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Marketing of Agricultural Commodities in Orissa : An Empirical Study of Regulated Market Committee.

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ABSTRACT

Agricultural commodity marketing system in the State of Orissa is distinctly different from that of other states with fully functional regulated marketing system. It is observed that the ownership and functioning of the markets is not uniform with the physical markets being owned by different agencies such as RMCs, Municipalities, Panchayats and also purely private persons. The state Odisha economic development of the state logs behind the other states of India. This not only impressed to conduct a survey but also to evaluate the role of agricultural commodity marketing for the development of rural economy of the district and the steps taken by state government in agricultural marketing. Also to assess the regulated agricultural knowledge based marketing system. Finally, the study gives some suggestions for the improvement of efficiency and transparency in the marketing of agricultural produce.

Key words : Regulated Market Committee(RMC), e-Agriculture, Agricultural Knowledge based Marketing Systems (AKMS),Orissa State Agricultural Marketing Board(OSAM),Analysis & Analysis of Variance (ANOVA), Orissa Agricultural Produce Markets Act(OAPM),.

Introduction

Indian agriculture recorded high productivity growth and has shown remarkable measures of socio-economic change in rural areas due to a combination of policy changes, high rates of public investment in agricultural research and new technology, supporting output prices, a regime of subsidised input prices, infrastructure development to improve the functioning of their agricultural markets. Among others, it includes liberalising the agricultural market through repeal or dismantling of the market regulations all together along with governing structure of the agricultural markets in order to revive growth in the agricultural sector. Because majority of the population depends directly or indirectly on it. About 45 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 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.

Kuzmets 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 80 per cent of total main workers are engaged in agriculture. Being a state of villages, about 88 per cent of total population lives in rural areas [1].

Relevance of the Study

This is a study of broad agricultural marketing in the economic development in Orissa with a special reference to during the period 2018 to 2021. 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. 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].

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].

Objectives of this Study:

Gravity of the problem and its pervasive significance in the economy of the state, Odisha in general 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 commodities marketing for the development of rural economy of the district and the steps taken by state government in agricultural marketing.

2. To assess the needs of improving regulated agricultural knowledge based marketing system in Odisha.

3. To give some suggestions for the improvement of efficiency and transparency in the marketing of agricultural commodities.

4. Empirically examine impact of regulations of agricultural markets on agricultural growth and poverty outcomes.

5.Empirically determine and explain emergence of the specific form of regulations of the agricultural commodity markets in Odisha.

Scope of the Study

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 all districts i.e Angul, Balangir, Balasore, Bargarh, Bhadrak Boudh, Cuttack,Deogarh, Dhenkanal, Gajapati, Ganjam, Jagatsinghpur, Jajpur, Jharsuguda, kalahandi, Kendrapara, Kendujhar, Khordha, Koraput, Malkangiri, Mayurbhanj, Nabarangpur, Nayagarh, Nuapada, Puri,Rayagada, Sambalpur, Sonepur, Sundergarh districts of Odisha which are covered under the study to explain the standard of living situation of the farmers residing in these areas. The study also provides detail understanding and analysis of various aspects of marketing of agricultural commodities in Orissa an empirical analysis based on regulated market committee.

As all the blocks of the districts 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].

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 commodity 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 informationhas been collected from the published and unpublished 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 commodity marketing in Orissa and the economic development of all the districts an extensive survey is made upon a few selected rural markets of the all the districts[7-9].

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

$$F1=C_0+C_2F_2+C_3F_3+C_4F_4+C_5F_5+C_6F_6+C_7F_7+ {}_8F_8+C_9F_9+C_{10}F_{10}+C_{11}F_{11}+C_{12}F_{12}$$

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.

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) =

$$\frac{N\sum XY - \sum X.\sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}.\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

X = given, or reduced values of the first variable
Y = given, or reduced value of the second variable, and
N = number of pairs of observations of X and Y.

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.

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.

Following Null and Alternate Hypotheses were testes by applying 'T' test-

H_{01} : There is no significant difference in impact of Price realization for the perishable agriculture commodities.

H_{02} : There is no significant difference in impact of Hesitancy expected from the part of fruit and vegetable traders in associating with farmer.

H_{03} : There is no significant difference in impact of Success rate of marketing systems in perishable agriculture commodities .

H_{04} : There is no significant difference in impact of Participatory decision making improves the efficiency and transparency of the rural markets.

Table-A showing the result of T

Sl.No	Hypothesis No.	T-Value (Cal)	Result
1.	H_{01} & H_{a1}	0.638	H_{01} Accepted
2.	H_{02} & H_{a2}	0.137	H_{02} Accepted
3.	H_{03} & H_{a3}	0.328	H_{03} Accepted
4.	H_{04} & H_{a4}	0.513	H_{04} Accepted

(Critical Value of 'T'= 1.645 at 5% level of significance)

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 Ci ,which follows t-distribution with (n-1) degrees of freedom.The null hypothesis is $C_i = 0$.

if $t^* < t$ (tabulated), we accept the null hypothesis i.e. we accept that $\hat{C}_i$ is not significant.

if $t^* > t$ (tabulated), we reject the null hypothesis and we accept the alternative one. i.e. $\hat{C}_i$ is statistically significant. Thus, greater the value of t^* the stronger the evidence that Ci is statistically significant.

H_{01} : There is no significant difference in impact of Price realization for the perishable agriculture commodities due to a direct correlation with the unorganized nature of the farmers in the sector.

H_{02} : There is no significant difference in impact of Hesitancy expected from the part of fruit and vegetable traders in associating with farmer due to regulated market condition.

H_{03} : There is no significant difference in impact of success rate of marketing systems in perishable agriculture commodities due to a direct correlation with the transparency in the management system.

H_{04} : There is no significant difference in impact of Participatory decision making improves the efficiency and transparency of the rural market due to good infrastructure.

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.

F-statistic is computed as

$$F = \frac{\text{Mean sum of square of explained sum square}}{\text{Mean sum of square of residual sum square}}$$

The null hypothesis H_o 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.

Goodness of Fit (R^2) :

In statistics, the **coefficient of determination**, denoted $\boldsymbol{R^2}$ 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.

$$R^2 = \frac{\text{var iations explained}}{\text{var iations required to explain}} = \frac{\hat{B}^2 \sum X_i^2}{\sum Y_i^2}$$

$$= \frac{\sum Y_i^2 - \sum e_i^2}{\sum Y_i^2} = 1 - \frac{\sum e_i^2}{\sum Y_i^2}$$

Analysis of variance Table for Two-way Anova

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.

Table – 1.0

Analysis of variance Table for Two-way Anova

Source of variation	Sum of squares(SS)	Degrees of freedom (d.f.)	Mean square (MS)	F-ratio
Between columns treatment	$\sum \frac{(T_j)^2}{n_j} - \frac{(T)^2}{n}$	(c – 1)	$\frac{\text{SS between columns}}{(c - 1)}$	$\frac{\text{MS between columns}}{\text{MS residual}}$
Between rows treatment	$\sum \frac{(T_i)^2}{n_i} - \frac{(T)^2}{n}$	(r – 1)	$\frac{\text{SS between rows}}{(r - 1)}$	$\frac{\text{MS between rows}}{\text{MS residual}}$
Residential or error	Total SS – (SS between columns + SS between rows)	(c-1)(r-1)	$\frac{\text{MS residual}}{(c – 1) (r – 1)}$	
Total	$\sum X_{ij}^2 - \frac{(T)^2}{n}$	(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.

Multiple Regression Analysis

Multiple regressionsis 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.

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 few selected regulated markets of the each district 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 and urban, 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.

Agricultural Commodity Marketing System in Odisha.

Agricultural commodity marketing usually refers to all the activities involved in the supply of farm inputs and output- including all those operations which are related to the procurement, collecting, grading, storing, food and agro processing transportation, financing, and selling of the agricultural produce. All these activities may be divided into pre-cultivation, cultivation, and post-production activities, or into input marketing and output marketing. An efficient agricultural marketing system is imperative for development of agriculturesector of the state. In the context of global integration of markets, the importance of a market driven agricultural ecosystem is of significant importance.The Royal commission on Agriculture (1928) commented at length on the defects prevailing in the agricultural marketing sector and recommended that these can only be removed by the establishment of such markets that would confer immense scope for the cultivating classes in India. Accordingly, most of the States took steps for enactment of their Agricultural produce Marketing and Regulation Acts. Market Regulation Scheme in our State came into force after the enactment of Orissa Agril. Produce Markets Act 1956 and the Rules made thereunder in 1958. There were only 15 Market Committees during 2nd FYP which have now gone up to 65. A separate Directorate of Agricultural Marketing was established in 1996.Orissa State Agricultural Marketing Board is the apex Agricultural Marketing Institution in the state responsible for creation of marketing infrastructure, and for exercisingsupervision and control over the Regulated Market Committees of the state[10]. It was established in the year 1984 under the amended provisions of the Orissa Agricultural Produce Markets Act, 1956 (OAPM). The OSAM Board functions under the Chairmanship of the Minister, Cooperation. The OSAM Board receives funds from different sources like central assistance under thework plan and the RLTAP for establishment of new Market Yards, Krushak Bazaars and for development of existing market yards in the RMCs. The OSAM Board undertakesmassive extension activities like organizing farmers' awareness campaigns and exhibitions to educate the farmers on their rights and the marketing facilities available for them[12].

Establishment of Regulated Market Committees (RMCs) and Market Yards

Under the provisions of the Orissa Agricultural Produce Market Act, 1956, Regulated Market Committees (RMCs) have been established in the State for regulation of buying and selling of agricultural produce. There are 65 R.M.Cs covering 55 Revenue Sub-Divisions of the State. The Chairman of the R.M.Cs are Collectors/ A.D.Ms/ Sub-Collectors[13-15].

Markets and Market Yards

Across the 65 RMCs in the state at present, there are 428 market yards in the State, which include 53 Principal Market Yards, the rest being sub-market yards. Besides, there are 567 temporary market yards for Paddy Procurement. Out of 314 Blocks, 111 Blocks do not have any regulated market .Now under the award of the 13thFinance Commission, markets are being set up in these uncovered blocks. The RMCs are making efforts to upgrade the facilities in the existing market yards and the Gram Panchayat markets under their control and efforts are also being made to establish new market yards[16-19].

Regulated Market Committee (RMCs)

Under the provisions of the Orissa 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 constituted RMC is having a nominated Committee. 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

Revenue sources of RMCs

1. RMC is a revenue earning body and it earns its revenue by charging 1% (2% for paddy) of the transaction amount for providing these above mentioned facilities.

2. RMC also earn its revenue from the check gates, by charging 1% of the way bill value from the traders carrying notified produces.

Work Flow of Buying and Selling at RMCs

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.

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.

3. It also earn its revenue from the check gates, by charging 1% of the way bill value from the traders carrying 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 method for sales of agricultural produce to ensure a fair and competitive price for the produce and prevent the cheating of farmers by market functionaries.

7. Issuing license to all the market functionaries including traders

8. Collecting market fees which are calculated on the basis of value of volume of a commodity bought and sold in the markets. Sometimes it may be based oncartload or truckload.

9. Disputes arising between producer seller and traders by reason of the quality of the producer, accounts and deductions of unauthorized charges are solved by the sub-committee of the market committee this avoid the legal complications and unnecessary expenditure.

10. Market charges are clearly defined and specified.

11. Market practices are regulated and undesirable activities are brought under control.

12. Correct weighment is ensured by periodical inspection and verification of scales and weights.

13. Suitable arrangements for the settlement of disputes is provided.

14. Reliable and up to date market news is made available to the farmers.

15. Suitable quality standards and standard terms for buying and selling are conveniently enforced.

16. Reliable statistics of arrivals, stocks, prices are maintained.

17. Other facilities like shades for the sale of produce, space for parking carts, drinking water facilities and cisterns of cattle, rest houses, grading and warehousing facilities are provided.

18. Open auction method is strictly followed.

19. Propaganda for agricultural improvement is more conveniently carried out.

20. Maintenance and improvement of the markets and its buildings.

21. Maintenance of standards of weights and measures.

22. Payment of interests of loans.

Agricultural Marketing in Odisha

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. 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. 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[25-27].

To understanding the agricultural commodity marketing system of Odisha 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 co-operatives and regulated markets with reference to agriculturally developed blocks of the state have been explained to elaborate the present scenario of agricultural marketing of the state. The farmers are forced with distress sale to honors their debt obligation. 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.[28-29]

Now present construction of roads in the rural areas of the district is not sufficient to meet the requirements of better transportation. 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 farmers are ignorant about market information. Being ignorant, they are heavily exploded by the middlemen and financial initiatives in several ways. Besides these constraints, other challenges make them handicapped in developing their profession [30].

Agricultural Knowledge based Marketing Systems (AKMS),

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.

• 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.

Functional analysis of regulated agricultural commodity markets

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 agriculturalmarketing, consumer and producerstrategy 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.

Multiple regression analysis in case of regulated agricultural commodity market

(A) Distance from District Headquarter

If Distance from district Head Quarter (F1) is considered as the dependable variable and Area (F2), No. of villages (F3), Population (F4), Commodity (F5), 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 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. It is found that R^2 equals to 0.292 and this R^2 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 Distance (F1).

Regression:

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F12, F4, F2, F7, F5, F8, F3, F9, F10, F6, F11	.	Enter

a All requested variables entered.

b Dependent Variable: F1

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.632	.293	-.078	78.43

a Predictors: (Constant), F12, F4, F2, F7, F5, F8, F3, F9, F10, F6, F11

ANOVA

	Sum of Squares	Mean Square	F
Regression	47018.565	3265.6652	.679
Residual	89832.170	5421.348	
Total	1203486.975		

a Predictors: (Constant), F12, F4, F2, F7, F5, F8, F3, F9, F10, F6, F11

b Dependent Variable: F1

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	58.540	42.517		1.377	.184
F2	-9.007	.003	-.062	-.282	.781
F3	-.543	2.172	-.070	-.250	.805
F4	2.160	.001	.051	.190	.852
F5	4.477	.004	.299	1.079	.293
F6	-2.846	.000	-.064	-.084	.934
F7	-2.586	2.290	-.321	-1.129	.272
F8	-6.301	.093	-.275	-.680	.504
F9	6.727	4.028	.735	1.670	.110

F10	-1.282	.000	-.196	-.390	.701
F11	-1.942	.000	-.512	-.424	.676
F12	7.929	.000	.437	.264	.795

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.

(B) 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 0.276 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).

Regression:

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F1, F10, F7, F4, F11, F5, F3, F8, F9, F6, F12	.	Enter

a All requested variables entered.

b Dependent Variable: F2

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.529	0.276	-.115	4741.54

a Predictors: (Constant), F1, F10, F7, F4, F11, F5, F3, F8, F9, F6, F12

ANOVA

	Sum of Squares	Mean Square	F
Regression	145155781.584	15923252.871	.708
Residual	549643379.916	22482168.996	
Total	774799161.500		

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

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6045.785	3674.937		2.634	.016
F3	172.229	197.397	.303	1.101	.284
F4	-4.374	.079	-.149	-.554	.586
F5	-4.973	.298	-.048	-.167	.869
F6	3.185	.023	1.039	1.408	.175
F7	165.460	160.649	.297	1.030	.315
F8	-3.885	6.483	-.245	-.599	.556
F9	-282.435	293.320	-.446	-.963	.347
F10	-1.823	.002	-.403	-.804	.431
F11	3.194	.031	1.215	1.020	.320
F12	-1.487	.021	-1.184	-.717	.482
F1	-4.386	15.573	-.063	-.282	.781

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.

(C) 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. 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 No. of villages (F3).

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F2, F9, F5, F1, F4, F7, F8, F11, F10, F6, F12	.	Enter

a All requested variables entered.

b Dependent Variable: F3

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.744	.553	.307	6.98

a Predictors: (Constant), F2, F9, F5, F1, F4, F7, F8, F11, F10, F6, F12

ANOVA

	Sum of Squares	Mean Square	F
Regression	1307.161	119.742	2.149
Residual	975.714	48.786	
Total	2182.875		

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

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.446	4.562		-.317	.755
F4	1.983	.000	.361	1.827	.083
F5	4.933	.000	.254	1.162	.259
F6	-4.541	.000	-.793	-1.358	.190
F7	9.400	.242	.090	.389	.702
F8	5.735	.010	.193	.600	.555
F9	.455	.430	.384	1.058	.303
F10	2.531	.000	.299	.756	.458
F11	-4.408	.000	-.897	-.953	.352
F12	2.336	.000	.995	.766	.453

F1	-5.742	.023	-.044	-.250	.805
F2	3.520	.000	.188	1.101	.284

a Dependent Variable: F3

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.

(D) Population

If Population (F4) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Commodity (F5), 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 Population is dependent on what independent variables and find out if there is a significant relationship between population and other independent variables giving raise to the coefficient of determination value. It is found that R^2 equals to 0.475 and this R^2 value is significant. The regression to predict Expenditure (F11) is relevant from the coefficient table followed by Livestock (F6). So, it is evident from the coefficient table that constant, Expenditure (F11) and Livestock (F6) has significant relationship with the Population (F4).

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F3, F1, F11, F2, F6, F7, F5, F8, F10, F9, F12	.	Enter

a All requested variables entered.

b Dependent Variable: F4

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.714	.510	.241	13324.65

a Predictors: (Constant), F3, F1, F11, F2, F6, F7, F5, F8, F10, F9, F12

ANOVA

	Sum of Squares	Mean Square	F
Regression	2694315751.922	436301431.993	1.697
Residual	4590924861.953	187546243.098	
Total	7420240613.875		

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

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3704.902	7903.046		.311	.759
F5	.500	.829	.142	.604	.553
F6	6.317	.065	.605	.970	.344
F7	110.039	462.618	.058	.238	.814
F8	.789	18.381	.015	.043	.966
F9	-218.673	841.758	-.101	-.260	.798
F10	7.585	.006	.492	1.214	.239
F11	.134	.085	1.501	1.579	.130
F12	-9.241	.055	-2.160	-1.671	.110
F1	8.305	43.812	.035	.190	.852
F2	-.345	.624	-.101	-.554	.586
F3	721.620	394.878	.396	1.827	.083

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.

(E) 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. The regression to predict Traders (F8)is relevant from the coefficient table. So, it is evident from the coefficient table that constant, Traders (F8) has significant relationship with the Commodity (F5).

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: F5

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.751	.463	.383	4165.86

a Predictors: (Constant), F4, F11, F1, F2, F7, F8, F3, F10, F9, F6, F12

ANOVA

	Sum of Squares	Mean Square	F
Regression	327342006.671	32758364.243	2.547
Residual	253594295.329	15279814.766	
Total	580946302.000		

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		-1.267	.220
F6	-5.195	.018	-.176	-.292	.773
F7	123.209	120.648	.231	1.030	.316
F8	7.668	4.681	.436	1.425	.170
F9	124.636	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

a Dependent Variable: F5

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.

(F) 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 linear regression technique is employed to know whether Livestock is dependent on what independent variables and find out if there is a significant relationship between livestock and other independent variables giving raise to the coefficient of determination value. It is found that R^2 equals to 0.950 and this R^2 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 Livestock (F6).

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F5, F2, F10, F1, F4, F7, F11, F3, F8, F9, F12	.	Enter

a All requested variables entered.

b Dependent Variable: F6

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.969	.950	.907	44695.64

a Predictors: (Constant), F5, F2, F10, F1, F4, F7, F11, F3, F8, F9, F12

ANOVA

	Sum of Squares	Mean Square	F
Regression	624926635914.345	56811512355.850	28.438
Residual	39953998531.874	1997699926.594	
Total	664880634446.219		

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

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-64913.811	25409.936		-2.555	.019
F7	2168.525	1476.390	.119	1.469	.157
F8	179.462	46.815	.347	3.833	.001

F9	2595.330	2768.138	.126	.938	.360
F10	8.389	.022	.057	.388	.702
F11	-1.001	.204	-1.168	-4.917	.000
F12	.596	.147	1.454	4.066	.001
F1	-12.314	147.066	-.005	-.084	.934
F2	2.830	2.011	.087	1.408	.175
F3	-1859.457	1369.140	-.107	-1.358	.190
F4	.711	.733	.074	.970	.344
F5	-.818	2.801	-.024	-.292	.773

a Dependent Variable: F6

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.

(G) Transportation

If Transportation (F7) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Live-stock (F6), Traders (F8), Infrastructure Facilities (F9), Income (F10), Expenditure (F11) and Savings (F12) as independent variables. The linear regression technique is employed to know whether Transportation is dependent on what independent variables and find out if there is a significant relationship between transportation and other independent variables giving raise to the coefficient of determination value. It is found that R^2 equals to 0.581 and this R^2 value is significant. The regression to predict Expenditure (F11) followed by Livestock (F6) is relevant from the coefficient table. So, it is evident from the coefficient table that constant, Expenditure (F11) followed by Livestock (F6) has significant relationship with the Transportation (F7).

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F6, F2, F5, F1, F11, F4, F3, F8, F9, F10, F12	.	Enter

a All requested variables entered.

b Dependent Variable: F7

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.767	.581	.363	6.43

a Predictors: (Constant), F6, F2, F5, F1, F11, F4, F3, F8, F9, F10, F12

ANOVA

	Sum of Squares	Mean Square	F
Regression	1184.964	107.724	2.604
Residual	827.255	41.363	
Total	2012.219		

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

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.343	4.144		.807	.429
F8	-1.0	.008	-.499	-1.715	.102
F9	.762	.370	.670	2.060	.053
F10	7.441	.000	.092	.239	.814
F11	4.296	.000	.911	1.011	.324
F12	-3.622	.000	-1.607	-1.326	.200
F1	-2.317	.021	-.186	-1.129	.272
F2	3.044	.000	.170	1.030	.315
F3	7.969	.205	.083	.389	.702
F4	2.564	.000	.049	.238	.814
F5	4.052	.000	.218	1.030	.316
F6	4.490	.000	.816	1.469	.157

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.

(I) Traders

If Traders (F8) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Live-stock (F6), Transportation (F7), Infrastructure Facilities (F9), Income (F10), Expenditure (F11) and Savings (F12) as independent variables. The linear regression technique is employed to know whether Traders is dependent on what independent variables and find out if there is a significant relationship between traders and other independent variables giving raise to the coefficient of determination value. It is found that R^2 equals to 0.761and this R^2 value is significant. The regression to predict Livestock (F6) followed by Expenditure (F11) is relevant from the coefficient table. So, it is evident from the coefficient table that constant, Livestock (F6) followed by Expenditure (F11) has significant relationship with the Traders (F8).

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F7, F11, F1, F4, F2, F6, F5, F3, F10, F9, F12	.	Enter

a All requested variables entered.

b Dependent Variable: F8

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.888	0.761	.672	162.09

a Predictors: (Constant), F7, F11, F1, F4, F2, F6, F5, F3, F10, F9, F12

ANOVA

	Sum of Squares	Mean Square	F
Regression	1956824.002	177893.091	6.771
Residual	525435.967	26271.798	
Total	2482259.969		

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

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	215.303	94.574		2.277	.034
F9	1.620	10.250	.041	.158	.876
F10	5.107	.000	.179	.655	.520
F11	1.927	.001	1.164	1.909	.071
F12	-1.206	.001	-1.524	-1.812	.085
F1	-.359	.527	-.082	-.680	.504
F2	-4.539	.008	-.072	-.599	.556

F3	3.088	5.143	.092	.600	.555
F4	1.168	.003	.006	.043	.966
F5	1.382	.010	.211	1.425	.170
F6	2.360	.001	1.221	3.833	.001
F7	-9.022	5.262	-.257	-1.715	.102

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.

(I) Infrastructure facilities

If Infrastructure Facilities (F9) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Live-stock (F6), Transportation (F7), Traders (F8), Income (F10), Expenditure (F11) and Savings (F12) as independent variables. The linear regression technique is employed to know whether Infrastructure Facilities is dependent on what independent variables and find out if there is a significant relationship between Infrastructure Facilities and other independent variables giving raise to the coefficient of determination value. It is found that R^2 equals to 0.883 and this R^2 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 Infrastructure Facilities (F9).

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F8, F2, F1, F11, F7, F4, F5, F3, F10, F6, F12	.	Enter

a All requested variables entered.

b Dependent Variable: F9

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.916	0.883	.751	3.53

a Predictors: (Constant), F8, F2, F1, F11, F7, F4, F5, F3, F10, F6, F12

ANOVA

	Sum of Squares	Mean Square	F
Regression	1307.737	118.885	9.521
Residual	249.732	12.487	

Total	1557.469		

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

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.668	2.065		2.261	.035
F10	-1.978	.000	-.277	-1.193	.247
F11	-5.985	.000	-.144	-.251	.805
F12	1.612	.000	.813	1.058	.303
F1	1.820	.011	.166	1.670	.110
F2	-1.569	.000	-.099	-.963	.347
F3	.116	.110	.138	1.058	.303
F4	-1.538	.000	-.033	-.260	.798
F5	1.188	.000	.073	.539	.596
F6	1.622	.000	.335	.938	.360
F7	.230	.112	.261	2.060	.053
F8	7.700	.005	.031	.158	.876

a Dependent Variable: F9

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.

(J) Income

If Income (F10) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Live-stock (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 R^2 equals to 0.873 and this R^2 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 Income (F10).

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F9, F2, F5, F1, F4, F7, F3, F8, F11, F6, F12	.	Enter

a All requested variables entered.

b Dependent Variable: F10

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.928	0.873	.784	460292.35

a Predictors: (Constant), F9, F2, F5, F1, F4, F7, F3, F8, F11, F6, F12

ANOVA

	Sum of Squares	Mean Square	F
Regression	26232383764224.290	2384762160384.027	11.256
Residual	4237380884022.589	211869044201.129	
Total	30469764648246.880		

a Predictors: (Constant), F9, F2, F5, F1, F4, F7, F3, F8, F11, F6, F12

b Dependent Variable: F10

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	253169.256	296002.149		.855	.403
F11	-4.750	2.930	-.819	-1.621	.121
F12	4.312	1.797	1.555	2.399	.026
F1	-588.566	1509.079	-.038	-.390	.701
F2	-17.177	21.364	-.078	-.804	.431
F3	10990.123	14529.397	.093	.756	.458
F4	9.051	7.455	.140	1.214	.239
F5	-14.745	28.716	-.064	-.513	.613
F6	.890	2.294	.131	.388	.702
F7	3811.691	15980.752	.031	.239	.814
F8	411.827	628.287	.118	.655	.520
F9	-33562.217	28143.637	-.240	-1.193	.247

a Dependent Variable: F10

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.

(K) Expenditure

If Expenditure (F11) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Live-stock (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 R^2 equals to 0.976 and this R^2 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).

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F10, F1, F7, F2, F4, F5, F3, F8, F12, F9, F6	.	Enter

a All requested variables entered.
b Dependent Variable: F11

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.988	.976	.963	33024.25

a Predictors: (Constant), F10, F1, F7, F2, F4, F5, F3, F8, F12, F9, F6

ANOVA

	Sum of Squares	Mean Square	F
Regression	883081417326.041	80280128847.822	73.611
Residual	21812025613.678	1090601280.684	
Total	904893442939.719		

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

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-14838.913	21365.835		-.695	.495
F12	.630	.039	1.319	16.065	.000
F1	-45.866	108.197	-.017	-.424	.676
F2	1.549	1.518	.041	1.020	.320
F3	-985.333	1034.023	-.048	-.953	.352
F4	.825	.523	.074	1.579	.130
F5	.657	2.069	.017	.317	.754
F6	-.547	.111	-.469	-4.917	.000
F7	1132.679	1119.906	.053	1.011	.324
F8	80.005	41.900	.133	1.909	.071
F9	-522.771	2086.485	-.022	-.251	.805
F10	-2.445	.015	-.142	-1.621	.121

a Dependent Variable: 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.

(L) Savings

If Savings (F12) is considered as the dependable variable and Distance (F1), Area (F2), No. of villages (F3), Population (F4), Commodity (F5), Live-stock (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 R^2 equals to 0.987 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 Savings (F12).

Variables Entered/Removed

Variables Entered	Variables Removed	Method
F11, F4, F1, F2, F7, F8, F5, F3, F10, F9, F6	.	Enter

a All requested variables entered.
b Dependent Variable: F12

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.994	0.987	.980	50465.23

a Predictors: (Constant), F11, F4, F1, F2, F7, F8, F5, F3, F10, F9, F6

ANOVA

	Sum of Squares	Mean Square	F
Regression	3911263077277.507	355569370661.592	139.617
Residual	50934797210.493	2546739860.525	
Total	3962197874488.000		

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

Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	9373.973	32974.515		.284	.779
F1	43.741	165.791	.008	.264	.795
F2	-1.684	2.350	-.021	-.717	.482
F3	1219.660	1592.404	.029	.766	.453
F4	-1.326	.793	-.057	-1.671	.110
F5	-1.609	3.149	-.019	-.511	.615
F6	.760	.187	.311	4.066	.001
F7	-2229.850	1682.240	-.050	-1.326	.200
F8	-116.926	64.524	-.093	-1.812	.085
F9	3287.990	3107.627	.065	1.058	.303
F10	5.183	.022	.144	2.399	.026
F11	1.472	.092	.704	16.065	.000

a Dependent Variable: 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.

Consumer and Producer Correlation Coefficient Table based on regulated market

	F1	F2	F3	F4	F5	F6
F1	1.000	-.179	.079	-.061	.210*	-.115
F2	-.179	1.000	.017	-.037	.043	.173
F3	.079	.017	1.000	.052	.340**	.269**
F4	-.061	-.037	.052	1.000	-.007	.035
F5	.210*	.043	.340**	-.007	1.000	.287**
F6	-.115	.173	.269**	.035	.287**	1.000
F7	-.322	.134	-.032	.154	.061	.142
F8	-.107	-.048	-.014	-.041	.225*	.437**
F9	.031	.255*	.312**	.014	.350**	.717**
F10	-.130	.393**	.189	.143	.211*	.498**
F11	-.195	.437**	.154	.005	.108	.311**
F12	.177	.130	.218*	.002	.354**	.300**

* *Correlation is significant at the 0.05 level (2-tailed).*
** *Correlation is significant at the 0.01 level (2-tailed).*

	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

* *Correlation is significant at the 0.05 level (2-tailed).*
** *Correlation is significant at the 0.01 level (2-tailed).*

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 agriculturefound in the present study.

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 agricultural 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 thaneighty percent of the markets. One can realign the policy set toward increasing agricultural innovation, helping producers to increase output via improved productivity, in response to clear growth in market demand.

The regulated market with required infrastructure for smooth trade is need of the hour, particularly in the cities with large population base (like Baleswar, Baripada, Bhubaneswar, Berhampur, Cuttack, Puri, Rourkela and Sambalpur). The existing markets can be modernized by providing proper infrastructure and facilities. The Rural Haats may be developed as collection centres equipped with required infrastructure and facilities. These collection centres may be, in turn, linked to SHGs/CIGs to have backward linkages in place .For providing the forward linkage ,these collection centres should be linked to the whole sale markets. The existing markets may be converted to the daily wholesale markets providing requisite infrastructure and facilities for daily trading of commodities.

References:

1. ACCESS (2011). "Scouting and Upscaling Livelihoods Innovations in Odisha: The Power of Aggregation in Agriculture", Access Development Services, New Delhi.
2. Behura, D., D. Pradhan and D. Naik (1999). "Freshwater Fish Marketing in Orissa: An Econometric Analysis", Indian Journal of Agricultural Marketing, Vol- 13 (2); 45-46.
3. Biswal, A. and S. Kumar (2011). "Economics of Livestock Marketing in Orissa", Indian Journal of Agricultural Marketing, Vol- 25 (1); 54-64.
4. Das, C. B. P. (2006). The Problem and Prospect of Cotton Production and Marketing in Orissa- A Study", Indian Journal of Agricultural Marketing, Vol- 20 (3); 70-71.
5. Fafchamp, M., R. Vargas-Hill and B. Minten, (2006). The Marketing of Non-Staple Crops in India, Background report prepared for the World Bank Study, "India Taking Agriculture to the Market". South Asia Agriculture and Rural Development Unit, World Bank, Washington, D.C.
6. Govt. of Orissa (2007). "Review Taken up by Chief Minister on 03.05.2007 on Progress of Contract Farming and Marketing of Agricultural Produce in the state." Information and Public Relations Department, Govt. of Orissa, Bhubaneswar.

7. Govt. of Orissa (2010). "Economic Survey 2009-10", Planning and Coordination Department, Directorate of Economics and Statistics, Government of Orissa, Bhubaneswar.
8. Govt. of Orissa (2011). "Orissa Agricultural Statistics- 2009-10", Directorate of Agriculture and Food Production, Govt. of Orissa, Bhubaneswar.
9. Kumar, N. and S. Kapoor (2010). "Value Chain Analysis of Coconut in Orissa" Agricultural Economics Research Review, Vol. 23 (Conf.); 411-418.
10. Mallick, S. C. (1987). "Marketing of Rice in Orissa", Research Publications, Bhubaneswar.
11. Mehakud, P. K. (1997). "Production and Marketing of Vegetables in Sadar Block of Keonjhar district", M. Sc. Agricultural Economics Thesis submitted to OUAT, Bhubaneswar (unpub.).
12. Mohapatra, B. K. (2001). "Marketing of Potato in Jagatsinghpur District", M. Sc. Agricultural Economics Thesis submitted to OUAT, Bhubaneswar (unpub.).
13. Mohapatra, S. C. (1999). "Production and Marketing of Onion in Bolangir District of Orissa", Indian Journal of Agricultural Marketing, Vol- 13 (1); 40-43.
14. S.Prusty,P.Biswal,P.R.Hathy (2013)." Regulated Agricultural Marketing System for Economic Development of Jajpur District in Orissa(India)- An Empirical Analysis.
15. Naik, D. and D. N. Singh (2006). "Marketing of Vegetables in Rural Markets of Koraput District in Orissa: A Micro Level Analysis", Jn. Res. Orissa Univ. Agric. Tech.Vol. 24 (1&2); 108-117.
16. Nayak, S. R. (2008). "Production and Marketing of Vegetables in Rajkanika Block of Kendrapara District of Orissa", M. Sc. Agricultural Economics Thesis submitted to OUAT, Bhubaneswar (unpub.).
17. NIAM (2005). "Study on Problems and Prospects of Fruits, Vegetables and Flowers Marketing in Orissa", National Institute of Agricultural Marketing, Jaipur.
18. NSSO (2005). "Income, Expenditure and Productive Assets of Farmers Households",
19. Report No. 497 (59/33/5), National Sample Survey Organization, Ministry of Statistics and Programme Implementation, Govt. of India, New Delhi.
20. Panigrahi, H. S. (2008). "Production and Marketing of Cotton in Kalahandi District of Orissa", M. Sc. Agricultural Economics Thesis submitted to OUAT, Bhubaneswar (unpub.).
21. RCDC (2011). "Contract Farming in Odisha: Prospects and Constraints", Regional Centre for Development Cooperation, Bhubaneswar.
22. Sahu H.K. and S. Thipathi (1998). "Price Spread and Marketing Channels for Shrimp in Puri District of Orissa", Indian Journal of Agricultural Marketing, Vol- 12 (1&2); 35-44.
23. Sarangi, K. K. (2009). "Study of Regulated Markets in Orissa with Special Reference to Export of Farm Produce", Ph. D. (Agricultural Economics) Thesis submitted to OUAT, Bhubaneswar (unpub.).
24. Seth, B. N. (2010). "Dhenkanal Watermelons Cools Off Bhutan"
25. http://expressbuzz.com/states/orissa/dhenkanal-watermelons-cool-offbhutan/162601.html accessed on 05.03.2011.
26. Singh, Alka, A. K. Vasisth, B. R. Atteri and D. Singh (2004). "Assessment of Market Infrastructure and Integration", Indian Journal of Agricultural Marketing, Vol- 18 (3); 30-39.
27. Vasundhara (2005). "Development Policies and Rural Poverty in Orissa: Macro Analysis and Case Studies", Vasundhara, Bhubaneswar
28. Vaswani, L. K., P. K. Das, P. K. Parida and Tapas Mandal (2011). "Study of Vegetable Marketing System in Earstwhile Cuttack and Puri Districts in Orissa", Report submitted to OSAMB by KIIT School of Rural Management, Bhubaneswar.
29. World Bank (2007). "India: Taking Agriculture to the Market", Internal Report No. 35953-IN, South Asia Sustainable Development Department, World Bank, Washington, D. C.
30. WORLP (2005). "Cropping System Strategy", Working Paper No. 52, Western Orissa Rural Livelihoods Project, Government of Orissa.

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