

EVALUATION OF FINANCIAL HEALTHINESS OF VEGETABLES GROWERS IN TUMKUR DISTRICT

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ABSTRACT

This study examines the financial health of vegetable growers in Tumkur District, Karnataka, a crucial area for vegetable cultivation. The primary objective is to evaluate key financial indicators such as income stability, debt levels, and access to credit to determine the overall economic resilience of these farmers. Employing a descriptive research methodology, the study utilizes a sample of 450 small to medium-scale vegetable farmers. The sampling method is convenient, with data collected through a structured questionnaire and supplemented by secondary sources. Analytical tools include descriptive statistics, ANOVA, and homogeneity tests. The expected outcome is to identify significant financial disparities among different farmer groups and provide actionable insights for improving financial stability and support mechanisms. This research aims to contribute to better policy formulation and support strategies for vegetable growers, enhancing their economic well-being and sustainability.

Keywords: Financial Health, Vegetable Growers, Tumkur District, Economic Resilience and ANOVA.

Introduction

The agriculture sector, particularly vegetable farming, plays a crucial role in the economic framework of Tumkur District, Karnataka. Known for its diverse range of vegetables, Tumkur has seen significant contributions to both local and regional markets. However, the financial health of vegetable growers remains a critical area of concern, impacting their livelihoods and the overall sustainability of agricultural practices in the region. Recent studies indicate that nearly 70% of farmers in Tumkur are involved in small to medium-scale vegetable farming, yet many struggle with financial instability due to factors such as fluctuating market prices, inadequate access to credit, and high input costs.

Analyzing the financial health of vegetable growers in Tumkur is essential to understanding the challenges they face and developing strategies to improve their economic conditions. According to data from the Karnataka State Department of Agriculture, approximately 60% of vegetable farmers in Tumkur are under financial distress, with debts often surpassing their annual income. This study aims to evaluate key financial metrics such as income levels, debt-to-income ratios, and access to financial services among these growers. By doing so, it seeks to provide a comprehensive overview of the economic challenges in this sector and suggest viable solutions to enhance the financial resilience of vegetable growers in Tumkur District.

Conceptual Background

The financial health of farmers is a critical aspect of agricultural sustainability and rural development, particularly in regions like Tumkur District where vegetable farming is a significant

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livelihood source. The concept of financial health in agriculture encompasses various dimensions, including income stability, debt management, access to credit, and the ability to invest in future production. Traditionally, studies on agricultural finance have focused on crop yields and market access, often overlooking the broader financial well-being of the farmers themselves. The financial health of vegetable growers, therefore, requires a holistic evaluation that includes both their current financial status and their capacity to manage economic risks, ensuring long-term viability and growth.

The relevance of this study is underscored by the current economic challenges facing small and medium-scale vegetable growers in Tumkur. With increasing input costs, unpredictable weather patterns, and volatile market prices, the financial stability of these farmers is more precarious than ever. Moreover, the COVID-19 pandemic has exacerbated these challenges, disrupting supply chains and reducing market access, further straining their financial resilience. In this context, evaluating the financial health of vegetable growers in Tumkur is crucial for identifying gaps in support systems, such as access to credit and financial literacy programs, and for formulating policies that can safeguard their livelihoods. This study aims to provide insights that are not only relevant to Tumkur but also applicable to similar agricultural communities facing financial vulnerabilities.

Review of Literature

Karukumalli Sindhura (2022): Vegetable cultivation in India is increasingly significant, with demand rising 2-3% annually. It remains a profitable option, especially in Maharashtra, where farmers typically possess medium-sized landholdings and moderate risk orientation. M. M. Rana (2021): Vegetable growers in Bangladesh face medium to high levels of production and marketing challenges, influenced by socio-demographic factors. The study highlights the need for targeted interventions to enhance productivity, especially in districts like Bogra. Laura Vedasto Ndibalema (2023): In Sub-Saharan Africa, financial inclusion is crucial for improving agricultural outcomes, with socio-demographic factors playing a significant role. Despite reforms, smallholder farmers in Tanzania still face low productivity, underscoring the need for expanded financial services. Olutope Stephen OJO (2023): Despite COVID-19 disruptions, vegetable farming in Southwest Nigeria remained profitable, with younger, educated farmers showing greater adaptability. Gender, experience, and access to credit significantly influence profitability.

Dr. Subhash Kumar (2022): The COVID-19 pandemic has driven a shift towards organic food, increasing demand for trusted labels. In India, organic farming is expanding, with 2.78 million hectares under cultivation, particularly in Madhya Pradesh. Thanh N. Nguyen (2020): Community farms and gardens promote sustainable agriculture and food security, especially for disadvantaged groups. Despite challenges like land access and financial support, these gardens offer cultural and economic benefits. P S Anoop (2022): The intersection of agriculture and tourism in India has potential for rural economic development. ICT integration is key to enhancing production and supporting growth in both sectors.

Aschalew Shiferaw (2019): Climate change adaptation in Ethiopia's agriculture is critical, with education, farm size, and access to credit influencing adaptation strategies. Tailored government policies are needed to support effective adaptation. Lei Huang (2022): Budgeting in agriculture is vital for financial management, cost control, and performance evaluation. Effective budgeting systems enhance planning and have broader implications for public economic performance.

Bamisha K P (2022): Financial self-efficacy plays a crucial mediating role between financial capability and wellbeing among organic farmers. Factors like gender and age significantly influence financial outcomes. Nonita Yap (2018): Well-designed interventions, such as modern beekeeping projects, enhance rural livelihoods by boosting income and health, highlighting the multifaceted benefits of innovation diffusion. Kanokporn Rattanasuteerakul (2019): Organic vegetable farming in Thailand faces financial challenges due to lower yields and lack of premium pricing. Policy incentives could enhance its financial attractiveness by improving yields and removing synthetic input subsidies.

Problem Statement

Despite the recognized profitability of vegetable cultivation, farmers in Tumkur District face significant financial instability due to factors such as fluctuating market prices, high input costs, and limited access to credit. These challenges hinder their ability to sustain and grow their operations, necessitating a comprehensive evaluation of their financial health to identify critical areas of support.

Objective of the Study

- To assess the financial health of vegetable growers in Tumkur District and to provide Strategies for enhance their economic resilience.

Research Methodology

- **Descriptive Research Method:** This method involves gathering detailed information about the financial health of vegetable growers in Tumkur District. It is used to describe the current state of financial stability, income levels, and challenges faced by these farmers, providing a clear picture of the existing conditions.
- **Area of Sample:** The study focuses on vegetable growers in Tumkur District, Karnataka, which is a significant agricultural region. The area is selected to understand the financial challenges specific to this locale, considering its importance in vegetable cultivation.
- **Convenient Sampling Method:** This non-probability sampling technique involves selecting respondents who are easily accessible and willing to participate. It allows for the efficient collection of data from 450 small to medium-scale vegetable farmers within the district.
- **Tools for the Study:** Descriptive statistics will be used to summarize and describe the financial data collected. ANOVA (Analysis of Variance) and homogeneity tests will be employed to compare financial health indicators across different groups of farmers, identifying significant differences and ensuring data consistency.
- **Source of Data:** Primary data will be collected through a structured questionnaire designed to gather detailed information on the financial aspects of vegetable farming. Secondary data from relevant agricultural and financial reports will supplement the primary data, providing a comprehensive analysis.
- **Sampling Size:** A sample of 450 small to medium-scale vegetable farmers from Tumkur District will be surveyed. This sample size is adequate to ensure the findings are representative of the population, allowing for meaningful statistical analysis.

Hypothesis

- **H₀ (Null Hypothesis):** There is no significant difference in financial health indicators among different groups of vegetable growers in Tumkur District.

Data Analysis and Interpretation

To evaluate the financial health of vegetable growers in Tumkur District, data analysis will be conducted using descriptive statistics and ANOVA. This analysis aims to provide a detailed understanding of the income stability, debt levels, and access to financial resources among different groups of farmers. By testing the hypothesis using ANOVA, we will identify significant differences in financial health indicators, enabling the development of targeted strategies to improve the economic resilience of these growers. The results will offer critical insights for policymakers and stakeholders to support sustainable agricultural practices in the region.

Table 1: Descriptive Statistics

Variables	N	Mean	SD
Age Group	450	1.864	0.548
Gender Group	450	1.413	0.493
Annual Income from Vegetable Farming profitability and financial stability of the farmers	450	4.333	0.761
Total Debt Levels in financial burden and risk exposure of the farmers	450	4.218	0.788
Access to Agricultural Credit	450	4.347	0.770
impact of input costs on financial health	450	4.267	0.767
Farm Size (in Acres) influences financial outcomes	450	4.264	0.819
Years of Farming Experience & Achieve Financial Health	450	4.213	0.751
Market Access and Selling Prices & affect on income stability	450	4.122	0.831
Expenditure on Technological Adoption & its impact on financial outcomes)	450	4.133	0.834

Source: Survey data-SPSS Output

The descriptive statistics from the table indicate that the sample of 450 vegetable growers in Tumkur District has a relatively uniform demographic composition, with the mean values for age and gender groups being close to their respective scales. The financial health indicators show high mean values across key variables, suggesting that most farmers in the study have a consistent experience of profitability and financial stability. Specifically, the mean annual income from vegetable farming is 4.333 (SD = 0.761), indicating moderate to high profitability. Similarly, total debt levels and access to agricultural credit have mean scores of 4.218 (SD = 0.788) and 4.347 (SD = 0.770), respectively, reflecting significant financial burden but also high credit accessibility. Other factors such as farm size, input costs, market access, and technological adoption all exhibit mean values above 4, highlighting a

generally positive but somewhat variable financial environment for these farmers. The standard deviations suggest a moderate level of variability in these financial indicators, indicating that while most farmers experience favorable financial conditions, there are still differences in their financial health outcomes.

Table 2: Test of Homogeneity of Variances

Variables	Levene Statistic	df1	df2	Sig.
Annual Income from Vegetable Farming profitability and financial stability of the farmers	0.035	2	447	0.966
Total Debt Levels in financial burden and risk exposure of the farmers	1.360	2	447	0.258
Access to Agricultural Credit	3.199	2	447	0.042
impact of input costs on financial health	1.152	2	447	0.317
Farm Size (in Acres) influences financial outcomes	8.092	2	447	0.000
Years of Farming Experience & Achieve Financial Health	0.934	2	447	0.394
Market Access and Selling Prices & affect on income stability	1.988	2	447	0.138
Expenditure on Technological Adoption & its impact on financial outcomes)	1.357	2	447	0.259

Source: Survey data-SPSS Output

The Test of Homogeneity of Variances examines whether the variances across different groups of vegetable growers are equal for the selected financial variables. The Levene Statistic for most variables, such as annual income, debt levels, input costs, farming experience, and technological adoption, shows significance levels (Sig.) well above 0.05, indicating that the assumption of homogeneity of variances is met for these factors. However, the variables "Access to Agricultural Credit" (Sig. = 0.042) and "Farm Size" (Sig. = 0.000) have significance values below 0.05, suggesting that there is a significant difference in variances across groups for these variables. This implies that for these specific factors, the financial conditions vary more widely among different farmer groups, which could affect the reliability of ANOVA results for these variables. Therefore, caution should be exercised when interpreting the results related to access to credit and farm size, as unequal variances may influence the outcomes.

Table 3: ANOVA

Variables	Groups	Sum of Squares	df	Mean Square	F	Sig.
Annual Income from Vegetable Farming profitability and financial stability of the farmers	Between Groups	7.07	2	3.535	6.247	0.002
	Within Groups	252.93	447	0.566		
	Total	260.00	449			
Total Debt Levels in financial burden and risk exposure of the farmers	Between Groups	15.08	2	7.541	12.789	0.000
	Within Groups	263.58	447	0.590		
	Total	278.66	449			
Access to Agricultural Credit	Between Groups	6.08	2	3.040	5.229	0.006
	Within Groups	259.84	447	0.581		
	Total	265.92	449			
impact of input costs on financial health	Between Groups	1.59	2	0.795	1.355	0.259
	Within Groups	262.41	447	0.587		
	Total	264.00	449			
Farm Size (in Acres) influences financial outcomes	Between Groups	3.71	2	1.856	2.785	0.063
	Within Groups	297.82	447	0.666		
	Total	301.53	449			
Years of Farming Experience & Achieve Financial Health	Between Groups	21.39	2	10.696	20.596	0.000
	Within Groups	232.13	447	0.519		
	Total	253.52	449			
Market Access and Selling Prices & affect on income stability	Between Groups	1.02	2	0.510	0.737	0.479
	Within Groups	309.26	447	0.692		
	Total	310.28	449			
Expenditure on Technological Adoption & its impact on financial outcomes)	Between Groups	3.93	2	1.966	2.853	0.059
	Within Groups	308.07	447	0.689		
	Total	312.00	449			

Source: Survey data-SPSS Output

The ANOVA results indicate significant differences among the groups of vegetable growers in several key financial variables. Specifically, "Annual Income from Vegetable Farming" ($F = 6.247$, $\text{Sig.} = 0.002$), "Total Debt Levels" ($F = 12.789$, $\text{Sig.} = 0.000$), "Access to Agricultural Credit" ($F = 5.229$, $\text{Sig.} = 0.006$), and "Years of Farming Experience" ($F = 20.596$, $\text{Sig.} = 0.000$) all show significant p-values ($\text{Sig.} < 0.05$), suggesting that these factors vary significantly across different groups of farmers. This indicates that these financial indicators are not uniform and are influenced by group differences, which could be linked to factors like farm size, market access, or technological adoption. On the other hand, variables such as "Impact of Input Costs," "Farm Size," "Market Access and Selling Prices," and "Expenditure on Technological Adoption" do not show significant differences between groups ($\text{Sig.} > 0.05$), implying more consistency in these aspects across the surveyed population. These results highlight specific areas where targeted interventions might be needed to improve financial health among different groups of farmers in Tumkur District.

Results and Discussions

Major Findings

There is a significant difference in annual income from vegetable farming among different groups ($F = 6.247$, $\text{Sig.} = 0.002$). This suggests that financial stability varies significantly based on the group, impacting profitability.

Total debt levels show significant differences between groups ($F = 12.789$, $\text{Sig.} = 0.000$), indicating that financial burden and risk exposure vary significantly among vegetable growers.

Access to agricultural credit differs significantly across groups ($F = 5.229$, $\text{Sig.} = 0.006$), highlighting disparities in financial resources available to farmers.

There is a significant difference in the impact of years of farming experience on financial health ($F = 20.596$, $\text{Sig.} = 0.000$), suggesting that more experienced farmers might have better financial outcomes.

The impact of input costs on financial health does not vary significantly among groups ($F = 1.355$, $\text{Sig.} = 0.259$), indicating uniformity in how input costs affect different farmers.

Market access and selling prices show no significant differences ($F = 0.737$, $\text{Sig.} = 0.479$), implying similar effects on income stability across the groups.

Suggestions

Given the significant variance in annual income and total debt levels, it is crucial to design targeted financial support programs to help lower-income and high-debt farmers improve their economic stability.

Since access to credit varies significantly, expanding credit facilities and simplifying loan processes for vegetable growers can help bridge the gap and provide necessary financial resources.

Utilize the positive impact of farming experience by organizing mentoring and training programs where experienced farmers can share their knowledge and practices with less experienced peers.

Given the uniform impact of input costs, implementing standardized practices or subsidies to manage and reduce input costs can help ensure that all farmers face similar financial conditions, improving overall financial health.

Conclusion

The evaluation of financial health among vegetable growers in Tumkur District reveals significant disparities in annual income, total debt levels, and access to agricultural credit, while years of farming experience positively influence financial outcomes. Despite these variances, factors such as input costs and market access show consistency across groups, suggesting areas where uniform interventions could be beneficial. Looking ahead, addressing these financial disparities through targeted support and improved credit access is crucial for enhancing the economic resilience of farmers. As agricultural practices evolve and technology advances, fostering innovation and experience-sharing among growers will be vital. Future strategies should focus on leveraging these trends to create sustainable financial models, ensuring that all vegetable growers can thrive in a dynamic market environment and contribute to the region's agricultural prosperity.

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