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### Investigate the qualitative and quantitative impact of marketing variables on business performance of agri-startups in supply chain management in Chhattisgarh

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#### Abstract

Startups have the capacity to generate a lot of jobs, frequently even more than larger businesses. This is particularly crucial in developing nations like India that have high unemployment rates. Established businesses frequently delegate some of their work to startups in order to free up time for their core competencies. Opportunities for foreign investment in the nation are created by this. Boost the economy: In addition to producing jobs, startups also increase economic activity. 36 of the 236 agri-businesses in the study sample were supply chain management-specific. Letters and personal contacts were made to all those startups in order to acquire information. Primary and secondary sources were used in the data collecting procedure, and the study employed survey methods through questionnaires. The impact study revealed that, for the financial year 2021-2022, the packaging and advertising spending coefficients were negative, at -7.342 and -9.849, respectively. Furthermore, a noteworthy rise in distribution expenses was noted at five percent, obtaining a coefficient of 45.99. Furthermore, the financial year 2022-2023 results of 4.537 and 1.068 showed that the marketing and distribution expenditure coefficients were significant at five percent; a related result of 3.811 showed that the packaging expenditure coefficient was significant at one percent.

**Keywords:** Start-ups, agri-business, establishment, pre-tested schedule, coefficients, financial year, questionnaires.

#### 1. Introduction

Startups have garnered more attention in India and other parts of the world in recent years due to their recognition as a key driver of economic progress. Along with the rise in start-ups comes an increase in employment. Startups use cutting-edge inventions and new technologies to deliver significant answers. Since startups are a means of bringing about socioeconomic change & growth. 33,973 start-ups from India are listed with DIPP. A total of 125 plans and policies are developed especially for start-ups by various Indian ministries.

Startups have the potential to generate a substantial number of jobs—often more than more established companies. This is especially crucial in developing nations like India that have high unemployment rates. Established businesses sometimes delegate some of their work to startups in order to free up time for their core talents. This opens up opportunities for foreign investment in the country. Boost to the Economy: In addition to creating jobs, startups promote economic activity. When they hire locals and make purchases of goods and services, money enters the economy, increasing government revenue and spurring overall economic growth. Innovation and Entrepreneurship Are Encouraged: The startup ecosystem fosters innovation and entrepreneurship, furthering technological advancements and social capital that benefit the whole economy. The integration of technology and agriculture through startups is becoming a

major factor in driving increased agricultural productivity and sustainability, particularly in underdeveloped countries. Agri-tech companies continue to receive substantial financial support, with global investments reaching \$10.6 billion in 2022, despite a 13% decrease from 2011. Venture capital investments in this sector have surged by an incredible 20 times over the last 10 years, a sign of the industry's growing importance in addressing food security in the face of issues associated to climate change and an expanding global population.

The Indian startup ecosystem has evolved dynamically over the last two decades. Startups in India are emerging in the fields of IT, agriculture, aviation, education, energy, health and space sectors. Since the launch of Startup India initiative in 2016, DPIIT has recognized 92,683 entities as startups as on 28<sup>th</sup> February 2023.

The input industry is one of the main areas where the need for agricultural inputs has increased. The creation of seeds, the use of biocontrol agents, and the industrial exploitation of microbes for a variety of products are all possible uses for agricultural biotechnology. Processing is another area where agribusiness owners are succeeding and having opportunities. The value addition of livestock products, such as milk, eggs, meat, and fish, has the potential to yield significant financial gains. Processing adds numerous times to the goods' worth, providing excellent returns. More jobs are available in marketing, shipping, cold storage and

warehousing facilities, credit, insurance, and logistic support services as a result of increasing agricultural production.

### Review of literature

Enida (2017) examined the effects of industry forces on firm performance using several sub-variables that explain each of industry forces according Porter's Model. The study was conducted using data from the 2012 to 2015 period. The regression analyses showed a statistically significant negative relationship between firm performance and distance to customers, uncertainty degree about future development, the number of competing firms and dependence on suppliers. The finding that there is a positive relationship between performance and continuous improvement of the products/services variable shows that the product served in this industry needs more improvement related with quality, product's attributes and location which makes a competitive advantage for construction companies. These results indicate that firms in the sample did not obtain only scale economies to enhance their performance but there are several factors indicating the performance.

Investigated the impact of marketing strategy on business performance with special reference to the selected SMEs in Oluyole local government area Ibadan, Nigeria. The survey research design method was used in this study which involves using a self-design questionnaire in collecting data from one hundred and three (103) respondents. The instrument used in this study is a close-ended questionnaire that was designed by the researchers. Correlation coefficient and multiple regression analysis were used to analyze the data with the aid of statistical package for social sciences (SPSS) version 20. The results show that the independent variables (i.e Product, Promotion, Place, Price, Packaging and After sales service) were significant joint predictors of business performance in term of profitability, market share, return on investment, and expansion. ( $F(6, 97) = 14.040$ ;  $R^2 = 0.465$ ;  $p < 0.05$ ). The independent variables jointly explained 46.5% of variance in business performance. Subsequently, recommendation was made to SMEs operators to produce quality products; charge competitive prices, position appropriately, use attractive package for the product, engage in after sales service and provide other distinctive functional benefits to consumers.

## 2. Materials and Methods

### Research method

The state of Chhattisgarh is divided into 33 districts, with most of the startups located in the plain area, mainly in Raipur, Durg, Bastar, etc. Since IGKV R-ABI, Raipur is the only centre that develops agribusinesses, it funds most of the agribusiness startups in the state. Out of all these, only supply chain-based agribusiness businesses have been selected, and their business analytics have been analyzed.

### Selection of respondent

36 of the 236 agri-startups in the study sample had a supply chain management only focus. Letters and in-person interactions were established with each of those startups in

order to obtain the information. More precisely, information was gathered by distributing a Google Forms questionnaire to those startups. Because only twelve startups could give accurate answers, the study solely included information from those twelve startups.

### Data collection

Information was obtained from a range of websites, academic journals, and portals to investigate the government policies and initiatives supporting agribusiness startup and incubation in Chhattisgarh, India. The study included both primary and secondary data sources to assess the start. A questionnaire was used in the study's survey technique, and primary and secondary sources were used in the data collection procedure. Primary data was collected via in-person interviews with a sample of respondents from startups using a pre-tested schedule.

### Method of analysis

The information obtained from the respondents was double-checked and updated for accuracy and sufficiency prior to being sent for further analysis. The primary data were categorized, tabulated, and analyzed using the relevant impact tools and statistics in compliance with the stated objectives of the study.

### Analytical tool

Model that is suggested to explain how marketing variables affect company performance

The following model was put forth to assess the effect of the firm-level variables on sales based on the body of existing literature:

$$S = \alpha + \beta_1 X_{ADV} + \beta_2 X_{DIST} + \beta_3 X_{MKT} + \beta_4 X_{PACK} + \epsilon.$$

Where,

S is sales (startup-wise sales).

ADV is advertising expenses.

DIST is distribution expenses.

MKT is marketing expenses.

PACK is packaging expenses.

$\beta_1$  to  $\beta_4$  is Regression coefficient of respective variables.

$\epsilon$  = Random term with zero mean and constant variance.

## 3. Results and Discussion

### Impact analysis of marketing variables in business performance of agri-startups

The impact analysis of marketing variables resulting in Cobb Douglas Production Function estimation for business performance has clearly indicated that the selected factors for business performance have a significant impact on total sales/revenue. However, the extent of impact of various factors on total sales/revenue varies considerably.

The variables used in the analysis were total sales/revenue (Rs.), dependent (Y) and independent variables, such as advertising expenditure (X1), distribution expenditure (X2), marketing expenditure (X3) and packaging expenditure (X4).

**Table 1:** Impact analysis of marketing variables in business performance of agri-startups in FY 2021-22-results of cobb douglas function analysis (Dependent variable: Sales/ Revenue (Rs.))

S. No.	Particular	Parameter	Coefficients	P-Value
1.	Intercept	a	26.519	0.046
2.	Advertisement expenses (Rs.)	b <sub>1</sub>	-9.849*	0.380
3.	Distribution expenses (Rs.)	b <sub>2</sub>	47.990*	0.243
4.	Marketing expenses (Rs.)	b <sub>3</sub>	2.268 <sup>(NS)</sup>	0.771
5.	Package/ Packaging expenses (Rs.)	b <sub>4</sub>	-7.342 <sup>(NS)</sup>	0.606
N= 12		R <sup>2</sup>	0.262	
		Adjust R <sup>2</sup>	-0.159	
		Return to scale ( $\sum b_i$ )	33.067	
P Value		Significance level		Confidence level
0.05		5%		95%
0.01		1%		99%

**Note:** \*\* Significant at one percent level, \* Significant at five percent level, NS-Not Significant

**Impact analysis of marketing variables in business performance of agri-startups in FY 2021-22-results of cobb douglas function analysis (Dependent variable: Sales/Revenue (Rs.))**

Table No. 1 represents the effect analysis of marketing variables derived from Cobb Douglas production function estimations for agricultural startups. It shows that all of the variables applied to agricultural startups have coefficient values that are not positive. The coefficients of distribution and advertising expenses were significant at the five percent level among the variables, whereas the coefficients of marketing and package/package expenses were not significant. in terms of agriculture startups' business success.

In terms of business performance, the coefficient of multiple determination (R<sup>2</sup>) was 0.262, and the estimated returns to scale was 33.067, both of which are greater than unity, indicating that the returns to scale were constant. It is evident that the coefficient of distribution expenditure is 45.990, which means that for every 5% increase in the value of this variable, the output may increase positively by 45.99%. In addition, according to the coefficient of distribution expenditure of -9.849, a 5% increase in the value of this variable leads to an adverse increase of 9.84% in output.

The coefficient of marketing spend for business performance was found to be 2.268, meaning that an increase of 5% in this variable will result in a positive 2.26% rise in revenues. In a similar vein, the coefficient of packaging expense was discovered to be -7.342, indicating that an increase of 5% in this variable will result in a negative 7.34% increase in revenues. With a greater than one estimated return to scale of 33.067 and a coefficient of multiple determination (R<sup>2</sup>) of 0.262.

**Impact analysis of marketing variables in business performance of agri-startups in FY 2022-23-results of Cobb Douglas Function analysis (Dependent variable: Sales/ Revenue (Rs.))**

Table 2 represents the impact of the analysis of marketing variables generated via Cobb Douglas production function estimates for agricultural startups. It demonstrates that all of the factors employed in agricultural startups have positive coefficient values.

The package/package expense coefficient was significant at the one percent level, the distribution expense and marketing expense coefficients were significant at the five percent level, and the non-significant variables included advertising expense. within the framework of agriculture businesses' profitability.

**Table 2:** Impact analysis of marketing variables in business performance of agri-startups in FY 2022-23-results of cobb Douglas function analysis (Dependent variable: Sales/ Revenue (Rs.))

S. No.	Particular	Parameter	Coefficients	P-Value
1.	Intercept	a	2.735	0.467
2.	Advertisement expenses (Rs.)	b <sub>1</sub>	1.121 <sup>NS</sup>	0.758
3.	Distribution expenses (Rs.)	b <sub>2</sub>	4.537*	0.142
4.	Marketing expenses (Rs.)	b <sub>3</sub>	1.068*	0.185
5.	Package/ Packaging expenses (Rs.)	b <sub>4</sub>	3.811**	0.005
N= 12		R <sup>2</sup>	0.971	
		Adjust R <sup>2</sup>	0.955	
		Return to scale ( $\sum b_i$ )	10.53	
P-Value		Significance level		Confidence level
0.05		5%		95%
0.01		1%		99%

**Note:** \*\* Significant at one percent level, \* Significant at five percent level, NS-Not Significant

In terms of business performance, the coefficient of multiple determination (R<sup>2</sup>) was 0.971, and the estimated returns to scale was 10.53, which is greater than unity, indicating that returns to scale were constant. It is evident that the coefficient of packaging expenditure is 3.811, which means

that a 1% increase in the value of this variable will lead to a 3.81% increase in output.

Regarding business performance, the coefficient of distribution expenses was determined to be 4.537, meaning that a 5% increase in this variable's value will result in a

4.53% increase in production. Similarly, the coefficient of marketing expenses was found to be 1.068, meaning that a 5% increase in this variable's value will result in a 1.06% increase in production. The estimated returns to scale were 10.53, and it is larger than one. The coefficient of determination (R<sup>2</sup>) is 0.9717.

**Qualitative impact protocol between marketing variables and business performance parameters**

From a qualitative perspective, Table 3 illustrates how marketing factors are involved in different aspects of

business performance and how strongly they have maintained their dominance. This is achieved by taking into account nine criteria among the variables. successfully establishes their presence in the operations of business performance.

Impact analysis between variables and parameters to determine how parameters influence variables during the purchase and use of goods and services.

**Marketing variables**

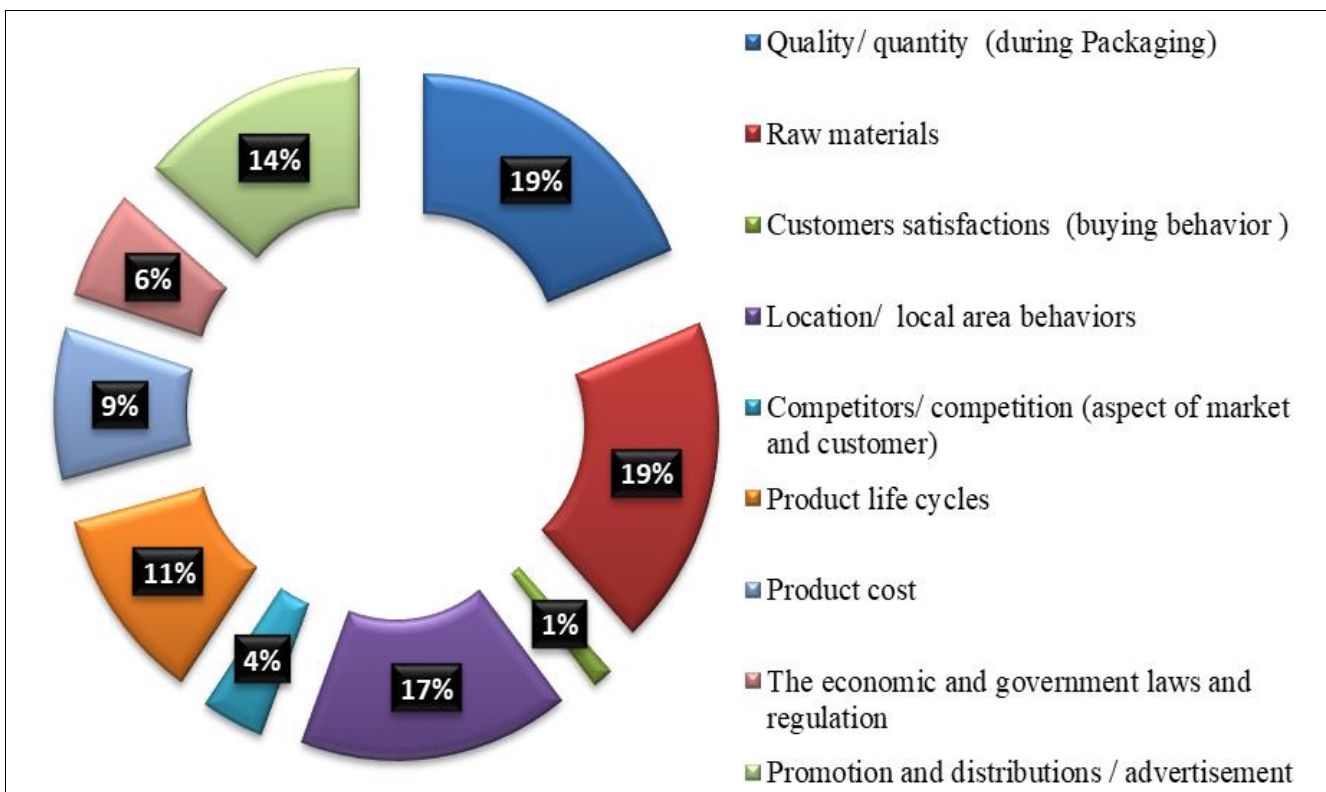
Price, Product, Promotion and Place.

**Table 3:** Qualitative impact protocol between marketing variables and business performance parameters

S. No.	Parameters	Percent position	Garrett value	Average of value	Rank
1.	Quality/ quantity (during Packaging)	83.3	31	81.30	I
2.	Raw materials	84.44	19	78.72	II
3.	Customers satisfactions (buying behavior)	5.56	81	75.07	III
4.	Location/ local area behaviors	72.22	38	73.82	IV
5.	Competitors/ competition (aspect of market and customer)	16.67	69	73.73	V
6.	Product life cycles	50	50	70.55	VI
7.	Product cost	38.89	56	69.09	VII
8.	The economic and government laws and regulation	27.78	62	64.56	VIII
9.	Promotion and distributions / advertisement	61.11	44	58.82	IX

The business performance was shown to be primarily influenced by nine criteria, including four marketing variables (pricing, product, promotion, and location), as shown in Table 3. Garret rating analysis was performed on the startup owners after obtaining their direct thoughts and gathering their data in the form of scale values. Following an evaluation of their rankings using the average score, it was systematically found that quality/quantity (during packaging) was seen as the most significant efficacy, with

an average score of 81.30 ranking it first. Raw materials came in second place with a score of 78.72, followed by customer satisfaction (buying behavior), location/local area behavior, competitors/competition (market and customer aspect), product life cycle, product cost, economic, and government law and regulation. Three, four, five, six, seven, eight, and nine are ranked, respectively, by 75.07, 73.82, 73.73, 70.55, 64.56, and, 58.82.



**Fig 1:** QUIP between marketing variables and business performance parameters

## 5. Conclusion

1. The state of Chhattisgarh has set up a network of more than twenty incubators.
2. The IGKV R-ABI, Raipur initiative offers funding to new businesses in the agriculture and related industries.
3. The impact analysis revealed that, for the financial year 2021-2022, the coefficients for packaging and advertising expenses were negative, at -7.342 and -9.849, respectively. Additionally, a significant five percent distribution expenditure was noted as a result of the coefficient of 45.99.
4. Additionally, for the financial year 2022-2023, results of 4.537 and 1.068, respectively, indicated that the coefficient of distribution expenditure and marketing expenditure were significant at five percent; a similar result of 3.811 indicated that the coefficient of packaging expenditure was significant at one percent.

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