

**CREDIT ACCESSIBILITY AND FLORICULTURE SUSTAINABILITY: AN
ECONOMETRIC ANALYSIS OF CHIKKABALLAPUR DISTRICT, KARNATAKA.**

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Abstract

The Chikkaballapur district is located in the southern part of Karnataka. The region is identified for its significant presence in floriculture and agricultural activities. Floriculture, a vital segment of agriculture, is influenced by numerous factors that affect its development, sustainability, and economic impact. The research design incorporates interviews as a primary data collection method to gain in-depth insights into the diverse aspects affecting floriculture in Chikkaballapur. This study utilizes a mixed-methods approach, integrating both qualitative and quantitative research techniques to investigate the factors influencing floriculture growth. The random sample data combines 120 respondents from the Chikkaballapur district. The study examines the impact of accessibility of market facilities and transportation, Credit accessibility, government subsidies and support programs, and alternative livelihood options on the sector's sustainability and economic performance. The research employs a comprehensive approach to identify, evaluate, and to understand these factors the Multiple regression analysis is performed to know the relation between the Independent variables and dependent variables.

Key words: Floriculture; Sustainability; Economic Performance; Factors Influencing Growth; Chikkaballapur District; Multiple Regression Analysis

INTRODUCTION

Floriculture, a vital segment of the agricultural economy, plays an important role in improving rural livelihoods, promoting entrepreneurship, and boosting regional economies. Chikkaballapur district in Karnataka is recognized for its favorable agro-climatic conditions, making it an important hub for floriculture. Despite its potential, the sector faces several problems that hinder its growth, sustainability, and economic viability.

The significance of floriculture extends beyond economic benefits, as it fosters cultural and social practices, supports exports, and contributes to environmental sustainability. However, factors such as limited access to credit, insufficient technical skills, inadequate market linkages, and poor infrastructure remain major obstacles. These challenges necessitate a comprehensive study to identify and address the factors affecting floriculture in Chikkaballapur district.

This research investigates the various social, economic, and environmental challenges that influence floriculture, with a focus on nutritional deficiencies, disease management, soil quality, market accessibility, and government support. By using a mixed-methods our study combines qualitative insights from farmer interviews with quantitative data to analyze key variables. The findings aim to offer actionable suggestions for improving the productivity and sustainability of floriculture in the region while contributing to policy development and strategic planning for the sector.

Literature Review

The literature reviewed highlights several challenges faced by floriculture producers, focusing on issues related to market exploitation, technical deficiencies, and infrastructure gaps. Yoganandan (2020) and Mondal (2017) emphasize the exploitation of farmers by distributors, including unfair pricing, misgrading of produce, and weighing inaccuracies. These studies suggest that addressing these issues requires incorporating real-life examples, regional comparisons, and solutions that consider multiple perspectives over time. Chandrakandan (2000) underscores a range of problems faced by floriculture producers, such as the lack of technical skills, inadequate post-harvest services, and insufficient export-focused market data. The study calls for better training programs and greater awareness of external market systems to empower farmers. Bishoge et al. (2017) and Kalita (2019) identify critical issues affecting floricultural growth, such as limited awareness of market information, technological deficiencies, and productivity challenges. Similarly, Manna (2021) highlights obstacles like poor infrastructure, inadequate storage facilities, limited market accessibility, and water resource constraints, which hinder the sector's growth. Sharma and Kumar (2019) point out climatic conditions, technological gaps, lack of infrastructure, and limited market access as key challenges for farmers. Additionally, they stress the importance of demographic factors, such as age and social position, in shaping farmers' decisions to engage in floriculture.

In conclusion, the reviewed literature collectively points to the pressing need for improved infrastructure, technological advancements, better market linkages, and targeted training programs. Addressing these challenges will significantly enhance the sustainability and profitability of the floriculture sector.

Research Gap

The reviews considered for the study punctuate the challenges faced by flower growers including inaccuracy of produce at markets, lack of technical skills, exploitation of farmers, insufficient storage facilities, water limitations, and unfavorable climate conditions. Astonishingly, several other factors are affecting flower cultivation in the country.

The marginal farmers who are solely dependent on farming for their livelihood struggle with many issues relating to farming. The other factors that affect the cultivation of flowers in the district are insufficient credit facilities, limited extension support, lack of disease management, nutrition deprivation, expensive fertilizers, and other alternative livelihood jobs for their living. Addressing these challenges boosts the growth of the floriculture sector in the country. The increases in the productivity of the flowers will support the people who like to express their love, gratitude, and sentiments, to others by offering the flowers. Furthermore, it enhances

trade, commerce, business, exports, and entrepreneurship worldwide. It generates sufficient inflows for borderline farmers thereby offering a standard of living.

Objectives of the study

1. To analyze the impact of alternative income, market accessibility, credit availability, and government support on floriculture revenue.
2. To provide actionable recommendations for improving floriculture practices, infrastructure, and policy implementation in the Chikkaballapur district.

Hypothesis

The hypothesis is formulated based on the given econometric model, and the null and alternative hypothesis is considered for each coefficient. Here we aim to examine the relationships between the dependent variable (Revenue generated) and the independent variables such as availability of alternative income, Accessibility of market Accessibility of credit finance, Government subsidies (predictors).

The hypotheses can be formulated as follows:

1. **Null Hypothesis:** The independent variables such as availability of alternative income, Accessibility of market Accessibility of credit finance, Government subsidies have no significant impact on the revenue generated.
 $H_0: \beta_i = 0$ (for all coefficients except intercept)
2. **Alternative Hypothesis:** The independent variables such as availability of alternative income, Accessibility of market Accessibility of credit finance, *Government subsidies* have a significant impact on the revenue generated.
 $H_1: \beta_i \neq 0$ (for at least one coefficient except intercept)

Where:

- β_i : Coefficients of the independent variables.

Methodology

The research methodology provides an organized approach to accompanying and analyzing research. It offers researchers outlines for designing studies, collecting information, and analyzing results.

Chikkaballapur district in Karnataka is selected for analysing the factors affecting the growth of floriculture which is undergoing floriculture practices. There are 6 taluks in the Chikkaballapur district and 1515 villages as per the census 2011. The six villages were selected from Chikkaballapur taluk to study the distressing factors that are retardation down the floriculture activities in the region. The soil and climate are favorable for growing cereals, pulses, oil seeds, and horticulture crops. The questionnaire was structured based on the factors affecting the floriculturists and the data was collected from 120 farmers through the field survey in the identified area. Both the quantitative and qualitative methods are used to analyze the data in the study. The studies follow the ordinal scale of measurement. The data is collected on the following variables to analyze the impact of major factors affecting flower growth.

Credit accessibility, cost of inputs, availability of land size, accessibility of markets and transportation facilities, government subsidies and support programs, extension services, nutritional deficiencies, disease management, overall quality of soil and fertilizers practices, and availability of alternative income-generating activities as independent variables. Yield, revenue generated, profit margin, market share, and employment generated as dependent Variables.

Development of Econometric Model

Regression models describe the relationship between the dependent and the independent variables. The regression analysis helps estimate the change of a dependent variable (Y) according to the explanatory variable (X) in the model. Numerous statistical methods estimate the relationship between the dependent variable and one or more independent variables in regression. Several approaches in the regression analysis are Linear Regression, Multiple Regression, Ridge Regression, Logistic Regression, Lasso, and many more. In this study, the multiple regression model is used to analyze the relation of variables. A multiple regression model is used to estimate the linear relationship between two or more independent variables and one dependent variable. It is used extensively in econometrics and economic interpretation.

Model: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$

Revenue = $\beta_0 + \beta_1 \times \text{Alternative income} + \beta_2 \times \text{Market accessibility} + \beta_3 \times \text{Credit Accessibility} + \beta_4 \times \text{Government support} + \epsilon$

Considering the factors affecting floriculture in the Chikkaballapur district the Null Hypothesis (0) and alternative Hypothesis (H1) are organized.

Table No:1 Summary Output: Regression Statistics

Statistic	Value
Multiple R	0.36100185
R Square	0.13032385
Adjusted R Square	0.067079053
Standard Error	0.623471263
Observations	60

Source: composed by authors

Table No:2 ANOVA

Source	Df	SS	MS	F	Significance F
Regression	4	3.203905275	0.800976319	2.06585483	0.098518865
Residual	55	21.37942806	0.388718647	-	-
Total	59	24.58333333	-	-	-

Source: composed by authors

Table No: 3 Coefficients

Variable	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
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Intercept (Revenue generated)	2.563285084	0.293072888	8.746237436	5.39409E-12	1.975953872	3.150616257
Availability of alternative Income generating activities	- 0.165056445	0.114851965	- 1.437045144	0.156353442	- 0.364492613	0.034142307
Accessibility of market and transportation	- 0.055798568	0.10076544	- 0.553283215	0.575530304	- 0.255885317	0.058388571
Accessibility of credit finance	0.231758929	0.091187238	2.541993258	0.013859234	0.049051639	0.414520218
Government subsidies and Support programs	0.000128327	0.134650438	0.001535409	0.998925034	- 0.268563727	0.270277745

Source: composed by authors

The hypothesis is formulated based on the given econometric model, and the null and alternative hypothesis is considered for each coefficient.

Interpretation of Results

1. Regression Statistics

- **Multiple R (0.36100185):** Indicates the correlation between the observed and predicted values of the dependent variable. A value of 0.36 suggests a weak positive relationship.
- **R Square (0.13032385):** Indicates that 13.03% of the variability in the revenue generated is explained by the independent variables in the model. This is relatively low, suggesting other factors may influence revenue.
- **Adjusted R Square (0.067079053):** Adjusted R Square accounts for the number of predictors in the model. A value of 6.7% indicates that the model's explanatory power is limited when adjusted for the number of predictors.
- **Standard Error (0.623471263):** Measures the average distance between the observed and predicted values. A smaller value indicates better model accuracy.

2. ANOVA Table

- **F-statistic (2.06585483) and Significance F (0.098518865):** The F-statistic tests the overall significance of the regression model. With a p-value of 0.0985 (> 0.05), we fail to reject the null hypothesis. This suggests the model as a whole is not statistically significant at the 5% level.

The findings of this research highlight the critical factors affecting the growth and sustainability of floriculture in Chikkaballapur district. While the region's favorable climatic and soil conditions offer immense potential for floriculture, the study reveals that challenges such as limited access to credit, insufficient market facilities, and inadequate disease management practices significantly impact the sector's growth and profitability.

The econometric analysis shows that credit accessibility positively influences revenue, emphasizing the need for financial support and loan schemes tailored to the needs of floriculturists. However, variables such as government subsidies and market accessibility exhibit limited statistical significance, indicating gaps in policy implementation and infrastructure development. Moreover, the lack of alternative livelihood opportunities highlights the vulnerability of farmers dependent solely on floriculture.

Conclusion

To ensure sustainable growth of the floriculture in the study area, the study recommends enhancing credit availability, strengthening market linkages, and providing targeted government interventions such as subsidies and training programs. Investments in infrastructure, such as storage facilities and transportation networks, are crucial for minimizing post-harvest losses. Furthermore, fostering collaborative activities and networking among floriculturists can enhance market access and productivity.

By addressing these challenges, the floriculture sector in Chikkaballapur can achieve its potential as a driver of economic growth, rural development, and environmental sustainability. This study contributes to the broader discourse on agricultural development, offering insights for policymakers, researchers, and practitioners to support the floriculture industry effectively.

Reference:

1. Chittibomma, N. (2023). Opportunities and challenges in the floriculture industry for entrepreneurship development in the North East region of India. Retrieved from mathsjournal.com.
2. Singha, K., Choudhary, R., & Vishnu, K. (2014). Growth and diversification of horticulture crops in Karnataka: An inter-district analysis. *SAGE Open*. Retrieved from sagepub.com.
3. ResearchGate. (n.d.). Problems amongst flowers cultivating farmers in Salem District of Tamil Nadu. Retrieved from researchgate.net.
4. Mondal, B. (n.d.). Problems hindering the development of floriculture information system in West Bengal: An overview. Retrieved from academia.edu.
5. ResearchGate. (n.d.). Factors influencing the growth of floriculture: A case study of Kinondoni Municipality, Dar es Salaam City in Tanzania. Retrieved from researchgate.net.
6. The IJES Editor. (n.d.). Influencing geographical factors for growth of floriculture development: A case study based on Dokanda village, Khirai, Panskura, Purba Medinipur. Retrieved from academia.edu.
7. ResearchGate. (n.d.). Floriculture as a profession: Demographic factors affecting floriculture business in Sikkim. Retrieved from researchgate.net.
8. Dadlani, N. K. (n.d.). Cut flower production in India. *FAO Agricultural Services Bulletin*. Retrieved from fao.org.
9. Invest India. (n.d.). *Indian floriculture market: Growth, trends, and forecast (2024-2032)*. Retrieved from imarcgroup.com.

10. Indian Floriculture Market Growth. (n.d.). *Report & Forecast 2024-2032*. [Details required].

Websites

1. CCS National Institute of Agricultural Marketing. (n.d.). *Saraswati Final Report*. Retrieved from https://ccsniam.gov.in/images/research/saraswati_Finalreport.pdf
2. CityRyde. (n.d.). *Flower farming in India: Guide and business plan*. Retrieved from https://cityryde.com/economy/flower-farming-in-india-guide-business-plan/?expand_article=1
3. Invest India. (n.d.). *Indian floriculture: The sunrise sector*. Retrieved from <https://www.investindia.gov.in/team-india-blogs/indian-floriculture-sunrise-sector>
4. Karnataka State Department of Agriculture. (n.d.). *Floriculture information for Karnataka*. Retrieved from <https://e-krishiuasb.karnataka.gov.in/ItemDetails.aspx?DepID=14&cropID=0&SubDepID=28#>
5. NABARD. (2021). *District report on floriculture in Chikkamagalur*. Retrieved from <https://www.nabard.org/auth/writereaddata/tender/0712212836Chickmagalur.pdf>
6. Testbook. (n.d.). *Commercial floriculture: Scope and significance in India*. Retrieved from <https://testbook.com/ias-preparation/commercial-floriculture>
7. Semantic Scholar. (n.d.). *Profile and problems of cut-flower growers*. Retrieved from <https://www.semanticscholar.org>
8. Floral Daily. (n.d.). *Indian floriculture industry is recovering and discovering new opportunities*. Retrieved from <https://floraldaily.com>