Research Paper

COMMODITY TRADING PROSPECTS IN AGRICULTURE - EMPIRICAL STUDY

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ABSTRACT

Indian agriculture has a significant history. Today, India ranks second worldwide in farm output. Though the agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India and forms the backbone of the economy, the economic contribution of agriculture to India's Gross Domestic Product (GDP) is steadily declining with the country's broad-based economic growth. Production and Marketing of agricultural produce are the two crucial parameters for the better performance of agriculture sector as a whole.

The paper concludes that finally, efforts should be made in terms of setting up proper marketing infrastructure that will facilitate the market participants to carry out the trading activities and also provide awareness, training, practical experiences, support needed to small, marginal and medium farmers at village/rural areas in terms of newer ways of agriculture marketing channels so that every farmer will be able to adopt better marketing techniques like common online platforms for selling their produce and get the remunerative prices for the same.

KEYWORDS: Indian, Agriculture, Gross Domestic Product, Production and Marketing

INTRODUCTION

Agriculture in India has a significant history. Today, India ranks second worldwide in farm output. Though the agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India and forms the backbone of the economy, the economic contribution of agriculture to India's Gross Domestic Product (GDP) is steadily declining with the country's broad-based economic growth. Production and Marketing of agricultural produce are the two crucial parameters for the better performance of agriculture sector as a whole. Many of the previous studies indicate that there is a huge improvement in the agriculture productivity since independence but concerns still persist as far as contribution to GDP of the country and farmers' living is concerned. So, there seems to be serious concern about efficient functioning of this sector in terms of policies, marketing, infrastructure, storage, transportation, etc.

Agricultural marketing, till recently, was not completely accepted as an essential element in agricultural development in the countries of Asia and the Far East[1]. Although options differ as to the extent and precedence, there was general agreement till 1970 that the question of markets

for agricultural commodities was neglected. Agricultural marketing occupies a fairly low place in agricultural development policies of developing countries. The National Commission on Agriculture (1976) had emphasized that it is not enough to produce a crop or an animal product; it must be satisfactorily marketed[2]. Farmers want the marketing system to purchase their produce without loss of time and provide remunerative price for their products. They want the maximum possible price for their surplus produce from the system. Similarly, they want the system to supply them the inputs at the lowest possible price. Therefore, market reforms and marketing system improvement ought to be an integral part of policy and strategy for agricultural development.

Commodity market plays an important role in countries like India where a major part of GDP comes from agriculture sector. Its contribution is 13.9 percent for the year 2013-14, that includes agriculture and allied sectors as per the estimates released by Central Statistics Office. Agricultural exports constitute one fifth of the total exports of the country. India is ranked to be in the second position in terms of agriculture outputs. The total food grain production has increased approximately to 264.77 million tons (MT) in 2013-14 (Department of Economics and Statistics) compared to 51

(MT) productions in 1950-51. In terms of spices the Indian market is estimated to be of worth forty thousand crore yearly, it is backed by the increase in the export to US$ 3 billion by 2016-17, with improved quality, packaging, marketing techniques, and a strong distribution network. As farms in Asia are small (2 ha or less) and in many instances they are getting smaller, there is currently a sharp debate among academics as to whether small-scale agriculture can continue to play its historic role.

STATEMENT OF THE PROBLEM

The proposed study wants to make a detailed analysis of the functioning model of agriculture commodity market focusing on issues faced by the farmers in related marketing activities with respect to major agricultural commodities grown in North Karnataka. The study intends to create a linkage between the agriculturists. The proposed study tries to overcome the structural constraints that limit the access of farmers to different agricultural markets. In connection with the agricultural marketing activities, various forms and extent of problems could be identified and prioritized to decide upon them by the policymakers.

OBJECTIVES OF THE STUDY

The following main objectives have been set for the research study:

1. To examine agricultural marketing in Indian Context.
2. To analyse farmer-respondents' perception towards availability of physical and infrastructure resources facilitating agricultural commodity trading.
3. To ascertain results from the above analysis and suggest measures for improvement in agricultural marketing activities in study area.

REVIEW OF LITERATURE

The researcher has reviewed the literature relevant to agriculture produce marketing in India and same is presented here.

DOCTORAL THESES

A good number of research scholars have carried–out their doctoral work in the field of Commodity Trading in Agriculture. Those reviewed by the researchers are as under:

Legesse (2000)[3] found that during eighties wheat area showed a declining growth rate *i.e.,* 3.94 per cent per annum but production and productivity showed a negative growth rate. During nineties the Karnataka state recorded a significant positive growth rate of 3.47 per cent in area while in production the state recorded a mild growth, but productivity showed a negative growth rate.

Birukal (2001)[4] used zero order correlation coefficient to ascertain the integration of markets between Dharwad, Raiehur and Soundatti regulated markets in north Karnataka for the unadjusted and adjusted price series. The study reveals that all the three markets were well integrated in case of unadjusted price series. For adjusted price also there was a good integration among the selected markets, but extent of integration is low as compared to unadjusted price data. Adjusted price data indicated that Soundatti and Dharwad markets were well integrated.

Dalawai (2004)[5] analysed the relationship between the prices in major six domestic cotton markets and also at international market (New York) using the co-integration technique. The results clearly indicated that all the price series in major four DCH cotton markets and two Jayadhar cotton markets in the state were assumed to be stationary at order of integration one. The DF test statistics obtained for all the markets including international market were found to be more than the asymptotic critical value even at 10 per cent level. Thus, the major cotton markets in the state were found to be integrated and hence quite competitive pricing behavior.

RESEARCH ARTICLES

The researcher reviewed some of the research articles pertaining to subject. Important among them have been shown below:

Bonny (1996)[6] surveyed the constraints on commercial production of vegetable in Pananchery and Duthur, Kerala and reported that increased cost of plant protection chemicals was perceived as the most important factor by the respondents followed by inadequate market facilities, poor storage and other post-harvest facilities, insufficient capital and high labour costs.

Kaur Harwinder Pal, Dr. Anjum Bimal, (2014)[7], an attempt has been made in this study to differentiate between commodity futures and spot prices of wheat by analysing the relationship between both the prices. Time period of study has taken from January 2006 to December 2011. The result has been showed the significant correlation between both of the prices of Wheat.

Wasim Ahmad , Sanjay Sehgal, (2015)[8], this paper aims to examine the destabilization effect in the case of India's agricultural commodity market for the sample period of 01 January 2009 to 31 May 2013.

SCOPE OF THE STUDY

The geographically scope of the study is limited to the revenue boundaries of the five North Karnataka districts namely, Kalaburagi, Vijayapur, Bidar, Bagalkot and Yadgir. The study covers the major agricultural commodities based on the seasonal yield and which are widely used in daily life. The study would consider the published historical data by the government/private bodies. The study largely confines to efficiency in terms of working performance toward functional and physical facilities available, awareness and usability of modern marketing channels that are available.

HYPOTHESES

In this research study the researchers have set null hypotheses on the issues pertaining to Farmers' Problems and Land holding, Educational status and Crop grown. The following hypotheses were formulated and tested:

Number of Hypotheses	Null Hypotheses (H0)
Hypotheses -1	H0: There is no significant difference between Farmers' opinion and Land holding.
Hypotheses -2	H0: There is no significant difference between Farmers' opinion and Educational status.
Hypotheses -3	H0: There is no significant difference between Farmers' opinion and Crop grown.

RESEARCH METHODOLOGY
i)Sources of data:
The study is mainly based on primary data. However, the necessary secondary data has also been used. The secondary data has been collected from various sources like newspapers, magazines, journals, books, websites of statistical abstracts, Reserve Bank of India, Ministry of Agriculture, Agricultural statistics at a glance, Directorate of Economics and Statistics, Government publications, professional and academic journals, prominent websites dealing with agriculture and statistics and from various institutional libraries.

The primary data in the form of respondents' opinion has been collected from the farmers' in Kalaburagi, Bidar, Vijayapur, Bagalkot and Yadgir. The objectives of the study were kept in mind while framing the questionnaire using open ended and five point Likert's Scale (ranging from Agree (Strongly Agree and Agree), Neutral and Disagree (Disagree and Strongly Disagree) as parameters).

ii)Sample respondents:
The random sampling technique was adopted in designing sampling frame for the study. For collecting primary data, 100 respondents were selected at random from each of five districts of northern Karnataka namely Kalaburgi, Bidar, Yadgir, Vijaypur and Bagalkot. The total sample size constituted 500 for the study as a whole. The primary data were collected from the farmers by using interview scheduled, specifically designed for the purpose. Specific care was taken to give necessary clarifications to the respondents so as to enable the farmers to answer as accurately as possible without any ambiguity. The method was followed because descriptive study using primary data would support appropriately to investigate the objectives.

iii) Tools and Techniques used for Data Analysis of the Study:
The descriptive and explanatory methods of data analysis have been used in the study. The hypotheses are formulated and tested. Primary data collected from farmers were tabulated and analyzed using percentages and averages of the response received from farmers on different aspects of agricultural marketing. Tools like SPSS and Excel were used in deriving the results.

Chi-square test has been used to the hypotheses. In analyzing the data, charts, graphs and tables have been used to make the study more effective.

LIMITATIONS OF THE STUDY
The study has the following limitations:
1. The study is based on sample responses only.
2. The study covers only selected agriculture commodities.

AGRICULTURAL MARKETING IN INDIAN CONTEXT
India is an agrarian society and one third population depends on the agricultural sector directly or indirectly. Agriculture remains as the main stray of the Indian economy since times immemorial. In the olden days selling of agricultural produce was easy as it was directly between the producer and to the consumer, in simple, barter system was followed with exchange of goods for goods and against services[9]. Later, gradually with time, produce and goods were exchanged for money that led to the agricultural produce trading practices in traditional manner and with involvement of middlemen and commission agents, who kept their margins and moved the produce further to different channels, which turned gradually in to agricultural marketing concept. Now, with open economy and modern technology most of the commodities traded that include cereals, pulses, sugar, cotton, jute, milk, tea, coffee, areca nuts, etc. are handled solely by large enterprises, such as cooperative Indian sugar factories, spinning mills and medium and small-sized enterprises, such as rice mills, oil mills. Mostly, the trading is assisted by different cooperative bodies at national, state, regional and local levels[10].

RESULTS AND DISCUSSION:
For this purpose 500 farmers were interviewed on awareness of different aspects and issues such as reforms in agricultural marketing, post-harvest marketing and leakages of agricultural produce, agricultural marketing channels, accessibility and usage of market information, improved marketing practices of agricultural produce, etc.

GENERAL CHARACTERISTICS OF SAMPLE FARMERS
The general characteristics of farmers interviewed are depicted in table 1, on the basis of operational farm holdings and education level. The age range of respondent farmers varied from 30 to 70 years. It is perceived that the educated youth has a better decision making ability and education imparts the capability of taking informed decision.

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Table – 1 Profile of Sample Farmers

Personal Profile	No. of Respondents					
District	Kalaburagi	Bidar	Yadgir	Vijaypura	Bagalkot	Total
Operational Land Holding						
Marginal and Small(1–5 acres)	52(23.0)	51(22.6)	33(14.6)	36(15.9)	54(23.9)	226(45.2)
Medium(5-10 acres)	26(24.8)	43(41.0)	10(9.5)	6(5.7)	20(19)	105(21.0)
Large(10 acres and above)	22(13.0)	6(3.6)	57(33.7)	58(34.3)	26(15.4)	169(33.8)
Total	**100**	**100**	**100**	**100**	**100**	**500(100)**
Educational Status						
Illiterate	10(27.8)	10(27.8)	4(11.2)	6(16.6)	6(16.6)	36(7.2)
Primary (1st to 7th standard)	26(22.8)	27(23.7)	28(24.6)	16(14)	17(14.9)	114(22.8)
Secondary (8th to 12th standard)	33(14.9)	38(17.1)	43(19.4)	62(27.9)	46(20.7)	222(44.4)
Under Graduate and above	31(24.2)	25(19.5)	25(19.5)	16(12.5)	31(24.2)	128(25.6)
Total	**100**	**100**	**100**	**100**	**100**	**500(100)**

Source: Field Investigation.

Note: Figures in parentheses are percentages to total.

Farm size-wise distribution of sample farmers in study area consisting of Kalaburagi, Bidar, Yadgir, Vjayapura and Bagalkot, districts is presented in table 1. It is revealed from the table 6.1 that, of the 500 farmers interviewed across mentioned districts on research work about 45.2 per cent were having operational land holding 1-5 acres, nearly 21 per cent having 5-10 acres and 33.8 per cent were cultivating 10 aces and above. In respect of education status, 44.4 percent of the respondents completed Secondary level, followed by 25.6 percent belonged to under graduate and above level, 22.8 percent were qualified to primary level and 7.2 percent were illiterate. District wise statistics of operational land holding and education status is as mentioned in the table – 1.

KNOWLEDGE OF SAMPLE FARMERS ABOUT APMCS

Table – 2 Knowledge of Farmers about APMCs

Parameters	Kalaburagi	Bidar	Yadgir	Vjayapura	Bagalkot	Total
Yes	93	87	88	92	89	**449(89.8)**
No	07	13	12	08	11	**51(10.2)**
Total	100	100	100	100	100	**500(100)**

Source: Field Investigation.

Note: Figures in parentheses are percentages to total.

Chart – 1 Knowledge of Sample Farmers about APMCs
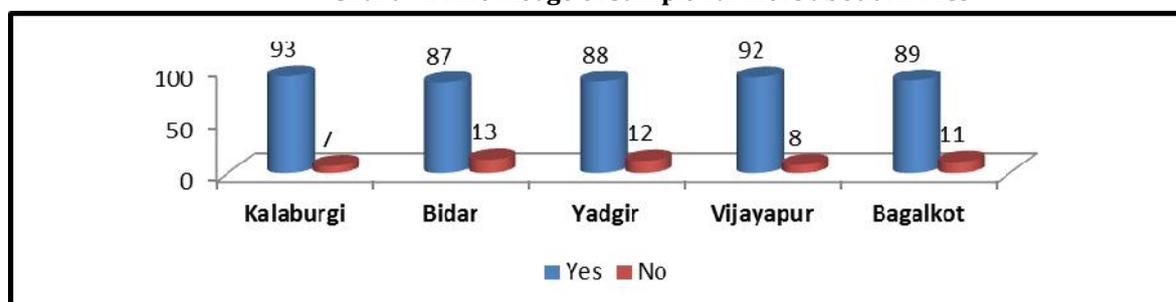
The knowledge of farmers on Agricultural Produce Market Committees (APMCs) was assessed and presented in table 2. It is revealed from the table that highest proportion of farmers who responded negative on the knowledge regarding APMCs was found in Bidar (13 per cent) followed by Yadgir (12 percent),Bagakot (11 percent), Vjayapura (8 percent) and Kalaburagi (7 percent). In total 10.2 percent of the farmers responded negatively on knowledge about APMCs compared to 89.8 percent positive response.

ESPONSE OF FARMERS ON AWARENESS OF PROVISIONS OF MARKET REGULATION
Table – 3 Farmers' awareness about Provisions of Market Regulation

Particulars	Kalaburagi	Bidar	Yadgir	Vjayapura	Bagalkot	Total
To provide competitive pricing	57	39	44	52	51	**243(48.6)**
Correct weighment	43	35	29	39	38	**184(36.8)**
Immediate payment	30	21	20	31	30	**132(26.4)**
Scientific price discovery	13	10	11	13	12	**59(11.8)**
Prevent Unauthorized deductions	5	7	8	9	8	**37(7.4)**
Provide market Infrastructure	6	5	5	11	7	**34(6.8)**
Provide backward and forward linkage	4	3	3	5	4	**19(3.8)**
Total number of respondents for each provision	**100**	**100**	**100**	**100**	**100**	**500(100)**

Source: Field Investigation.

Note: Figures in parentheses are percentages to total.

The agricultural markets were regulated and agricultural produce market committee (APMC) was established by state government in India to avoid the exploitation of the farmers by intermediaries and make sure all produce is first brought to the market yard and then sold through auction, providing fair price to the farmers, etc. Knowledge of providing competitive pricing provision was responded by about 57 per cent of total farmers Kalaburagi district (Table- 4) followed by Vjayapura (52 per cent), Bagalkot (51 per cent), Yadgir (44 percent) and the least in Bidar (39 per cent). The regulation of markets was aimed at correct weighment of the produce of farmers at the time of marketing in APMCs was responded positively by about 43 per cent of the total respondents in Kalaburagi district, 39 per cent farmers in Vjayapura, 38 per cent in Bagalkot, 35 per cent farmers in Bidar and Yadgir least 29 percent. Total of 36.8 per cent of the sample farmers responded positively.

Chart -2 Farmers' on awareness about Provisions of Market Regulation
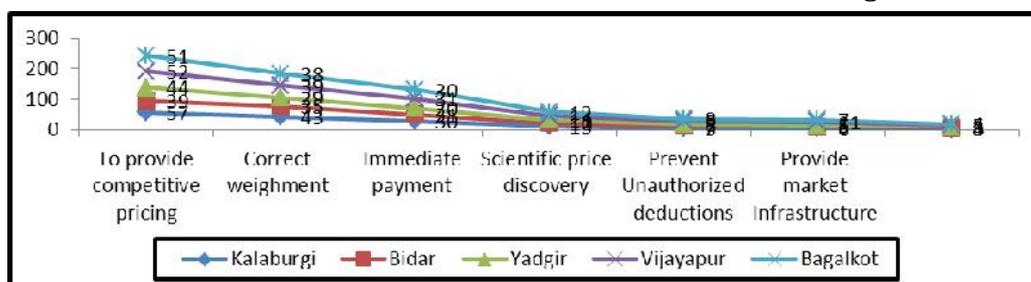
KNOWLEDGE OF FACILITIES/SERVICES PROVIDED BY APMCS
Table – 4 Knowledge of Facilities/Services Provided by APMCs

Facilities/Services	Kalaburagi	Bidar	Yadgir	Vjayapura	Bagalkot	Total
Arrange Sale of commodity	83	77	79	85	80	404(80.8)
Civic amenities	23	19	19	25	22	108(21.6)
Farmer's rest house	19	15	13	18	17	82(16.4)
Drinking Water Facilities	43	39	38	44	40	204(40.8)
Parking Facilities	29	26	18	17	19	109(21.8)
Loading and Unloading	27	20	18	25	23	113(22.6)
Weighment	46	43	42	47	43	221(44.2)
Grading	11	9	8	12	10	50(10)
Total	**100**	**100**	**100**	**100**	**100**	**500(100)**

Source: Field Investigation.

Note: Figures in parentheses are percentages to total.

It is perceived that the extent of knowledge of farmers regarding different kind of services and facilities at APMCs is required to take the full benefit of the APMCs. The knowledge of farmers regarding different services and facilities provided by APMCs for orderly marketing of agricultural produce was assessed and presented in table 5. It was revealed from the table that nearly 85 percent of selected farmers in Vjayapura responded that APMCs are to arrange facility for sale of produce followed by about 83 per cent in Kalaburagi, 80 per cent in Bagalkot, nearly 79 and 77 per cent in Yadgir, Bidar respectively.

TESTING OF HYPOTHESES

Null hypothesis is studied using chi-square test of homogeneity. Null hypotheses have been set as below for the study purpose,

Farmers Opinion(Land holding)	P-Value	Df	Asymp. Sig. (2-sided)	Accept/Reject Hypothesis(H_0)
Lack of awareness about Agricultural Marketing Reforms (MKTRFM)	11.706[a]	6	0.068859	Accept
Reduced profit due to lack of storage facilities (STRGFAC)	20.753[a]	6	0.002032	Reject
Farmers Opinion(Qualification)	**P-Value**	**Df**	**Asymp. Sig. (2-sided)**	**Accept/Reject Hypothesis(H_0)**
Lack of awareness about Agricultural Marketing Reforms (MKTRFM)	6.253[a]	9	0.714311	Accept
Reduced profit due to lack of storage facilities (STRGFAC)	51.881[a]	9	0.000000	Reject
Farmers' Opinion(Based on Crop)	**P-Value**	**Df**	**Asymp. Sig. (2-sided)**	**Accept/Reject Hypothesis(H_0)**
Reduced profit due to lack of storage facilities (STRGFAC)	15.903[a]	18	.599	Accept
Reduced profit due to lack of awareness on Grading standards/techniques (GRADFAC)	22.927[a]	18	.193	Accept

FINDINGS

Following are the major findings derived from the study conducted in the preceding chapters.

Farmers' Profile:

Farmer size-wise distribution of selected farmers in different districts under study revealed that, of the total farmers interviewed, about 49 per cent were having operational land holding 1-5 acres, nearly 24.2 per cent having 5-10 acres and 26.8 per cent were cultivating 10 and above acres. In respect of education status, 44 percent of the respondents completed secondary level (8th to 12th), followed by 25.6 percent belonged to under graduate and above level, 22.8 percent were qualified to primary level and 7.2 percent were illiterate.

Farmers' Awareness about APMC

The knowledge of farmers on Agricultural Produce Market Committees (APMCs) revealed that highest proportion of farmers knowing about APMCs was recorded in Kalaburagi with 93 percent of the total farmers responding positively on knowledge of APMCs and lowest being Bidar with 87 percent. As Karnataka state is well advanced compared to other states in agriculture sector, it is good to know most of the farmers were aware of the APMCs.

Preferred agency for sale of Produce

Farmers' response on preference for agency to market the farm produce revealed that, of the total farmers in selected districts, 57.8 percent preferred to sell their produce in APMC yards. The second most preferred agency for sale of produce was selling to local buyers/dealers/agents as reported by 55 percent of the total farmers in selected districts. Other preferred agency for sale of produce as reported by about 18.8 percent of the total farmers was selling directly to retailers. Farmers' market of rural haat was preferred by 24.8 percent.

Knowledge of Farmers regarding alternative marketing channels

Assessment of farmers' awareness in selected districts about alternative marketing channels opened up after introducing reforms in agricultural marketing showed that all districts put together, about 34.2 percent of the sample respondents were aware about selling the produce to traders/ dealers/agents as an alternative marketing channel, followed by retail chains with 24.6 percent and the least being Online Marketing, Futures Markets, Cooperative Marketing with less than 5 percent in total.

SUGGESTIONS

The issues which need to be addressed for the benefit of the farmers included; assurance of remunerative price for their produce; timely payment of their sale proceeds and no commission charges from farmers; requirement of mandi at nearby place; adequate storage facilities for storage of farmers produce; basic amenities in the market place; training of farmers on the different aspects of agricultural marketing; proper and timely transport facilities, ensure timely sale of their produce in mandi, availability of cold storage, widening breach of contract farming and direct marketing, electronic weighing of their produce, allowing more traders to buy produce in mandi and facilities for export of their produce. Below are the suggestion based on findings.

- With majority of the farmers preferring to sell their produce at local dealers/traders, an initiative is required in terms of enforcing the policy to create a market structure that is transparent and equitable, distinguishes quality and variety, disseminates relevant market information to all farmers to the village level for a level playing field that would help in getting better prices for their produce.

- In the era of globalization and liberalization farmers need competitive and alternative marketing channels, efficient market information to facilitate sale of their produce in order to enable farmers in getting better prices for their produce, there is also a need to reduce the intermediaries by providing alternative marketing channels like direct marketing, contract farming, virtual market, etc. for which reforms in agricultural marketing system is necessary.

- Provide awareness and training to farmers on virtual and online markets and initiation should be taken in setting up of more such networked markets at hobli level, that would link various smaller markets with regulated markets and warehouses, provided with assaying & grading facilities and other necessary infrastructure. Encourage private markets on a level playing field for providing an alternate facility for marketing of agricultural produce while being part of the networked market.

- Storage facilities, this entire area of regulation of agricultural product markets is in some flux and movement is still slow, an important initiative needs to be taken up by government along with Warehouse Regulatory and Development Authority (WRDA) to set standards and modernize the warehousing concept and bring in more and more private investment. The aim should be to support the usage of negotiable warehouse receipts at lower level marketing areas by setting up storage facilities, which can be linked to e-trading, both spot and future, so that farmers have an alternative to mandi.

CONCLUSION

Finally efforts should be made in terms of setting up proper marketing infrastructure that will facilitate the market participants to carry out the trading activities and also provide awareness, training, practical experiences, support needed to small, marginal and medium farmers at village/rural areas in terms of newer ways of agriculture marketing channels so that every farmer will be able to adopt better marketing techniques like common online platforms for selling their produce and get the remunerative prices for the same.

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