop in Kurnool district, its economic analysis has assumed greater significance. However, not much of literature was available pertaining to the marketing aspects of banana cultivation in Rayalaseema region of Andhra Pradesh in general and in Kurnool district in particular. In view of this, an in-depth microscopic study on marketing aspects of banana cultivation was felt essential and this research paper was attempted in this direction to analyze the marketing efficiency in transacting banana in Kurnool district with the following specific objectives:

1. To identify the predominant marketing channels in transacting banana in Kurnool district.

2. To compute price spread and marketing efficiency in transacting banana considering without and with Marketing Losses (MLs).

MATERIAL AND METHODS

Kurnool district in Andhra Pradesh was purposively selected for the present study, as the district ranks third in position in Rayalaseema region under banana cultivation in the year 2012-13. All the mandals in the Kurnool district along with their banana cultivated area are listed out in descending order and top two mandals were selected viz., Mahanandi and Nandyal. In these two mandals, all the banana growing villages are arranged in descending order of the acreage under banana, and top two villages were studied. The selected villages were Bukkapuram and Thimmapuram from Mahanandi, Kothapalle and Nandyal Rural were selected from Nandyal mandal. The list of farmers growing banana in the selected villages was obtained. The farmers were stratified into Marginal (<1 ha), Small (1-2 ha) and other farmers (>2 ha) on the basis of their size of operational holding. From each of the selected villages, farmers in each size stratum were selected based on probability proportional to size. Thus, 60 marginal, 37 small and 23 other farmers constitute the total sample for the study. The total number of banana farmers selected for the study was 120. For eliciting the information pertaining to the marketing aspects of banana in Kurnool district, the following marketing agencies (Table 1) have been selected by employing simple random sampling technique.

Computation of price spread without considering MLs in transacting produce: Price spread refers to the difference between the price paid by the consumer or Consumer Purchase Price (CPP) and the net price received by the farmer or Farmers Net Selling Price (FNSP) for an equivalent quantity of commodity transacted throughout the marketing channel. The following formulae are employed to study price spread and other relevant parameters of marketing efficiency (Sarode, 2009)

Price spread = CPP – FNSP

or

Gross Marketing Margins (GMMs) of all market intermediaries + Mc incurred by the farmer

Total Marketing cost = Mc of farmer + " Mc_n

where, Mc_n = Marketing costs incurred by 'n' intermediaries n = 1, 2, 3……..n

$GMM_i = SP_i - PP_i$

Net Marketing $Margin_i$ $(NMM_i) = GMM_i - Mc_i$

Where,

SP_i = Selling Price of i^{th} intermediary

PP_i = Purchase Price of i^{th} intermediary

Mc_i = Marketing costs incurred by i^{th} intermediary

Table 1. Sample size pertaining to market intermediaries of banana.

Marketing Channel	Local exporter	Wholesaler	Retailer	Cart vendors	Juice holders	Consumers
Channel I	35	35	20			30
Channel II		30		25		30
Channel III					20	30

Table 2. Marketing channels followed by different sized farms in marketing of banana.

S.No	Size groups	Channel I	Channel II	Channel III	Total
1	Marginal	50(83.33)	10(16.67)	0(0.00)	60(100)
2	Small	8(21.62)	14(37.84)	15(40.54)	37(100)
3	Other	0(0.00)	18(78.26)	5(21.74)	23(100)
4	Total	58(48.33)	42(35.00)	20(16.67)	120(100)

Figures in parentheses indicate percentages to the respective column totals.

Table 3. Price spread in transacting banana by the sample farmers without considering MLs at different marketing agencies.

Items	Channel I Rs/ bunch (150 fingers)	Channel II Rs/ bunch (150 fingers)	Channel IIIRs/ bunch (84 fingers)
Farmer's Net Selling Price	255.71 (60.14)	267.33 (64.73)	307.57 (18.52)
Total Mc incurred by the farmer	-	50.17 (12.15)	-
Farmer's selling price / Local Exporter's purchase price / wholesaler's purchase price / Juice holders purchase price	255.71 (60.14)	317.50 (76.88)	307.57 (18.52)
Total Mc incurred by the Local Exporter	68.62 (16.14)	-	-
GMM of Local Exporter	89.57 (21.07)	-	-
NMM of Local Exporter	20.95 (4.93)	-	-
Local exporter's selling price / wholesaler's purchase price /juice holder's purchase price	345.29 (81.21)	317.50 (76.88)	307.57 (18.52)
Total Mc incurred by the Wholesaler	19.64 (4.62)	18.14 (4.39)	-
GMM of wholesaler	52.29 (12.30)	30.02 (7.27)	-
NMM of wholesaler	32.65 (7.68)	11.88 (2.87)	-
Wholesaler selling price / Retailer purchase price / Cart vendor purchase price / Juice holder purchase price	397.57 (93.51)	347.77 (84.21)	307.57 (18.52)
Total Mc incurred by the Retailer / Cart vendor / Juice holder	6.23 (1.47)	18.55 (4.49)	801.62 (48.26)
GMM of Retailer / Cart vendor / Juice holder	27.60 (6.49)	65.48 (15.85)	1353.44 (81.48)
NMM of Retailer / Cart vendor / Juice holder	21.37 (5.03)	46.93 (11.36)	551.82 (33.22)
Retailer's selling price / Cart vendors selling price / Juice holders selling price or Consumer's Purchase Price	425.17 (100.00)	413.00 (100.00)	1661.00 (100.00)

Figures in parentheses indicate percentages to the respective consumer's purchase price

Table 4. Indices of marketing efficiency in the selected marketing channels.

S.No	Method	Channel-I	Channel-II	Channel-III
1	Shepherd's method	4.50	4.75	2.07
2	Acharya's method	1.50	1.83	0.23

Computing price spread considering Marketing Losses (MLs) in transacting produce: In the above methodology, quantity and quality losses of produce were not taken into account during its downward movement in the marketing channels. This approach tends to overstate the FNSP, GMMs and NMMs of the intermediaries. However, MLs of produce during transactions between the agencies is inevitable considering perishability and bulkiness of produce on one hand and unscientific marketing facilities in transacting the produce on the other. So, this emphasise the importance of inclusion of the MLs of produce in the above analysis, as it enables the researcher to compute the marketing efficiency on realistic note. So, it is essential to modify the above given formula as follows:

Total Marketing cost (Mc) = Mc of farmer + (ML_f x FSP) + { Mc_i + (ML_i x SP_i)} + { Mc_j + (ML_j x SP_j)} + { Mc_k + (ML_k x SP_k)} + …….. + { Mc_n + (ML_n x SP_n)}
where,
FSP = Farmer's Selling Price
Mc_i, Mc_j, Mc_k…..Mc_n = Marketing costs incurred by i, j, k….. n market intermediaries respectively
SP_i, SP_j, SP_k….. SP_n = Selling Price of i, j, k….n market intermediaries respectively
GMM_i = SP_i – PP_i + (ML_i x SP_i)
NMM_i = GMM_i - Mc_i + (ML_i x SP_i)

Computation of Marketing Efficiency Index (MEI):

Without considering MLs: The following measures were employed to assess the MEI without considering MLs:

Shepherd's approach: MEI = (V/I) -1
where,
V = Value of commodity sold at the consumer's level or CPP
I = Mc incurred by all the agencies

Acharya's approach: MME = [FNSP / (Mc + MM)]
where,
MME = Modified Measure of Marketing Efficiency
FNSP = Farmer's Net Selling Price
Mc = Marketing cost incurred by all the intermediaries
MM = Marketing Margins incurred by all the intermediaries

Considering MLs down the marketing channel: Acharya's Modified Index (MEI) was employed to assess MEI considering MLs in transacting banana
MEI = FNSP/ (NMMs + Mc +MLs)
where,
Mc = Marketing costs incurred by all the intermediaries
MLs = Marketing Losses incurred

RESULTS AND DISCUSSION

Marketing channels: The following three important channels were identified in the marketing of banana in Kurnool district:

Channel-I
Producer '! Local-exporter '! Wholesaler '! Retailer '! Consumer
Channel-II
Producer '! Wholesaler '! Cart-vendor '! Consumer
Channel-III
Producer '! Juice-holder '! Consumer

Among the three marketing channels, the most commonly used marketing channel for transacting banana was Channel-I. This is evident from the Table 2, as 48.33 per cent of farmers sold their produce through this channel. The proportion of marginal and small farmers who used this channel for transacting banana was 83.33 and 21.62 per cents respectively. Channel II was followed by 35 percent of the total selected farmers. The proportion of marginal, small and other farmers following this channel was 16.67, 37.84 and 78.26 per cents respectively. Channel III was followed by only 16.67 percent of the total selected farmers and the proportion of small and other farmers following this channel was 40.54 and 21.74 per cents respectively.

Price Spread in Banana Marketing without considering MLs:

Channel-I: The details of Table 3 reveal that, the FSCR was 60.14 percent. In this channel, the farmer did not incur any marketing costs because, local exporter purchases the standing crop just before harvesting of produce. The local exporter incurred marketing costs of Rs. 68.62 per bunch (150 fingers) of banana and received a NMM of Rs. 20.95 per

Table 5. Price spread in transacting banana by the sample farmers considering MLs at different marketing agencies.

Items	Channel I Rs/ bunch (150 fingers)	Channel II Rs/ bunch (150 fingers)	Channel IIIRs/ bunch (84 fingers)
Farmer's Net Selling Price	255.71 (57.48)	263.52 (61.05)	307.57 (17.65)
Total Mc incurred by the farmer	-	64.31 (14.90)	-
Farmer's selling price / Local Exporter's purchase price / wholesaler's purchase price / Juice holders purchase price	255.71 (57.48)	327.83 (75.94)	307.57 (17.65)
Total Mc incurred by the Local Exporter	84.07 (18.90)	-	-
GMM of Local Exporter	100.43 (22.58)	-	
NMM of Local Exporter	16.36 (3.68)	-	-
Local exporter's selling price / wholesaler's purchase price /juice holder's purchase price	356.14 (80.06)	327.83 (75.94)	307.57 (17.65)
Total Mc incurred by the Wholesaler	31.81 (7.15)	25.53 (5.91)	-
GMM of wholesaler	53.86 (12.30)	34.50 (7.99)	-
NMM of wholesaler	22.05 (4.96)	8.97 (2.08)	-
Wholesaler selling price / Retailer purchase price / Cart vendor purchase price / Juice holder purchase price	410.00 (92.17)	362.33 (83.94)	307.57 (17.65)
Total Mc incurred by the Retailer / Cart vendor / Juice holder	26.25 (5.90)	40.05 (9.28)	906.18 (51.99)
GMM of Retailer / Cart vendor / Juice holder	34.83 (7.83)	69.34 (16.06)	1435.10 (82.35)
NMM of Retailer / Cart vendor / Juice holder	8.58 (1.93)	29.29 (6.78)	528.92 (30.35)
Retailer's selling price / Cart vendors selling price / Juice holders selling price or Consumer's Purchase Price	444.83 (100.00)	431.67 (100.00)	1742.67 (100.00)
Price spread or Total GMMs of all the agencies +Mc incurred by the farmer	189.12	168.15	1435.10
Acharya's Modified MEI (considering MLs)	1.35	1.57	0.21

Figures in parentheses indicate percentages to the respective consumer's purchase price

Table 6. Comparison of price spread and margins of intermediaries before and after considering MLs.

Items	Without considering marketing losses			Considering marketing losses		
	Channel IRs/ bunch	Channel IIRs/ bunch	Channel IIIRs/ bunch	Channel IRs/ bunch	Channel IIRs/ bunch	Channel IIIRs/ bunch
FNSP	255.71 (60.14)	267.33 (64.73)	307.57 (18.52)	255.71 (57.48)	263.52 (61.05)	307.57 (17.65)
Total Mc incurred by the farmer		50.17 (12.15)			64.31 (14.90)	
Farmer's selling price /Local Exporter's purchase price / wholesaler's purchase price / Juice holders purchase price	255.71 (60.14)	317.50 (76.88)	307.57 (18.52)	255.71 (57.48)	327.83 (75.94)	307.57 (17.65)
Total Mc incurred by the Local Exporter	68.62 (16.14)	-		84.07 (18.90)	-	
GMM of Local Exporter	89.57 (21.07)	-		100.43 (22.58)	-	
NMM of Local Exporter	20.95 (4.93)	-		16.36 (3.68)	-	
Local exporter's selling price / wholesaler's purchase price /juice holder's purchase price	345.29 (81.21)	317.50 (76.88)	307.57 (18.52)	356.14 (80.06)	327.83 (75.94)	307.57 (17.65)
Total Mc incurred by the Wholesaler	19.64 (4.62)	18.14 (4.39)		31.81 (7.15)	25.53 (5.91)	
GMM of wholesaler	52.29 (12.30)	30.02 (7.27)		53.86 (12.30)	34.50 (7.99)	
NMM of wholesaler	32.65 (7.68)	11.88 (2.87)		22.05 (4.96)	8.97 (2.08)	
Wholesaler selling price / retailer purchase price / Cart vendor purchase price / juice holder purchase price	397.57 (93.51)	347.77 (84.21)	307.57 (18.52)	410.00 (92.17)	362.33 (83.94)	307.57 (17.65)
Total Mc incurred by the Retailer / Cart vendor / Juice holder	6.23 (1.47)	18.55 (4.49)	801.62 (48.26)	26.25 (5.90)	40.05 (9.28)	906.18 (51.99)
GMM of Retailer / Cart vendor / juice holder	27.60 (6.49)	65.48 (15.85)	1353.44 (81.48)	34.83 (7.83)	69.34 (16.06)	1435.10 (82.35)
NMM of Retailer / Cart vendor / juice holder	21.37 (5.03)	46.93 (11.36)	551.82 (33.22)	8.58 (1.93)	29.29 (6.78)	528.92 (30.35)
Retailer's selling price / Cart vendors selling price / Juice holders selling price or Consumer purchase price	425.17 (100.00)	413.00 (100.00)	1661.00 (100.00)	444.83 (100.00)	431.67 (100.00)	1742.67 (100.00)
Price spread or Total GMMs of all the agencies +Mc incurred by the farmer	169.46	145.67	1353.43	189.12	168.15	1435.10
Shepherd's method	4.50	4.75	2.07	-	-	-
Acharya's method	1.50	1.83	0.23	-	-	-
Acharya's Modified MEI (considering MLs)	-	-	-	1.35	1.57	0.21

Figures in parentheses indicate percentages to the respective consumer's purchase price

bunch of banana from the wholesaler. The marketing costs, GMM and NMMs of the wholesaler were Rs. 19.64, Rs. 52.29 and Rs. 32.65 respectively per bunch of banana and the corresponding figures for retailer were Rs. 6.23, Rs. 27.60 and Rs. 21.37. The NMMs of the local exporter, wholesaler and retailer accounted for 4.93, 7.68 and 5.03 per cents of the consumer's rupee respectively.

Channel-II

The analysis of marketing costs and margins (Table 3) indicated that, the farmer realized a net selling price of Rs. 267.33 per bunch (150 fingers) of banana accounting for 64.73 percent of the price paid by the consumer. The marketing cost incurred by the farmer was Rs. 50.17. After deducting all expenses, the wholesaler earned a NMM of Rs. 11.88 which accounted for 2.87 percent of consumer's rupee. The cart vendor purchased banana at a price of Rs. 347.77 per bunch and sold to the consumer for a price of Rs. 413.00. In this process, he made NMM of Rs. 46.93 accounting for 11.36 percent of the consumer's rupee.

Channel III

The details of Table 3 revealed that, the FSCR was 18.52 per cent. In this channel, the farmer did not incur any marketing costs because, the juice holder purchases the standing crop just before harvesting of produce. The juice holder incurred marketing cost of Rs. 801.62 per bunch of banana and received a net price of Rs. 551.82 per bunch (84 fingers) of banana, which accounted for 33.22 per cent of consumer's rupee.

From the forgoing analysis, it can be inferred that the farmer was getting the highest share of CPP in Channel-II (64.73%) over Channel-I (60.14%) and Channel III (18.52%). Price spread is more in Channel-III (Rs. 1353.44) than Channel-I (Rs. 169.45) and Channel-II (Rs.145.67) indicating Channel-II was more efficient than Channel-I and Channel-III.

Marketing Efficiency

It is seen from the Table 4 that, the index of marketing efficiency was higher in channel-II i.e., 4.75 and 1.83 both in Shepherd's method and Acharya's method respectively indicating that channel-II was more efficient than channel-I and Channel-III. The inefficiency in channel-I was due to more number of market intermediaries and the inefficiency in channel III was due to higher marketing costs and margins involved in the marketing of banana.

Price spread in transacting banana considering MLs: It is evident from the Table 5 with the inclusion of MLs in the price spread analysis of banana in all the three Channels the Mc of all the intermediaries were increased and there by their FSCR and NMMs are on the decline. This infers that, without inclusion of MLs the FSCR and NMMs of all the intermediaries are overvalued. So, the inclusion of MLs in the price spread analysis reveals the true picture about marketing efficiency of banana in Kurnool district.

Impact of MLs on FNSP, Margins, Price spread and Efficiency

In general, the marketing costs and margin analysis do not explicitly consider the losses at different stages of marketing and hence these get absorbed in either the farmers' net margin or margins of the market intermediaries. This invariably overestimates the profit margins of the market intermediaries. An attempt was made here under, by separately accounting for the losses, for a more precise estimation of the marketing margins of the market intermediaries and farmers' net price.
FNSP: It can be seen from Table 6 that, the net price received by the farmers per bunch of banana was Rs. 267.33 in channel II when the marketing losses are not considered, but considering the marketing losses at farmer's level, the net price received by the farmer was slightly decreased to Rs. 263.52 But, in case of channel I and channel III, there is no change in FNSP because, in these two channels farmer did not incurred any marketing cost as the standing crop was directly purchased by the local exporter in channel I and by the juice holder in channel III just before harvesting the crop.

Margins of market intermediaries and price spread: It is noticed from the Table 6**,** in channel-I, the NMM of local exporter was Rs. 20.95 (4.93% of consumer's rupee) before considering losses but

after considering the losses the same was declined to Rs. 16.36 (3.68% of consumer's rupee). Same trend was observed in case of wholesaler and retailer, when the MLs were not considered the margins accounted for 7.68 and 5.03 per cent of consumer's rupee but considering the MLs the NMMs were decreased to 4.96 and 1.93 per cents respectively. The same trend was observed in channel-II and channel –III where the NMMs of wholesaler and cart vendor in channel II and juice holder in channel-III, were decreased when MLs were considered in computing price spread of banana. This shows that, the NMMs of all the intermediaries will decrease when MLs were taken into consideration. Price spread also increased in all the three Channels when MLs are considered in transacting banana (Sreenivasamurthy *et al.,* 2007).

Market efficiency: Regarding market efficiency indices, they are higher across the marketing channels considering without MLs when compared to considering MLs in transacting the produce. As considering MLs gives true in analyzing the marketing efficiency, the MEI computed by Acharya's modified MEI shows that, Channel-II is more efficient in transacting banana in Kurnool district. Though value addition of banana yields significant NMM to the juice holder, the same benefit was not realized at the farmer's level, as he sells raw produce to the juice holder. Thus considering the highest NMM of the juice holder and that too MLs at that intermediary level, the MEI recorded the lowest value. The prospects of value addition can be realized by the farmer, only when these processing facilities are available to him at nominal costs. So, it is high time on the part of the government to educate the farmers about the importance of value addition and provide processing facilities to them at nominal cost, so as to increase their FSCR.

Among the three marketing channels identified in transacting banana in Kurnool district, Channel--II was found to have higher MEI compared to Channel-I and Channel-III in both the cases of considering with and without MLs. In view of this, the government should construct approach roads for easy transport of produce to the market centres so as to secure highest possible FSCR. Instead of transporting the produce individually from the farm gate to the district market centre, it is essential to establish a loading station in the vicinity of the villages, so as to assemble the produce at loading station and transport it to the market centre on cost effective basis. However, due to unorganised marketing of banana, the FSCR was low across all the three marketing channels. Hence, banana may be included in the list of notified commodities and to be brought under the purview of Agriculture Produce Market Committee Act. Further, the Department of Horticulture should make necessary arrangements for the display of marketing news and information so that, the farmers can plan the sale of their produce at the market, where they get higher price. The Department of Horticulture in consultation with the State Government of Andhra Pradesh should make arrangements to transact banana in Rythu Bazar's, as banana is consumed as a regular diet by the households (Gunwant *et al.,* 2013).

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