



## Factors Affecting Selection of Marketing Channel for Vegetable Farmers in Sundargarh, Distirct

**Sumant Kerketta<sup>1</sup> & D.K. Mahalik<sup>2</sup>**

<sup>1</sup>Assistant Professor, Department of Business Administration, Sambalpur University

E-mail: [sumantkerketta@suniv.ac.in](mailto:sumantkerketta@suniv.ac.in)

<sup>2</sup>Associate Professor, Department of Business Administration, Sambalpur University

**Abstract:** India is the world's largest producer of many vegetables, whereas Odisha ranks fourth in terms of production of vegetables. Sundergarh district in Odisha plays an important role for the vegetable growers and also for the consumers, so that the farmers could be benefited on one hand and on the other hand the consumers could fetch fresh vegetables in proper price. The study was carried out to find different factors affecting the selection of marketing channels for the tribals growing vegetables in Sundargarh District of Odisha. Tribal vegetable growers residing in 16 blocks of this district were undertaken for the study. Factor analysis technique was adopted to identify significant factors and their impact on the selection of marketing channels by tribal farmers of Sundargarh District. Three hundred and four samples were collected from seventeen blocks of Sundargarh through simple random sampling. Eleven factors were taken for observation based on literature review. Factor analysis was carried out on IBM SPSS Version 22. The analysis figures out a four factor solution and suggests four factors to be of the highest importance in selecting marketing channels by the tribal vegetable producer in the district of Sundargarh; namely; Time, Perishability, Quantity of Production, Types of Vegetable Produced & Knowledge of other Markets.

**Keywords:** Gaddiwala, Tribal Farmers, Kuchni, Eigen Value

**Received :** 25 November 2022

**Revised :** 12 December 2022

**Accepted :** 16 December 2022

**Published :** 23 December 2022

### TO CITE THIS ARTICLE:

Kerketta, S., & Mahalik, D.K. (2022). Factors Affecting Selection of Marketing Channel for Vegetable Farmers in Sundargarh, District, *Society and Culture Development in India*, 2: 2, pp. 387-397. <https://doi.org/10.47509/SCDI.2022.v02i02.11>

## Introduction

Sundargarh is one of the richest districts of Odisha, both in terms of natural resources and minerals. It comprises of 17 blocks and a Sadar i.e. the main town of the district named after the city (Figure 1). The categorisation based on demography is given below (Figure 1). Each block has its vegetable requirement which has to be met in

due time. Two million people inhabit these 17 blocks of Sundargarh. Out of these, approximately 1.5 million belong to the Scheduled Tribe, 200,000 and 800,000 belong to Scheduled Caste, General and OBC categories respectively, and thus is referred to be a tribal district. This significantly implies that most of the farmers are also tribals. The distribution of land for farming in these blocks is approximately 300,000 hectares, much lower than the required amount to feed the population (2011 Census). The approximate vegetable need of one healthy person was found to be 80.8 kg per capita per month in 2017. Going by this calculation the required amount of vegetables for Sundargarh can be calculated to be approximately 169149709 kg. This need is to be fulfilled either by the local farmers or has to be transported from outside the district, although the entire stretch of fertile land has been used for the cultivation of grains, cereals, and vegetables. Western Odisha always has had a reputation for the cultivation of rice and it is substantial that the farmers of this location are much inclined to it than to anything else. So the cultivation of vegetables is generally limited to the off seasons only. The farmers who are using their lands for vegetable cultivation in the mean agro- seasons have a good land holding where they can simultaneously cultivate rice and vegetable.

The main products cultivated by the farmers are categorised into the following types:

1. Single Fruiting
2. Multiple Fruiting
3. Roots
4. Climber
5. Leafy
6. Others/Tree

The study of literature and farmers from the locality indicate various marketing channels available for the distribution of the vegetables (listed below). The channels are means by which the vegetables produced by the farmers reach to the end consumers.

1. Direct Selling From Farm
2. Direct Selling to Consumer (Farmer-Consumer)
3. Farmer-Retailer-Consumer
4. Farmer-Commission Agent-Retailer-Consumer
5. Farmer-Commission Agent-wholesaler-Retailer-Consumer

6. Farmer-Commission Agent-Gaddiwala (Distributor)-wholesaler-Retailer-Consumer

## Review of Literature

---

To analyse the processes involved in the vegetable marketing process and the factors affecting the channel selection process, first, we need to define the existing marketing process for vegetable production. Marketing is one of the oldest, yet most relevant disciplines that we, as humans are exposed to. The marketing process for vegetables typically involves market, buyer, seller, middle man/men and a mode of transaction among them. To justify the term market, in terms of vegetables, we can define it as a place of transactions between two or more parties (individual or group) at a time.

The market involves buyers and sellers where buyers share their respective needs or want which can be satisfied through an exchange (Kotler 1999). The market can also be defined as a collection of actual and potential buyers for a particular kind of goods and/or services. He also suggests that none of the buyers and/or sellers can sell or purchase that particular product or service outside that collection (Houck 1984).

To understand from a layman's point of view we can construct a basic understanding of the market by implying it as a "place" that may or may not be physical which encompasses several people (buyer, seller & middlemen) who negotiate over a product and/or services for a value in terms of monetary benefits.

We can elucidate the market as a place of interaction for buyers and sellers. The term buyer can be explained as a person/group that purchases any goods and/or services that hold a specific value proposition and thus a seller should be the one from whom the buyer has purchased. Now from the flow of understanding, we can conclusively define seller as the person/group who provides the value to the buyer s/he needs. Middle-men are those involved in the transaction process. Most of the time, the producer of goods and services does not participate in the transaction with the buyer directly, rather he/she sells the goods and/or services to a third party known as a middle man who works as a bridge between the buyer and seller to complete the transaction. This eases out the function of both buyer and seller as the buyer gets the deliverables at his/her reach and the producer of that can specialise in producing better quality outputs. The transaction which takes place between the buyer and seller can be made up of 1) the transfer of goods and/or services that provides a value to the buyer from the seller and 2) transfer of money/benefits from the buyer to the seller for the value sought from the goods and/or services.

Generally, this happens in terms of monetary benefits. Now, having defined the basic components of the marketing process, we need to define the (mediums called channels) through which the total transaction process takes place. Channels are the medium through which the buyer and seller/middle-man gather at a place to communicate & transact over a class of goods and/or services in terms of a monetary benefit.

Kotler defines channels as a set of interdependent organisations which facilitate a product or service available for use or consumption by the consumer or business (Kotler 2019). Marketing channel can be construed as an array of exchange relationships that create customer value in the acquisition of the goods and services, its consumption, and disposition (Pelton et al. 2002). Distribution channels are the entities through which goods move from producers to seller and consumers (Levy & Weitz 2004). The selling of vegetables can be described as a process of retailing because it functions as the association between the buyer and seller. Bajaj et al. (2005) define retailing as the linkage between the producer, and consumer. Levy & Weitz (2004) describe retailing, “as the set of business activities that adds value to the products and services sold to customers for their personal and family use.” Nahar et al. (2020) describe factors such as Price Change, Absence of Market Information, Transportation, and Distance of the market & Product Perishability for the selection of marketing channels for pineapples distribution in Samarahan, Malaysia.

Xaba (2013) discusses that the age of the farmer, quantity of the produce and education of the farmer are the important factors in selecting better available channels from given alternatives; whereas the decision to choose between the different wholesaling markets is further influenced by distance to the market, membership of the market and agreement in the marketplace. Finally, the study suggests improving the factors to enhance the channels. LeRoux et al. (2009) highlight the increase in demand for local foods which opens up opportunities for small-scale agricultural products. The study emphasises various factors such as volume of the goods produced, unit of profits per sale, labour requirements and risk preferences for the selection of different marketing channels. The perishable nature of vegetables and unpredictable harvest volumes also influence the selection process. Price & Quantity negotiation, Price Logistics, Control of Origin, Control of Cultural methods, Control of farmer remuneration, Reliable supply and quality are the factors that have been discussed in the selection of a channel for Farm-Supermarket linkage. Shephard (2005).

Uva (2002) From a study of Vegetable farms' direct marketing activities in New York emanates challenges relating to labour, competitions, and non-capital

constraints (time & money) being the main barriers faced by the farms in direct marketing of vegetables. Supply Chain Management plays a dominant role in vegetable marketing as vegetables are perishable in nature and have a short shelf-life. Thus, middle-man and & poor supply chain facilities are factors that have a great influence over the marketing process as these contribute to a hike in vegetable produce without any value addition. However, profits are the causes behind any work/business and thus profitability is another factor that influences vegetable marketing (Narasalagi & Hegade 2013).

Prakash & Dhamotharan (2012) in a study of SCM of tomato to retail outlets in Bangalore city concluded that procurement, grading, packaging and presence of intermediaries are one of the prime factors that contribute to vegetable marketing resulting in less consumer pricing, ensured quality, lesser marketing cost, timely availability and most importantly higher margins to the farmers.

As per Yong & Pearce (2013), factor analysis is used to identify latent constructs or factors influencing the main variable(s) under study. It is commonly used to reduce variables into a smaller set to save time and facilitate easier interpretations of the data avoiding manual calculations and haste. A study relating to attributes and factors affecting students' learning style conclusively justified the use of factor analysis for constructing new factors having a relative influence on the study (Hassan et al. 2012). Kalpana & Shibu (2014) established the dominance of factor analysis on factor identification and its impact on the principal factor under observation. The study also suggests the use of Factor analysis for reducing factors to find prime factors responsible and their impact. This tool endeavours to untwine convoluted and divergent relationships of variables by identifying and establishing linkage between them and building a new basis of understanding about the data (Balasundaram 2009).

## Objectives

---

Keeping the above perspective in mind the basic objectives are:

- To find out and establish a perfect medium or channel of selling the vegetables which is produced by the tribal vegetable growers of Sundargarh district.
- To examine how they select such mediums and their implications on their livelihood.
- To analyse how such factors influence the selection of the medium

- To access how they use the findings to create and suggest the optimum channel for themselves.

## Research Methodology

---

The study was undertaken in the district of Sundargarh comprising of 17 Blocks and 20,00,000 people. Simple random sampling was used to select respondents from all the possible locations. 304 samples were drawn from the population to be studied under observation. The sample size is limited to 304 because of the uneven distribution of farmers in the blocks mentioned. Factor analysis was applied to the derived data. Factor analysis is used to reduce the data and find out a specific variance in variables. The analysis uses varimax rotation which is an orthogonal rotation technique to maximise variances of squared loadings. The principal axis factoring technique is used for the analysis.

## Findings and Analysis

---

The study undertakes the use of Factor analysis to establish major factors responsible for the selection of marketing channels. The reviewed literature explains the utility of factor analysis for evaluating important factors that might have an impact on the selection criteria. This study uses IBM SPSS Statistics 22 for running the statistical calculations. Factor analysis identifies the key factors or variables which have a higher influence on the selection of marketing channels as compared to that of others. Factor analysis results in the given tables namely Communalities, Total Variance explained, scree plot rotated factor matrix and factor matrix. Out of the tables & graphs obtained, the ones communicating the most have been explained below. The communalities table above (Table 1) shows the total variance in one variable. The table above shows that 78.1% of the variance in the factor **Convenience** is explained by the extracted factors. Also, 69.6%, 69.2% & 65.9% of the variance is explained by the extracted factors in the variables; **Demand of the Vegetables, Perishability & Time**, respectively. That implies that the variables can explain variance in the derived factors and hence can be undertaken for further study. Table 2 named Total Variance Explained shows different important factors responsible for the selection of marketing channels and total variance in the given data set. There are a total of 11 factors in the calculations. Out of the factors, only 4 show eigen values greater than one which indicates that a 4-factor solution can be followed for the research. The Extraction Sums of Squared Loadings column shows that the 4 extracted factors explain 52.397% of the variance. The rotated sums of squared loadings column also

indicate in the same direction of the 4-factor solution. This can further be explained by the scree plot below.

The Scree Plot (Figure 1) denotes a drop in the eigen value once it moves from variable 1 to variable 2 which shows the change in the degree of variance. As the graph follows, it witnesses a drop from variable 2 to 3 and then 3 to 4 signifying the decrease in the importance of the factors respectively. Crossing Factor 4 the graph follows a shallow drop which justifies the use of the 4- factor solution. Table 3 is named as Rotated factor matrix which has rotated loading. From the above table, we can observe that factor 1 comprises 5 variables namely-Time, Perishability, Quantity of Production, Types of Vegetable Produced & Knowledge of other Markets. Factor 2 comprises 3 variables Time, Cost & Convenience. Factor 3 comprises Convenience & Availability of the market, and Factor 4 includes the Financial Strength of the Middlemen.

**Table 1: Communalities Table**

<i>Communalities</i>	<i>Initial</i>	<i>Extraction</i>
TIME	0.604	0.659
COST	0.195	0.267
CONVENIENCE	0.563	0.781
PERISHABILITY	0.613	0.692
QUANTITY OF PRODUCTION	0.379	0.438
AVAILABILITY OF THE MARKET	0.362	0.501
DEMAND OF THE VEGETABLE	0.491	0.696
TYPES OF VEGETABLE PRODUCE	0.207	0.238
FINANCIAL STRENGTH OF THE MIDDLE MAN	0.239	0.542
INFORMATION/DEMAND KNOWLEDGE OF OTHER MARKET	0.447	0.568
CONCENTRATION OF CUSTOMER	0.264	0.381
Extraction Method: Principal Axis Factoring.		

## Discussion

The study shows that the farmers more inclined towards factors such as Time, Perishability, Quantity and Types which can be taken as these farmers might not have high land holdings, technological advances, irrigation systems or high production seeds or fertilizers which restricts them from producing more and squeezes their reach of larger markets.

**Table 2: Eigen Value Explained**

<i>Total Variance Explained</i>									
<i>Factor</i>	<i>Initial Eigenvalues</i>			<i>Extraction Sums of Squared Loadings</i>			<i>Rotation Sums of Squared Loadings</i>		
	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>
1	3.8	34.549	34.549	3.412	31.014	31.014	2.342	21.288	21.288
2	1.544	14.037	48.586	1.057	9.605	40.619	1.397	12.701	33.989
3	1.308	11.89	60.477	0.824	7.494	48.113	1.156	10.511	44.5
4	1.033	9.388	69.864	0.471	4.284	52.397	0.869	7.897	52.397
5	0.791	7.192	77.057						
6	0.627	5.7	82.757						
7	0.543	4.934	87.691						
8	0.433	3.937	91.628						
9	0.341	3.101	94.729						
10	0.31	2.822	97.551						
11	0.269	2.449	100						

Extraction Method: Principal Axis Factoring.

**Table 3: Rotated Factor Matrix**

<i>Rotated Factor Matrix<sup>a</sup></i>				
	<i>Factor</i>			
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
TIME	0.663	0.399	0.117	-0.215
COST	0.316	0.341	0.09	0.206
CONVENIENCE	0.388	0.395	0.667	-0.173
PERISHABILITY	0.677	0.326	0.175	-0.312
QUANTITY OF PRODUCTION	0.579	0.009	0.321	-0.004
AVAILABILITY OF THE MARKET	0.072	-0.095	0.694	-0.079
DEMAND OF THE VEGETABLE	-0.292	-0.667	0.207	0.35
TYPES OF VEGETABLE PRODUCE	0.465	-0.086	0.066	0.102
FINANCIAL STRENGTH OF THE MIDDLE MAN	-0.043	-0.124	-0.158	0.707
INFORMATION/DEMAND KNOWLEDGE OF OTHER MARKET	0.739	0.113	-0.018	-0.095
CONCENTRATION OF CUSTOMER	0.065	-0.608	-0.046	0.066

Extraction Method: Principal Axis Factoring.  
 Rotation Method: Varimax with Kaiser Normalization.  
 a. Rotation converged in 6 iterations.



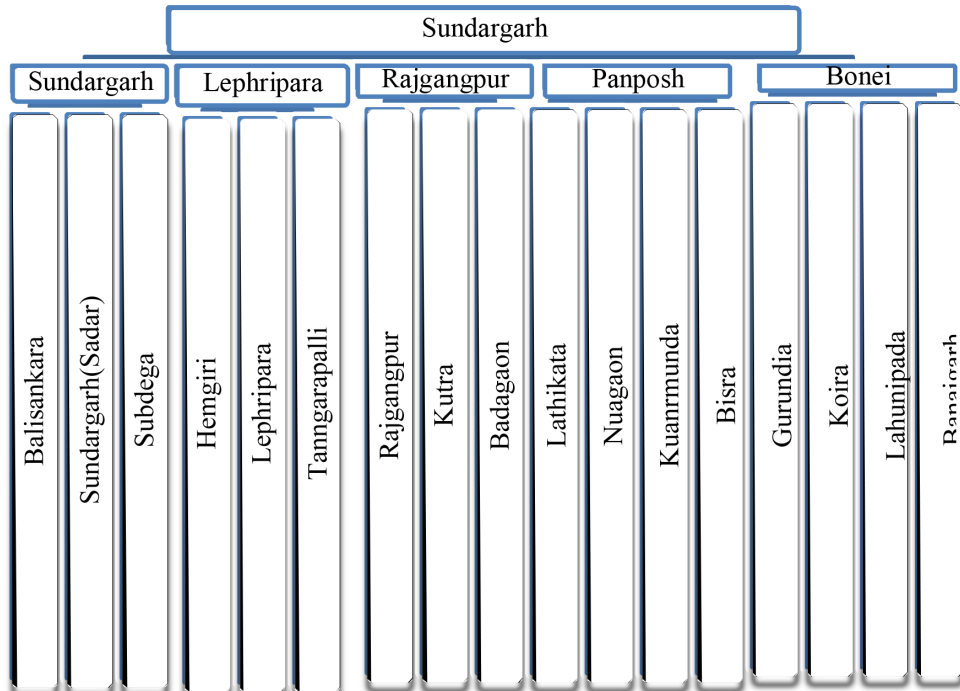


Figure 1: 17 Blocks of Sundargarh District

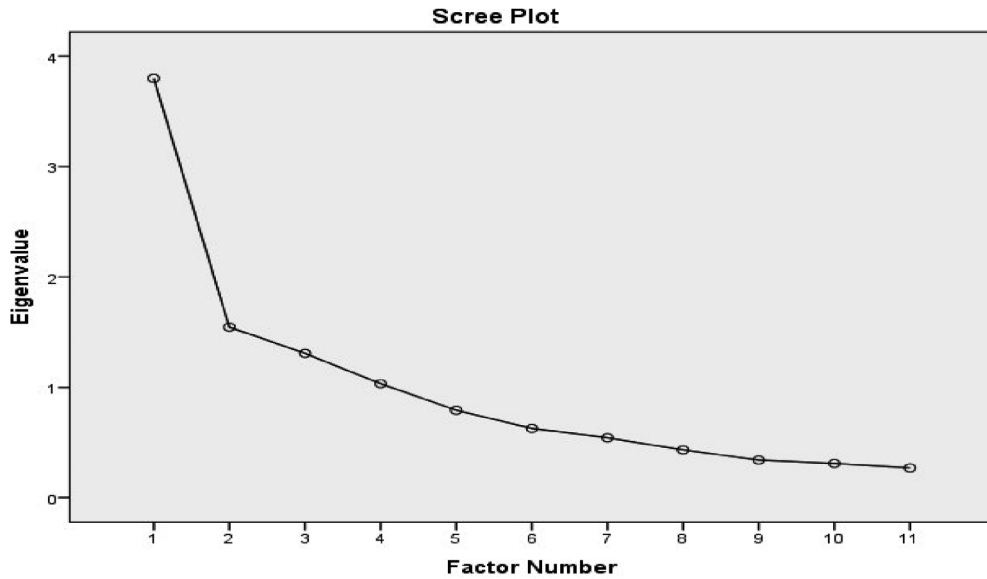


Figure 2: Scree Plot

## Concluding Remarks & Recommendations

---

From the study, we can conclude that the factors which have the highest influence on the selection of marketing channels are; Time, Perishability, Quantity of Production, Types of Vegetable Produced & Knowledge of other Markets. Hence, the ideal job for the researcher and farmers is to focus and rearrange the above-said factors to increase their performance as well as improve their sustenance. The study paves the path for future studies to find out the performance of marketing channels' in Sundargarh, irrespective of their origin, i.e., (no-tribal focused). The study is limited to Sundargarh District and hence can be further extended to the whole of Odisha to find out the performance of tribal vegetable growers and the factors responsible for the performance of the former.

## References

---

- Bajaj, C., Srivastava, N., & Tuli, R. (2005). Retail Management. Oxford University Press) *Economics*, Vol. 9(2). pp. 353-356
- Hassan, S., Ismail, N., Jaafar, W.Y.W., Ghazali, K., Budin, K., Gabda, & Samad, A.S.A (2012). Using factor analysis on survey study of factors affecting students' learning styles, *International Journal of Applied Mathematics and Informatics*, Vol 1: (1).
- Houck, J.P. (1984). Market: A definition of teaching. *Western Journal of Agricultural*.
- Kalpna, R., Shibu, N.S. (2014). Factor analysis on job involvement with special reference to women faculties of engineering colleges. *Global Journal for Research Analysis*, Issue 11, Vol 3, pp 50-52.
- Kotler, P., Armstrong, G., Saunders, G., & Wong, V. (1999). *Principles of Marketing* (2<sup>nd</sup> ed.). Prentice Hall Europe.
- Kotler, P., Armstrong, G., Opresnik, M.O.V. (2019). *Principles of marketing*. (17<sup>th</sup> Global ed). Pearson.
- LeRoux, M.N., Schmit, T.M., Roth, M. (2009). *Streeter evaluating marketing channel options for small-scale fruit and vegetable producers*. Working Paper, Department of Applied Economics and Management, Cornell University, Ithaca, New York.
- Levy, M., & Weitz, B.A. (2004). *Retail Management* (5<sup>th</sup> International ed.) McGraw Hill.
- Nahar, A., Saili, A.R., Hamzah, N.M., Abdul Fatah, F., Yusop, Z. and Kamarul Zaman, N.B. (2020). Challenges in marketing channel selection by smallholder pineapple growers in Samarahan, Sarawak, Malaysia. *Food Research 4 (Suppl. 5)* 77 – 85 Published by Rynnye Lyan Resources
- Narasalagi. V.M., & Hegade, G.A. (2013). A comparative study on profitability of supply chain formats in vegetable marketing in Karnataka. *Journal of Supply Chain Management Systems*, Volume 2, Issue 1.
- Nimalathasan, B. (2009). Factor analysis: Nature, mechanism and uses. In *Social and Management Science Research, Journal of Cost and Management Accountant, Bangladesh*.; Vol: XXXVII (2) pp:15-25.

- Pelton, L.E., Strutton, D., & Lumpkin, J.R. (2002). *Marketing channels: A relationship management approach* (2<sup>nd</sup> ed.). McGraw Hill.
- Prakash, K.C., & Dhamotharan, P.G. (2012). An analysis of supply chain of tomato from farm to retail outlets for Spencers' in Bangalore city. *International Journal of Management Research and Review*, Vol. 2, Issue 10, pp 1782-1799
- Shephard, A.W. (2004). *The implications of supermarket development for horticultural farmers and traditional marketing system in Asia*. Revised Paper Presented to the FAO/AFMA/FAMA Regional Workshop on the Growth of Supermarkets as Retailers of Fresh Produce, Kuala Lumpur.
- Uva, W.L. (2002). An analysis of vegetable farms' direct marketing activities in New York States. *Journal of Food Distribution Research*, pp 186-189.
- Xaba, B.G., & Masuku, M.B. (2013). *Sustainable Agriculture Research*; Vol. 2, No. 1; ISSN 1927-050X E-ISSN 1927-0518 Published by Canadian Center of Science and Education.
- Yong, A.G., & Pearce, S. (2013). A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology*, Vol. 9(2), p. 79- 94.