

A study on use of electronics and communication technologies (ECTs) in agricultural marketing in NEK region

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Abstract

Background: Agricultural marketing plays an important role in Indian agriculture in general and farmer's economy in particular. The use of information technologies provides transparency in agri-business and making appropriate decisions in marketing of agricultural produce.

Objectives: The study was conducted in north eastern Karnataka regions with an objective to identify and assess the extent of use of electronics and communication technologies (ECTs) in marketing of agricultural commodities and also to investigate the nature and extent of economic benefits by use of ECTs to farmers and other stakeholders in marketing of agricultural commodities.

Methodology: Random sampling procedure was used during the study period and sample size consists of 120 farmers (sample respondents). Both primary and secondary data was used in the study during the period from 2011-2014. The Primary data collected from the farmers with respect to the electronic facilities available in the market for the sale of their produce and its utilization.

Results: The findings of the study reveal that, the farmers were not directly benefitted as in the case of either the traders or other market functionaries. The illiteracy of farmers and limited access or no access makes the web portals redundant for them.

Application/ Conclusion: The tangible, electronics devices used in the markets would ease the marketing process and help the farmers in realizing the quality and quantity of their produce and a remunerative price for their produce. The presence of e-balance and e-tendering process involved in selling and buying process has reduced market operation time. Thus these electronic equipments had no direct impact on the price mechanism but alleviated the buying and selling processes. Further, the use of electronic devices and communication technologies in agricultural marketing are effective tool to improve the marketing efficiency in business and transparency in transaction of agricultural produce.

Key words: Electronic and communication technologies (ECTs), Agricultural Marketing, Produces, Prices and Decision Making.

1. Introduction

Agricultural Marketing is an area for the "second generation" of green revolution problems. Indian Marketing is undergoing a significant metamorphosis because of economic liberalization and globalization. The successes of marketing strategies and macro-economic policies in developing countries are influenced by availability of Infrastructure development, which plays a significant factor in present era of marketing. Further, the market efficiency mainly depends on organization and structure of the market. The structural features of the market reflect the relative degree of concentration of market power in favour of buyers or sellers which influence the market conduct and performance [1].

In past, agriculture was driven by bid, at present it is driven by command using technological interventions in the marketing process. But, the monetary potential of technology use in agriculture is not yet recognized [2, 3]. Though Information Technology (IT) revolution, aided by the revolt in telecommunication has helped in not only market information system but also has changed the nature of market functioning altogether by making several

intermediaries redundant, reducing the cost of information, lowering the transaction cost and increasing the competition.

Farmers have instigated to perceive marketing rather than production as the major constraint to enhancing farm incomes. Markets are the means of either prosperity or distress for the farmers. These are the places where the farmers' fate for the crops they have grown is decided. Hence, the government does everything possible to ensure that the farmers realise a better return for their produce. In addition, Enactment of Model APMC Act, linking of all APMCs with National Information Network (NIC-NET) to provide the speedy and timely dissemination of market information to the growers, separate web portals for dissemination of market information, etc., are some of the efforts of the govt. In order to render the marketing systems more efficient, government has introduced electronics devices into market mechanism in some markets for bringing more transparency in the markets. Electronic medium has been used for transmission of information in various industries. However, their uses in agricultural markets are relatively low.

With this backdrop, the present study is an attempt to assess the use of various electronic devices being introduced in the regulated market viz., the electronic weighing machines, weigh bridges, electronic display boards, e-tendering mechanism, etc. and their utility to different stakeholders in Raichur and Gulbarga markets which are important markets in North Eastern Karnataka. Keeping the above-mentioned features, the following specific objectives were framed for the study; they are 1) To identify and assess the extent of use of electronics and communication technologies (ECTs) in marketing of agricultural commodities and 2) To investigate the nature and extent of economic benefits by use of ECTs to farmers and other stake holders in marketing of agricultural commodities.

2. Methodology

The study was carried out in two districts of Raichur and Gulbarga Agriculture Produce Market Committees (APMCs) in North Eastern Karnataka where the use of electronics devices was introduced. Conversely, to compare these two more markets with partially introduced electronic devices were also selected. Hence, the study was carried out in the APMCs of Raichur and Gulbarga, where electronics were extensively used and Gangavati and Sindhanur markets where the use of electronics was limited. Thus the markets were classified into reformed and traditional markets for convenience of representation. Random sampling procedure was followed in selecting the farmer-respondents, total 120 farmers were preferred from 4 markets consisted of 30 farmers in each market were selected randomly for the study. Both primary and secondary were used in the study from the period 2011-2014. The Primary data collected from the farmers with respect to the electronic facilities available in the market for the sale of their produce and the utilization of the same. on the other hand, the Secondary data was collected from the market committee pertaining to the arrangements made by the market committee in the form weigh bridge, electronic balance, electronic display boards, etc., and extent of use and the effect of the same on the smooth conduct of trade in the market. For evaluating the awareness, degree of utility of electronic facilities, impact of the use of electronics, tabular analysis with percentages and ratios were used.

3. Results and discussion

Keeping in view the specific objectives of the present study, the data collected on the use of Electronics and Communication Technologies (ECT's) in selected markets have been subjected to descriptive statistical methods. The results of such analysis are reported in this section under the following heads.

- i. Profile of the study markets and sample farmers
- ii. Awareness and the extent of use of electronics by farmers
- iii. Effect of the use of electronics on farmers and market

3.1. Profile of the study markets and sample farmers

The profile of the study markets and sample respondents are presented in Table 1. The finding reveals that, Raichur market was the oldest, being established during 1934 and Sindhanur market was the newest being established 44 years back. In all the reformed and traditional markets about 113 notified commodities were observed, except Gulbarga market it was about 92 commodities were under regulation. However, Raichur and Gulbarga markets had wide area coverage in terms of villages (348 and 502) under their jurisdiction. All the markets had a number of intermediaries operating in the market viz., commission agents (CA), traders, weigh men, graders,

processors, stockists, exporters, brokers, etc. But CAs and traders were in very large number. The method of sale was open auction in all markets except in case of Sindhanur which was based on Mutual agreement. Hence, it is suggested that, many outputs are perishable in nature, so market prices are responsive to changes in method of sale and demand [4, 5]. Further, in the study area, all market functionaries were to operate in the market by paying a prescribed license fee which was ranged from Rs. 2000 (CAs and traders) to Rs. 10 for *hamals*. Thus, the reforms initiated by the government have been implemented in large markets like Raichur and Gulbarga especially in terms of introduction of e-tendering method of sale. Conversely, the traditional markets where reforms are partially introduced still follow open agreement/mutual agreement method for sale of notified commodities.

Table 1. Profile of the selected markets

(n=120)

Particulars	Reformed markets		Traditional markets	
	Raichur	Gulbarga	Sindhanur	Gangavathi
Year of establishment	1934	1940	1970	1953
No. of notified commodities	113	92	113	112
Market Area (villages covered)	348	502	174	157
Method of sale	Tender, open auction (onion)	Tender, open auction	Mutual agreement	open agreement
Annual Profits	6.8 crores	41 lakhs	2.4 crores	5.2 crores
No. of market functionaries				
Commission agents	376	570	423	228
Traders	629	1140	544	531
Weigh men	84	3	12	120

Source: *krishimaratavahini.kar.nic.in*

Similarly, Table 2 indicates the profile of the selected farmers. It is evident from the table 2 that most of the farmers visiting the market belong to age group of 35 years to 50 years irrespective of the market being reformed or otherwise. It was interesting to note that, about half the farmers (49% to 59.25%) visiting the market were literates indicated that more and more of literate and young farmers were involved in the sale of the agricultural produce [6].

Table 2. Profile of the sample farmers

(n=120)

Particulars	Reformed markets		Traditional markets	
	Raichur	Gulbarga	Sindhanur	Gangavathi
Age (Yrs)	48.61	50.10	35.40	43.20
Education (%)				
Literate	49.00	54.55	58.42	59.25
Illiterate	51.00	45.45	41.58	40.75
Land holding (acres)				
Dry	11.00	19.50	3.00	3.50
Irrigated	4.72	-	5.44	7.00

3.2 Awareness and the extent of use of electronics by farmers

Awareness of the farmers on the use of electronics devices are presented in Table 3. The analysis of data revealed that, awareness of electronic gadgets available in the markets are Electronic balance, electronic display board, use of computers for e-tendering, electronic weigh bridge and use of public address system for announcements. The findings conveyed that, the use of electronic balance/ scale has been made compulsory and hence all the farmers were aware of the system of weightment through the e-balance. Similarly, the use of e-tendering was followed in the reformed markets and hence the farmers in those markets were fully aware of the system. Further, though many electronics were used in the traditional markets, very few farmers (around 15%) were

aware of the electronic display and none of the farmers were aware of e-payment facility which did not exist in traditional markets of Sindhanur and Gangavathi.

Table 3. Awareness on electronics used in markets (%) (n=120)

Particulars	Reformed markets		Traditional markets	
	Raichur	Gulbarga	Sindhanur	Gangavati
Electronic balance	100.00	100.00	100.00	100.00
E tender	100.00	100.00	80.00	73.33
Electronic display	20.00	26.67	13.33	16.67
T V Display	100.00	100.00	100.00	100.00
Public address system	100.00	100.00	100.00	100.00
E-payment	6.67	16.67	-	-

The utilization of electronics devices are presented in Table 4. Despite the fact that many electronics were available in the markets; the utilization of these was restricted for weighing only. Thus electronic weighing balance/scale/weigh bridge was the only gadget which was extensively used in the market (Table 4). Even though, computers were involved in the process of e-tendering, farmers did not have any role to play in their use, hence it was not considered. Hardly any farmers were utilizing the facility of electronic display to make marketing decisions in Raichur market (23.33 %) when compared to Gulbarga market (76.67 %) as these electronic display boards were placed in the APMC office premises [7, 8]. Hence the study suggests that, there is need to put up the display boards at strategic locations in the markets so that the benefit would flow to all the stakeholders in the market. The study in Sri Lanka [9] recognized that the farmers use to spend 11 percent of farmers' total costs for obtaining information. Since the cost of information does not vary with the size of a farmer's crop, irrespective of farmers groups either marginal, small or large they are particularly loaded by high information costs.

Table 4. Extent of use of electronics by farmers in the market

(n=120)

Particulars	Reformed markets		Traditional markets	
	Raichur	Gulbarga	Sindhanur	Gangavati
Balance/ weighing scale/ weigh bridge	100.00	100.00	100.00	100.00
T V Display	-	-	-	-
Electronic display	23.33	76.67	-	-
Public address system	76.67	93.33	20.00	23.33

3.3 Effect of the use of electronics on farmers and market

The use of electronics devices in the marketing of agricultural produce had a significant impact on the farmers (Table 5) especially with the use of electronic balance as it led to 100 per cent reduction in the unauthorized deductions that was made in the process of weighing [10]. According to the opinion of the farmers the findings revealed that, electronics devices did not have any impact on the expenditure that was made by the farmers in terms of marketing cost. It also exposed that, there was no effect on the price mechanism or realization of better price by the farmers. Because of the use of electronic balance/ scale, weighing in the markets had been standardized with one kg deduction per quintal of the produce towards the weight of the container. Thus, the use of electronic gadget had no direct financial benefit to the farmers but there was reduction in the time that the farmers spent in the market to the extent of one to two hours. Correspondingly, the effect of the use of electronics on the market was restricted to the reduction in the business hours which was diverted towards other procedures to be followed in the market (Table 6). However, many studies implies the use of advanced technology in agriculture and allied sectors, very few studies focus on limitations and problems in technology implementation and its use. [11]. Hence the study

suggests that, the use of electronics devices were not having any direct impact on economic benefit either to the stakeholders or to farmers in the market.

Table 5. Effect of use of electronics on farmers

(n=120)

Particulars	Reformed markets		Traditional markets	
	Raichur	Gulbarga	Sindhnanur	Gangavati
Reduction in Unauthorized Deductions (%)	100.00	100.00	100.00	100.00
Saving in market time (hrs)	1.00	1.00	2.00	2.00
Disputes	Nil	Nil	Nil	Nil
Price mechanism	No effect	No effect	No effect	No effect
Marketing cost	No effect	No effect	No effect	No effect
Weighment	standardized	standardized	standardized	standardized

Table 6. Effect of use of electronics on the market

Particulars	Reformed markets		Traditional markets	
	Raichur	Gulbarga	Sindhnanur	Gangavati
Use of manpower	No effect	No effect	No effect	No effect
Turnover/ receipts	No effect	No effect	No effect	No effect
Settlement of disputes	-	-	-	-
Market operation time	Reduced	Reduced	Reduced	Reduced

4. Conclusion

This study centers on the use of electronics and communication technologies (ECTs) in marketing of agricultural commodities in selected districts of North Eastern Karnataka, India. The study clears out that, there was no direct benefit was observed by means of use of electronics and communication technologies in markets, either to the traders or other market functionaries in the study area. Additional, it also indicated that, the illiteracy of farmers and limited access or no access to electronic devices awareness makes the web portals redundant for them. Hence, the use of electronics devices in the markets can only reduce the marketing process. Nevertheless, the Electronic balance/scale, electronic display and use of computers for tendering were the only few electronics devices used in the regulated markets. Further, selling operation time had reduced considerably in these markets due to the use of e-balance and the e-tendering process. The study also points that, the payments to the farmers were made between one and 15 days in all the markets. Thus these electronic equipments had no direct impact on the price mechanism but alleviated the buying and selling processes. Hence, the study suggest that, there is an immediate need to introduce/put to use the electronic display boards, TV display in these markets for the benefit of farmers.

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