

Regulated Agricultural Marketing System for Economic Development of Jajpur District in Orissa(India)-An Empirical Analysis

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Abstract

Agriculture has played a key role in the process of socio-economic development of our country. Agriculture has all along been the most crucial sector of the Indian economy and even today agriculture and allied activities make the single largest attribution to Gross Domestic product accounting for nearly one fourth of the total. In Odisha, both Agriculture and Animal Husbandry provides employment directly or indirectly to around 65 per cent of the total workforce. It is ironic that Indian agriculture sector is moving in a reverse direction different from that of the non-agriculture sections. This tendency has been earmarked in the country throwing the responsibility to the agriculture market set ups failure to provide incentives to the former for more production and to stay on profession. Keywords: regulated market committee(RMC), e-agriculture, agricultural knowledge based marketing systems (akms), orissa state agricultural marketing board(osam), analysis of variance (anova).

Index terms— regulated market committee(RMC), e-agriculture, agricultural knowledge based marketing systems (akms), orissa state agricultural marketing board(osam)

1 Introduction

Agriculture is the backbone of any developing economy like India. Because majority of the population depends directly or indirectly on it. Since many decades, it occupies a place of pride in India. Agriculture has played a key role in the process of socio-economic development of our country. The sector accounts for about 33 per cent of the Gross Domestic product and almost two thirds of the population depends on this sector for survival. It accounts for 8.56 per cent of India exports. About 43 per cent of India's geographical area is used for agricultural activity. This sector works in concert with other sectors to produce faster growth, reduce poverty and sustain the Lecturer in Commerce, Brahmabarada Mahavidyalaya, Controller of Examination, Fakir Mohan university, Balasore, Orissa.

Dept. of Information Technology, Government Polytechnic, Bhubaneswar, Orissa, India. e-mail: pritiranjanhathy@yahoo.com environment. Agriculture has all along been the most crucial sector of the Indian economy and even today agriculture and allied activities make the single largest attribution to Gross Domestic product accounting for nearly one fourth of the total. In Odisha, both Agriculture and Animal Husbandry contributed 22.46 per cent of the Net Domestic product of the State in 2012-2013 and provided employment directly or indirectly to around 65 per cent of the total workforce.

Kuznets classifies the contributions made by agriculture to economic growth as (1) product contribution (2) Market contribution (3) Factor contribution and (4) Foreign Exchange Contribution. Odisha is primarily an agrarian economy. In the state, Agriculture has been proved as the dominant sector and about 73 per cent of total main workers are engaged in agriculture. Being a state of villages, about 87 per cent of total population lives in rural areas [1]. This is a study of broad agricultural marketing in the economic development in Orissa

with a special reference to Jajpur district during the period 2004 to 2012. The significant of agricultural sector in Orissa economy has grown considerably. For reaching changes have taken place in agricultural economy of the country. Not only there has been growth and diversification in the agricultural marketing complex but the structure of agricultural marketing structure has become more balanced. As Owens and shaw very apply pointed out Agricultural Development is first of all a human problem, not a technical problem. If all the farmers have access to production inputs, the financial system, the market and agricultural knowledge then they can improve the state of agriculture. But most of farmers lack access to a market system and thus lack both the resources and the incentives to modernize their production methods.” So it has been realised that marketing of agricultural produce is essential to provide an incentive to the farmers and to improve their standard of living. It is a matter of greater interest not only to the farmers but to the consumers and the middlemen also. The National Commission on Agriculture, in 1976, admits the needs for agricultural marketing in the country [2][3].

non-agriculture sections. This tendency has been earmarked in the country throwing the responsibility to the agriculture market set ups failure to provide incentives to the former for more production and to stay on profession. In our state, Odisha comes under such tragic scenario and so also the economic development of the state logs behind the other states of India. This not only impressed to conduct a survey but also to find out the causes and suitable measures to eradicate the problem [4][5]. a) Objectives of this thesis Gravity of the problem and its pervasive significance in the economy of the state, Odisha in general and Jajpur district in particular to have induced in the plan of the present study. The research study is proposed to be undertaken keeping in view the following objectives. 1. To evaluate the role of agricultural marketing for the development of rural economy of the district and the steps taken by state government in agricultural marketing. 2. To assess the regulated agricultural knowledge based marketing system. 3. To give some suggestions for the improvement of efficiency and transparency in the marketing of agricultural produce.

The proposed study as purely analytical and empirical in character is based on both primary and secondary data. Besides descriptive survey method can also be adopted for the study. As the targeted area is confined to Jajpur district and the district consists of 10 blocks such as Barchana, Bari, Binijharpur, Dangadi, Dasarathpur, Dharmasala, Jajpur, Korei, Rasulpur and Sukinda which are covered under the study to explain the standard of living situation of the farmers residing in these areas. As all the blocks are not convenient to go for the detailed survey, so as to convenient point of view, purposive sampling method can be justified to fulfill the aims and objectives of the research study [6].

2 IV.

3 Nature and Source of Data

The study is based on the data collected from various primary and secondary sources. In the course of analyzing the issues, the primary data are collected through two sets of questionnaires and one set of interview schedule were developed to obtain data from the producer farmers, consumers and officials associated with the agricultural marketing activities. Potential surveys and techno-economic survey have also been consulted. The study has also been made from the published magazines like District statistical Abstract (A Govt. of Odisha Publication) and Economic Review etc. Apart from this, relevant information has been sources of certain government and non-government organisations. Basically, the secondary data were collected from the official records and publication of Director of Agriculture, Department of Economics and Statistics, Orissa Agricultural Statistics, other publications and websites. In dealing with the issues relating to the problems, prospects and impact of agricultural marketing in Orissa and the economic development of the Jajpur district an extensive survey is made upon a few selected rural markets of the district [7] [28] [29].

V.

4 Research Methodology

Data will be tested and analysed through the computer based statistical techniques like co-relations and multiple regression. Statistical tools like average, co-efficient of variation, multiple regressions, analysis of Variance (ANOVA) are applied to examine the result. The data analysis and interpretation is undertaken mostly with the help of computer based statistical empirical analysis. Independent variables Area (F2) No. of villages (F3) Population (F4) Commodity (F5) Livestock (F6) Transportation (F7) Traders (F8) Infrastructure Facilities (F9) Income (F10) Expenditure (F11) Savings (F12) Dependent Variable -Distance from district Head Quarter (F1)

The linear regression technique is employed to know whether Distance from District Head Quarters is dependent on what independent variables and find out if there is a significant relationship between distance and other independent variables giving raise to the coefficient of determination value. But, in the present study all the variables are considered as dependent and independent variable and the inferences are drawn accordingly. The form of equation is given below linear model $F1 = C0 + C2F2 + C3F3 + C4F4 + C5F5 + C6F6 + C7F7 + C8F8 + C9F9 + C10F10 + C11F11 + C12F12$

5 Karl Pearson's Coefficient of Correlation

Correlation in statistics refers to relationship between any two, or more variables. Two variables are said to be correlated if with a change in the value of one variable there arises a change in the value of another variable. i) that there is linear relationship between the two variables; ii) that the two variables are casually related which means that one of the variables is independent and the other one is dependent; andF Mean sum o =

Mean sum of square of explained sum square f square of residual sum square iii) a large number of independent causes are operating in both variables so as to produce a normal distribution.

There are different methods of studying correlation between any two or more series. But for measuring the correlation between any two variables i.e. simple correlation, Karl Pearson's co-efficient method is used. Karl Pearson's Coefficient of Correlation (r) = The value of ' r ' lies between ± 1 . Positive value of ' r ' indicates positive correlation between two variables, changes in both the variables take place in same direction, whereas negative values of ' r ' indicates a negative correlation i.e. changes in the two variables taking place in opposite direction. A zero value of ' r ' indicates that there is no association between two variables.2 2 2 2) (.) (. ? ? ? ? ? ? ? ? ? Y Y N X X N Y X XY N X =

6 VI.

7 Hypothesis

The marketing sector of perishable agriculture commodities good is a highly unorganized sector. There exists no definite system for trading of perishable commodities. The strategy evolved as the outcome of the study may not be general. The study was conducted based on the following assumptions. 1. Price realization for the perishable agriculture commodities is having a direct correlation with the unorganized nature of the farmers in the sector. 2. Hesitancy expected from the part of fruit and vegetable traders in associating with farmer markets. 3. Success rate of marketing systems in perishable agriculture commodities has a direct correlation with the transparency in the management system. 4. Participatory decision making improves the efficiency and transparency of the rural markets.

The scope of the study is very wide. The present study focuses on the agricultural business, agricultural marketers, and marketing channel strategy in the study area. This study will be helpful for the marketers, traders, agents, producers of agriculture, researchers and the most important the consumers. The study provides detail understanding and analysis of various aspects of agricultural distribution.

a) The student's t-test of the null hypothesis A t-test is any statistical hypothesis test in which the test statistic follows a Student's t distribution if the null hypothesis is supported. It can be used to determine if two sets of data are significantly different from each other, and is most commonly applied when the test statistic would follow a normal distribution if the value of a scaling term in the test statistic were known. We compute the t-statistic for each C_i , which follows tdistribution with $(n-1)$ degrees of freedom. The null hypothesis is $C_i = 0$. if $< t$ (tabulated), we accept the null hypothesis i.e. we accept that is not significant. if $> t$ (tabulated), we reject the null hypothesis and we accept the alternative one. i.e. is statistically significant. Thus, greater the value of the stronger the evidence that C_i is statistically significant.

8 VII.

9 Analysis of Variance Test

In the analysis, the total variations are split into explained and unexplained variation. This suggests that one can compute an analysis of variance type of table for analysis.

An F-test is any statistical test in which the test statistic has an F-distribution under the null hypothesis. It is most often used when comparing statistical models that have been fitted to a data set, in order to identify the model that best fits the population from which the data were sampled. The ANOVA F-test can be used to assess whether any of the treatments is on average superior, or inferior, to the others versus the null hypothesis that all four treatments yield the same mean response.

10 F-statistic is computed as

The null hypothesis H_0 is $C_i = 0$ if calculated $F >$ tabulated F with $(k-1)$ and $(n-k)$ degrees of freedom with chosen level of significance we reject the null hypothesis and accept that the data is significant.

If calculated $F <$ tabulated F , then we accept the null hypothesis and conclude that data is not significant.

11 Goodness of Fit (R^2)

In statistics, the coefficient of determination, denoted R^2 and pronounced R squared, indicates how well data points fit a line or curve. It is a statistic used in the context of statistical models whose main purpose is either the prediction of future outcomes or the testing of hypotheses, on the basis of other related information. It provides a measure of how well observed outcomes are replicated by the model, as the proportion of total variation of outcomes. R^2 is a statistic that will give some information about the goodness of fit of a model. In regression, the R^2 coefficient of determination is a statistical measure of how well the regression line approximates the real

data points. An R^2 of 1 indicates that the regression line perfectly fits the data. In statistics, the two-way analysis of variance (ANOVA) test is an extension of the one-way ANOVA test that examines the influence of different categorical independent variables on one dependent variable. While the one-way ANOVA measures the significant effect of one independent variable (IV), the two-way ANOVA is used when there are more than one IV and multiple observations for each IV. The two-way ANOVA can not only determine the main effect of contributions of each IV but also identifies if there is a significant interaction effect between the IVs.

12 Analysis of variance

$n T n T j j 2 2 ? (c-1) (c-1)$

13 SS between columns MS residual MS between columns

Between rows treatment? $() () n T n T i i 2 2 ? (r-1) (r-1)$

14 SS between rows MS residual MS between rows

15 Residential or error

Total SS $-(SS \text{ between columns} + SS \text{ between rows})(c-1)(r-1) (c-1) (r-1)$ MS residual Total $?X^2 ij - () n T 2 (c, r-1)$

Where, the total value of individual item (or their coded values as the case may be) in all the samples and call it T.

The collected data have been classified and tabulated according to their specific characteristics relevant for the study. Comparative method and experimental method of analysis are also to be adopted in this study by taking interviews from the various persons. However, a meaningful and valid study has been made based on the statistical reliable collected data.

16 IX.

17 Multiple Regression Analysis

Multiple regression is the extension of simple regression to take the account the effect of more than one independent variables on the dependent variables. It is a technique to investigate the effect on 'dependent variable' of several variables combine and individually. It begins with the simple correlation matrix and enters into regression of the independent variables most highly correlated with the dependent variables. This technique has been applied to analyse the determinants of agricultural markets and find out its role in the economic development of the district.

18 a) Limitations of the study

The study is confined with the following aspects due to paucity of time and limitations of resources.

1. The study is confirmed with only one district i.e.

Jajpur district out of 30 districts in the state, Odisha. 2. The study covers only the agricultural producers, users and tradesmen linked thereto. The problems of marketing of agricultural community are identified. 3. As the district covers almost all rural areas, so the study focuses only the marketing situations that are prevalent in these rural areas as well. 4. The study focused only the economic development in one side and neglected the socio-cultural activities of farmers in other side.

X.

19 Agricultural Marketing System in Odisha

An efficient agricultural marketing system is imperative for development of agriculture sector of the state. In the context of global integration of markets, the The work flow of buying and selling of paddy at the RMCs is as follows: 1. A farmer with FIC arrives at the market yard of the RMC with his produce 2. Agencies like OCSC, FCI, MARKFED, NAFED etc. arrive for procuring those produce from the farmers. 3. Empanelled Millers arrives to take the produce for processing and storage. 4. RMC agents carry out their quality checks of the produce like weight verification, grading of the produce, moisture measurement etc. 5. After the quality check is done the price is decided as per the grade of the produce and the procurement agency pay the farmer through cheque. 6. The miller produces the transit pass or the form IV while passing through the RMCs owned check gates and no market fee is charged from them. = ? = ? ? ? ? ? ? Y e Y e Y i i i i 2 2 2 2 1 © 2013 Global Journals Inc. (US)

20 f) Regulated Market Committee Functions

The main objective of the RMCs is to ensure payment of fair price to the agriculturist.

1. An RMC works as a facilitator between the farmers and the procuring agencies. It facilitates both the party by providing facilities. 2. RMC is a revenue earning body and it earns its revenue by charging 2% of the transaction amount for providing these above mentioned facilities.

g) Agricultural Marketing in Jajpur District

Orissa, a State in the Union of India is a classic land of paradoxes. Rich in history and geography, the State is today the poorest one in the country. Jajpur District is located in the eastern region of the state. The district has an area of 2899 sqkms. Physiographically, the district may be divided into two physical regions. These regions are (1) the eastern alluvial plains and (b) the north western hilly terrains. The district is washed by many rivers like the Brahmani, the Baitarani, the Birupa, the Kharasrota, the Kelua, the Budha, the Kani and the Genguti [22][23] [24]. Odisha is essentially an agricultural economy. Agriculture remains the main occupation of large majority of Odisha people. It provides livelihood support to a large section of its population. So Agricultural development is the crux of overall development of the economy of the State. But at present agriculture suffers from many problems. Both agriculture and agriculturists will develop when farmers will get fair price for the produce. That is why agricultural marketing is an important part of the agrarian sector. Agricultural Marketing System plays dual role in the economic development of the State, Odisha whose resources are primarily agriculture [25] [26][27].

To understanding the agricultural marketing system of the district i.e the aspects include agricultural products produced by the farmers, their marketable surplus, types of agricultural market found in the district, marketing facilities available, problems faced by the farmers and benefits received by the consumers. Government's interference and protection of interest of producers and consumers and the role of marketing cooperatives and regulated markets with reference to two agriculturally developed blocks of the state namely Jajpur and Rasulpur have been explained to elaborate the present scenario of agricultural marketing in this district. Odisha in general and in Jajpur district in particular. The farmers are forced with distress sale to honor their debt obligation. Though the state is blessed with several rivers and availability other related facilities that are meant for growing more agricultural production and productivity, still need is inevitable to improve the economic standard of the producer farmers. Presently conducted survey reveals that most of the agri-populated areas are not well-connected with the markets or mandies consequently creating the stumbling blocks in transporting the produce from the place of production to the place of consumption. Now present construction of roads in the rural areas of the district is not sufficient to meet the requirements of better transportation. Some roads are there where are so poor which became unusable in the rainy season. The presence of superfluous middlemen brings down to the rate of return to the producers spacious market yards are not available to the farmers for demonstrating their products freely to the consumers. The products are usually displayed on the roads of NHs which creates obstacles in the movement of vehicles and causes a number of accidents. The farmers are ignorant about market information. Being ignorant, they are heavily exploited by the middlemen and financial initiatives in several ways. Besides these constraints, other challenges make them handicapped in developing their profession [28]. Agricultural Knowledge Systems (AKMS), considering in particular developments in institutional frameworks, public and private roles and partnerships, regulatory frameworks conducive to innovation, the adoption of innovations and technology transfers, and the responsiveness of AKMS to broader policy objectives. The conference demonstrated a wide diversity of approaches to AKMS, with each responding to different agro-economic, social and institutional challenges, and each with a different history. Most strikingly, all of these approaches are currently evolving from a linear AKMS to more integrated innovation systems. The question is whether these developments will successfully address the challenges identified at this conference -namely, those arising at the nexus of food security and climate change. Some speakers have emphasised public approaches, while others emphasised private. Many talked about co-development and networks, including the speakers who focused on biotechnology, and several speakers mentioned the importance of local traditional knowledge. Finally, many emphasised the shift taking place from research and development (R&D) to innovation in products and processes [29].

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? Promote the development of knowledge in Science and Technology (S&T) laboratories. ? e-Agriculture service for accelerating agricultural development and living standards of farmers. ? Promote knowledge applications in agriculture and industry. ? Promote the use of knowledge capabilities in making government an effective, transparent and accountable service provider to the citizen and promote widespread sharing of knowledge to maximise public benefit.

23 i) Functional Analysis of Regulated Agricultural Markets

The performance of agricultural marketing systems in developing countries has often been poor and government intervention has not been very successful. This is the right time to explain the weak impact of many interventions in agricultural marketing by public authorities. The methodologies applied in agricultural marketing analysis are not adequate or have not been applied with sufficient rigor, thereby leading to poor understanding of the problems and opportunities and resulting in incorrect recommendations for change. Further the public agricultural marketing research methodologies provide a correct view of the market have not been concerned

enough with the interactions between marketing systems and agricultural development. Agribusiness industries face a stiff competition originating mainly from trade barrier's removal and the rapidly changing marketing environment. Therefore, certain need has been identified towards the development and proper utilization of updated market research tools and methodologies in the field of agricultural marketing. The aim of this study is to show the usefulness of multi-criteria approach in analyzing consumer's preference data and its ability to support new product development processes by agricultural firms. Several methodological issues in agricultural marketing are then presented through a state-of-the art survey. Then, the study develops a consumer-based methodology to support product development decisions where the key-role is played to determine the preference model which explains a single consumer's ranking; a decision support system summarizes the analysis on the whole set of interviewed consumers to prescribe the 'ideal' profile of a new product and to simulate its penetration strategy into the market. Results from the application of the methodology to a survey data base collected from various sources are presented.

To know the impact of agricultural marketing, consumer and producer strategy for variables such as Distance from district Head Quarter (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Livestock (F6), Transportation (F7), Traders (F8), Infrastructure Facilities (F9), Income (F10), Expenditure (F11) and Savings (F12) for the data collected the linear regression techniques is implemented using Statistical Package for Social Science (SPSS), which estimates the co-efficient of the linear equation involving one or more independent variables that best predicts the value of the dependent variable. a Dependent Variable: F1 Hence, from the coefficient table we understand that from F2, F3, F4, F5, F6, F7, F8, F9, F10, F11 and F12 only constant and F12 (Savings) has an impact on Distance. So, savings will be impacted when there is a change in distance.

24 j) Multiple Regression Analysis in

ii. Area If Area (F2) is considered as the dependable variable and Distance (F1), No. of villages (F3), Population (F4), Commodity (F5), Livestock (F6), Transportation (F7), Traders (F8), Infrastructure Facilities (F9), Income (F10), Expenditure (F11) and Savings (F12) as independent variables. The linear regression technique is employed to know whether Area is dependent on what independent variables and find out if there is a significant relationship between area and other independent variables giving raise to the coefficient of determination value. It is found that R^2 equals to 0.280 and this R^2 value is significant. The regression to predict Expenditure (F11) is relevant from the coefficient table. So, it is evident from the coefficient table that constant, Expenditure (F11) has significant relationship with the Area (F2). a Dependent Variable: F2 Hence, from the coefficient table we understand that from F1, F3, F4, F5, F6, F7, F8, F9, F10, F11 and F12 only constant and F11 (Expenditure) has an impact on Area. So, expenditure will be impacted when there is a change in area.

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iii. No. of villages If No. of villages (F3) is considered as the dependable variable and Distance (F1), Area (F2), Population (F4), Commodity (F5), Livestock (F6), Transportation (F7), Traders (F8), Infrastructure Facilities (F9), Income (F10), Expenditure (F11) and Savings (F12) as independent variables.

The linear regression technique is employed to know whether No. of villages is dependent on what independent variables and find out if there is a significant relationship between no. of villages and other independent variables giving raise to the coefficient of determination value. It is found that R^2 equals to 0.553 and this R^2 value is significant. Hence, from the coefficient table we understand that from F1, F2, F4, F5, F6, F7, F8, F9, F10, F11 and F12 only constant and F12 (Savings) has an impact on No. of villages. So, savings will be impacted when there is a change in no. of villages. a Dependent Variable: F4 Hence, from the coefficient table we understand that from F1, F2, F3, F5, F6, F7, F8, F9, F10, F11 and F12 constant and F11 (Expenditure) has an impact on Population followed by F6 (Livestock). So, expenditure and livestock will be impacted when there is a change in population.

26 v. Commodity

If Commodity (F5) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Live-stock (F6), Transportation (F7), Traders (F8), Infrastructure Facilities (F9), Income (F10), Expenditure (F11) and Savings (F12) as independent variables.

The linear regression technique is employed to know whether Commodity is dependent on what independent variables and find out if there is a significant relationship between commodity and other independent variables giving raise to the coefficient of determination value. It is found that R^2 equals to 0.563 and this R^2 value is significant. Hence, from the coefficient table we understand that from F1, F2, F3, F4, F6, F7, F8, F9, F10, F11 and F12 constant and F8 (Traders) has an impact on Commodity (F5). So, Commodity will be impacted when there is a change in Traders.

27 vi. Livestock

If Live-stock (F6) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Transportation (F7), Traders (F8), Infrastructure Facilities (F9), Income (F10), Expenditure (F11) and Savings (F12) as independent variables.

The Hence, from the coefficient table we understand that from F1, F2, F3, F4, F5, F7, F8, F9, F10, F11 and F12 constant and F12 (Savings) has an impact on Livestock (F6). So, Savings will be impacted when there is a change in Livestock. a Dependent Variable: F7 Hence, from the coefficient table we understand that from F1, F2, F3, F4, F5, F6, F8, F9, F10, F11 and F12 constant and Expenditure (F11) followed by Livestock (F6) has an impact on Transportation (F7). So, Expenditure followed by livestock will be impacted when there is a change in Transportation. a Dependent Variable: F8 Hence, from the coefficient table we understand that from F1, F2, F3, F4, F5, F6, F7, F9, F10, F11 and F12 constant and Livestock (F6) followed by Expenditure (F11) has an impact on Traders (F8). So, Livestock followed by Expenditure will be impacted when there is a change in Traders. Overall it is found that in case of regulated market the variable savings followed by expenditure and in case of unregulated market the variable income followed by expenditure has most significant contribution towards development of agricultural market for both the consumer and producer in the study area. So, financial status is the most important indicator for marketing systems in agriculture found in the present study.

28 XI.

29 Summary and Conclusion

Market committees provide information through notice board of RMC at main market yard only and few RMCs uploading price information in AGMARKNET also. Majority of farmers depends on their peers for access of information related to marketing of produce. Many of the regulated wholesale markets have a principal market with large area and relatively better infrastructure and number of sub-yards attached to the principal market. The establishment of regulated markets has helped in creating orderly and transparent marketing conditions in primary assembling markets.

However, this does not mean that everything is fine in all the regulated markets of the district. The facilities created in market yards continue to be inadequate. The cleaning, grading and packaging of agril.produce before sale by the farmers have not been popularized by the market committees on a sufficient scale. The basic facilities viz., internal roads, boundary walls, electric light, loading and unloading facilities and weighing equipment's are available in more than eighty percent of the markets. One can realign the policy set toward increasing agricultural innovation, helping producers to increase output via improved productivity,



Figure 1:

for

Source of variation	Sum of squares(SS)	Degrees of freedom (d.f.)	Two-way Anova Mean square (MS)	F-ratio
Between columns treatment ?	() ()			

Figure 2: Table for

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²Regulated Agricultural Marketing System for Economic Development of Jajpur district in Orissa(India)-An Empirical Analysis

³regression to predict Savings (F12) is relevant from the coefficient table. So, it is evident from the coefficient table that constant, Savings (F12) has significant relationship with the Income (F10).

		OSAM Board is the sole authority and controlling body of all the RMCs. Committee works as a facilitator between the farmers and the procuring agencies[20-21]. The following facilities are provided in a market yard.
		1. Market Yard
		2. Weigh Bridge
		3. Meeting of Farmer & Agencies
		4. Godown for Storage (if not sold)
		5. Cold Storage for perishable items
		d) Revenue Sources of RMCS
2013		1. RMC is a revenue earning body and it earns its revenue by charging 1% (2% for paddy) of the
	Year	transaction amount for providing these above mentioned facilities.
16		2. RMC also earn its revenue from the check gates, by charging 1% of the way bill value from the traders carrying notified produces.
	Volume	Under the provisions of the Orissa Agricultural
	XIII	Produce Market Act, 1956, Regulated
	Issue	
	IX	
	Version	
	I	
	()	Market Committees (RMCs) have been established in the State for regulation of buying and selling of
	Global	agricultural produce. There are 65 R.M.Cs
	Jour-	covering 55 Revenue Sub-Divisions of the
	nal	State. The Chairman of the R.M.Cs are Col-
	of	lectors/ A.D.Ms/ Sub-Collectors[13-15]. b)
	Man-	Markets and Market Yards Across the 65
	age-	RMCs in the state at present, there are 428
	ment	market yards in the State, which include 53
	and	Principal Market Yards, the rest being sub-
	Busi-	market yards. Besides, there are 567 tem-
	ness	porary market yards for Paddy Procurement.
	Re-	Out of 314 Blocks, 111 Blocks do not have any
	search	regulated market. Now under the award of the
		13thFinance Commission, marketsgare being
		set up in these uncovered blocks. The RMCs
		are making efforts to upgrade the facilities in
		the existing market yards and the Gram Pan-

c) Regulated Market Committee (RMCS) competitive price for the produce and prevent the cheating of farmers

Under

Agricultural Produce Markets Act, 1956, 65 RMCs

have been established in the State for regulation of

purchase and sale of agricultural produce. Of these

65 RMCs, 61 RMCs are having elected Committees while election in 3 RMCs is sub-judice and one newly

the provisions of the Act relating to the notified produces. 4. To achieve an efficient system of buying and selling of agricultural commodities, 5. To provide for regulation of agricultural produce markets. 6. Conducting open auction or close tender

Volume XIII	Regression: a All requested variables entered. F1, F10, F7, F4, F11, F5, F3, Variables Entered/Removed
Issue IX	
Version I	
Year 2013	
()	b Dependent Variable: F2
Business Coefficients	
Research	

Variables	Unstandardized Coefficients	Standardized Coefficients	Standardized Coefficients
(Constant)	2674.937		
F3	147.397		
F4	7045.785	.079	Beta
F5	162.229	.298	.303
F6	-4.374	.023	-
F7	-4.973	160.649	.149
	3.185		.048
	165.460		1.039
			.297
F8	-3.885	6.483	-
			.245
F9	-	293.320	
	282.435		.446
F10	-1.823	.002	-
			.403

Figure 5: System for Economic Development of Jajpur district in Orissa(India)- An Empirical Analysis

F10		2.531000	.299	.756	.4
F11		- .000	-.897	-	.3
		4.408		.953	
F12		2.336000	.995	.766	.4
F1		- .023	-.044	-	.8
		5.742		.250	
F2		3.520000	.188	1.101	.2
a Dependent Variable: F3					
as independent variables. T					
lin					
ea					
re					
gr					
si					
technique is employed to know					
dependent on what independe					
there is a significant relations					
Y	Variables Entered/Removed	Variables Entered	Variables Removed	F2, F9, F5, F1, F4, F7, F8, F11, F1	
2013					
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ness					
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search					
F5 F7		4.933000	.254	1.162	.2
		110.092	.6088	.238	.8
F6 F8		- .000	-.793	-	.1
		4.54118	.38015	1.358	.9
		.789		.043	
F7 F9		9.400242	.090	-.389	.7
		- 841.7581		-	.7
		218.673		.260	
F8 F10		5.735010	.193	.600	.5
		7.585006	.492	1.214	.2
F9 F11		.455	.430	.384	.3
		.134	.085	1.501	.1

		Variables Entered/Removed			
		Variables Entered	Variables Removed	Method	
		F4, F11, F1, F2, F7, F8, F3, F10, F9, F6, F12	.	Enter	
a All requested variables entered.					
b Dependent Variable:		Model Summary			
F5		R	R Square	Adjusted R Square	Std. Error of the Estimate
		.751	.563	.323	3560.86
a Predictors: (Constant), F4, F11, F1, F2, F7, F8, F3, F10, F9, F6, F12					
Anova					
		Sum of Squares	Mean Square		F
Regression		327342006.671	29758364.243		2.347
Residual		253594295.329	12679714.766		
		Total	580936302.000		
a Predictors: (Constant), F4, F11, F1, F2, F7, F8, F3, F10, F9, F6, F12					
b Dependent Variable:					
F5					
Coefficients					
Variables	Unstandardized Coefficients	Standardized Coefficients		t	Sig.
	B	Std. Error	Beta		
(Constant)	-2841.264	2243.163	-	.220	
			1.267		
F6	-5.195	.018	-.176	-.292	.773
F7	124.209	120.648	.231	1.030	.316
F8	6.668	4.681	.436	1.425	.170
F9	120.636	223.709	.198	.539	.596
F10	-8.824	.002	-.202	-.513	.613
F11	7.635	.024	.301	.317	.754
F12	-8.009	.016	-.661	-.511	.615
F1	12.297	11.391	.184	1.079	.293
F2	-2.804	.168	-.029	-.167	.869
F3	128.214	110.333	.249	1.162	.259
F4	3.574	.059	.126	.604	.553

Figure 7:

Income (F10), Expenditure (F11) and Savings (F12) as independent variables. Variables Entered/Removed

	Variables Entered	Variables Removed	
F6, F2, F5, F1, F11, F4, F3, F8,		.	Enter
a All requested variables entered. b Dependent	F9, F10, F12	Model Summary	2013
Variable: F7			ear
	R	R Square Adjusted R	Y
			Std.
			Er-
			ror
Square .363 a Predictors: (Constant), F6, F2, F5, F1, F11, F4, F3, F8, F9, F10, F12		.767 .589	Anova Sum o

a Predictors: (Constant), F6, F2, F5, F1, F11, F4, F3, F8, F9, F10, F12 b Dependent Variable: F7 Coefficient

vii. Transportation

If Transportation (F7) is considered a dependable variable and Distance (F1), Area (F2), Number of villages (F3), Population (F4), Commodity (F5), Infrastructure Facilities (F6), Traders (F8), Infrastructure Facilities (F9)

Figure 8: Regulated Agricultural Marketing System for Economic Development of Jajpur district in Orissa(India)- An Empirical Analysis

independent variables. Variables Entered/Removed									
				Variables Entered		Variables Removed		Model Summary	
				F7, F11, F1, F4, F2, F6, F5, F3, F10, F9, F12		.		E	
Y	a All requested variables entered. b Dependent Variable: F8			Model Summary					
2013				R	R Square		Adjusted R Square	Std. Error of the Estimate	
ear									
Volume Estimate 162.09 Sum of Squares Mean Square .788 .672 a Predictors: (Constant), F7, F11, F1, F4, F2, F6, F5, F3, F10, F9, F12									
XIII									
Issue									
IX									
Ver-									
sion									
I									
()	Coefficients	Variables Entered/Removed	Model Sum of Squares	Mean Square	Std. Error	Adjusted R Square	viii. Traders Standardized Coefficients		
Global		(Constant)	94.574						
Jour-		F9	215.303		10.250				
nal		F10	1.620		.000				
of		F11	5.107		.001				
Man-		F12	1.927		.001				
age-		F1	-1.206		.527				
ment		F2	-.359		.008				
and		F3	-4.539		5.143				
Busi-		F4	3.088		.003				
ness		F5	1.168		.010				
Re-		F6	1.382		.001				
search		F7	2.360		5.262				
				-9.022					
If Traders (F8) is considered as a dependent variable and Distance (F1), Area (F2), Population (F3), Population (F4), Comm. Expenditure (F5), Transportation (F6), Infrastructure (F7), Infrastructure (F8), Infrastructure (F9), Infrastructure (F10), Expenditure (F11) and									

Figure 9: Regulated Agricultural Marketing System for Economic Development of Jajpur district in Orissa(India) - An Empirical Analysis

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Figure 10: Regulated Agricultural Marketing System for Economic Development of Jajpur district in Orissa(India)- An Empirical Analysis is

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Figure 11: Regulated Agricultural Marketing System for Economic Development of Jajpur district in Orissa(India)- An Empirical Analysis

F11	-.195	Variables Entered/Removed	.437**	.154	.005	.108	.311**
F12	.177	Variables Entered	.130	.218*	Variables Method	.002	.354**
	F7	F8	F9	F10	F11	F12	
F1	-.322	-.107	.031	-.130	-.195	.177	
F2	.134	-.048	.255*	.393**	.437**	.130	
F3	-.032	-.014	.312**	.189	.154	.218*	
F4	.154	-.041	.014	.143	.005	.002	
F5	.061	.225*	.350**	.211*	.108	.354**	
F6	.142	.437**	.717**	.498**	.311**	.300**	
F7	1.000	.104	-.060	.027	.096	-.076	
F8	.104	1.000	.327**	.187	.020	.136	
F9	-.060	.327**	1.000	.652**	.428**	.583**	
F10	.027	.187	.652**	1.000	.872**	.662**	
F11	.096	.020	.428**	.872**	1.000	.345**	
F12	-.076	.136	.583**	.662**	.345**	1.000	

[Note: * *]

Figure 12: Regulated Agricultural Marketing System for Economic Development of Jajpur district in Orissa(India)- An Empirical Analysis

Hence, from the coefficient table we understand that from F1, F2, F3, F4, F5, F6, F7, F8, F10, F11 and F12 constant and Savings (F12) has an impact on Infrastructure facilities (F9). So, savings will be impacted when there is a change in infrastructure facilities.

x. Income If Income (F10) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Livestock (F6), Transportation (F7), Traders (F8), Infrastructure Facilities (F9), Expenditure (F11) and Savings (F12) as independent variables. The linear regression technique is employed to know whether Income is dependent on what independent variables and find out if there is a significant relationship between Income and other independent variables giving raise to the coefficient of determination value. It is found that R2 equals to 0.861 and this R2 value is significant. Hence, from the coefficient table we understand that from F1, F2, F3, F4, F5, F6, F7, F8, F9, F11 and F12 constant and Savings (F12) has an impact on Income (F10). So, savings will be impacted when there is a change in income.

xi. Expenditure

If Expenditure (F11) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Livestock (F6), Transportation (F7), Traders (F8), Infrastructure Facilities (F9), Income (F10) and Savings (F12) as independent variables. The linear regression technique is employed to know whether Expenditure is dependent on what independent variables and find out if there is a significant relationship between Expenditure and other independent variables giving raise to the coefficient of determination value. It is found that R2 equals to 0.976 and this R2 value is significant. The regression to predict Savings (F12) is relevant from the coefficient table. So, it is evident from the coefficient table that constant, Savings (F12) has significant relationship with the Expenditure (F11). Hence, from the coefficient table we understand that from F1, F2, F3, F4, F5, F6, F7, F8, F9, F11 and F12 constant and Savings (F12) has an impact on Income (F10). So, savings will be impacted when there is a change in expenditure.

xii. Savings

If Savings (F12) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Livestock (F6), Transportation (F7), Traders (F8), Infrastructure Facilities (F9), Income (F10) and Expenditure (F11) as independent variables. The linear regression technique is employed to know whether Savings is dependent on what independent variables and find out if there is a significant relationship between Savings and other independent variables giving raise to the coefficient of determination value. It is found that R2 equals to 0.987 and this R2 value is significant. The regression to predict Expenditure (F11) is relevant from the coefficient table. So, it is evident from the coefficient table that constant, Expenditure (F11) has significant relationship with the Savings (F12). Hence, from the coefficient table we understand that from F1, F2, F3, F4, F5, F6, F7, F8, F9, F10 and F11 constant and Expenditure (F11) has an impact on Savings (F12). So, expenditure will be impacted when there is a change in savings.

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