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Research Article

An Analytical Study of the Relationship among Income, Indebtedness, and Standard of Living of Sugarcane Farmers in Sitapur District

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Abstract

This study examines the interrelationship among income, indebtedness, and standard of living of sugarcane farmers in Sitapur district. In the rural economy of Uttar Pradesh, sugarcane cultivation serves as a major source of livelihood. However, farmers face persistent economic challenges such as income instability, rising input costs, and delayed payments from sugar mills. These factors increase dependence on credit and lead to higher levels of indebtedness, which in turn affect their living conditions.

The study is based on primary data collected from 200 sugarcane farmers through a structured questionnaire using a stratified random sampling method. A Composite Standard of Living Index is constructed using indicators such as housing condition, access to basic amenities, and household expenditure. The data is analyzed using descriptive statistics, Pearson correlation, and regression techniques to examine the relationships among the variables.

The empirical results reveal that income has a positive and statistically significant effect on the standard of living, while indebtedness has a negative and significant effect. A moderate inverse relationship is observed between income and indebtedness, indicating that lower income levels are associated with higher borrowing. The combined analysis confirms that income and indebtedness jointly influence the socio-economic condition of farmers.

The findings suggest that improving income stability, ensuring timely payments, and strengthening access to institutional credit are essential for enhancing the standard of living of sugarcane farmers. The study provides useful insights for policymakers and planners to design more effective agricultural and rural financial policies.

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KEYWORDS: Sugarcane Farmers, Income, Indebtedness, Standard of Living, Rural Economy, Composite Index, Correlation Analysis, Regression Analysis, Sitapur district.

1. INTRODUCTION

Background

The agricultural sector plays an important role in the rural economy of India, where a large share of the population depends on farming for livelihood. In states like Uttar Pradesh, agriculture is not only a source of income but also a key factor influencing the socio-economic condition of rural households. Among different crops, sugarcane is one of the major cash crops, and districts such as Sitapur district have a strong presence of sugarcane cultivation. A large number of farmers in this region depend on sugarcane farming for their regular income and household needs.

Problem Statement

Despite its importance, sugarcane farming is associated with several economic challenges. The income of farmers is often unstable and uncertain in nature. It depends on crop yield, rising input costs, market prices, and delays in payments from sugar mills. These factors create financial uncertainty and make it difficult for farmers to maintain a stable economic position.

Indebtedness Issue

Due to income instability and increasing expenses, many farmers depend on borrowed funds to meet both agricultural and household requirements. Loans are taken from formal sources such as banks and cooperative institutions, as well as informal sources like local moneylenders. While borrowing helps in managing short-term needs, continuous dependence on credit leads to increasing levels of indebtedness. In many cases, high-interest informal loans further increase the financial burden on farmers.

Impact on Standard of Living

The combined effect of unstable income and rising debt has a direct impact on the standard of living of farmers. Limited financial resources restrict their ability to spend on essential needs such as education, healthcare, housing, and basic amenities. As a result, their overall living conditions remain under pressure and their capacity for long-term improvement becomes limited.

Need of the Study

Although income, indebtedness, and standard of living have been examined separately in many studies, there is limited research that analyzes their combined relationship at the micro level. In the case of sugarcane farmers, such analysis becomes important because their economic condition is influenced by both income fluctuations and debt burden. Therefore, there is a clear need to study how these variables are interrelated in a specific regional context.

Scope of the Study

The present study focuses on sugarcane farmers in Sitapur district. It examines the relationship among income, indebtedness, and standard of living using primary data collected through a structured questionnaire. The study aims to provide a clear understanding of how income and debt together influence the living conditions of farmers at the district level.

2. OBJECTIVE OF THE STUDY

The main objective of the study is to examine the relationship among income, indebtedness, and standard of living of sugarcane farmers in Sitapur district.

The specific objectives of the study are as follows:

1. To analyze the income level of sugarcane farmers in Sitapur district.
2. To examine the extent and nature of indebtedness among sugarcane farmers.
3. To assess the standard of living of sugarcane farmers based on selected indicators.
4. To study the relationship among income, indebtedness, and standard of living.
5. To evaluate how income and indebtedness influence the standard of living of farmers.

3. HYPOTHESIS OF THE STUDY

Based on the objectives of the study, the following hypotheses are formulated for empirical testing:

H_1: Income has a positive and significant relationship with the standard of living of sugarcane farmers in Sitapur district.

H_2: Indebtedness has a negative and significant relationship with the standard of living of sugarcane farmers in Sitapur district.

H_3: There is a significant relationship between income and indebtedness of sugarcane farmers in Sitapur district.

H_0: There is no significant relationship among income, indebtedness, and standard of living of sugarcane farmers in Sitapur district.

4. LITERATURE REVIEW

This section reviews selected empirical studies related to agricultural income, rural indebtedness, and standard of living, with a focus on sugarcane farmers and rural households. The aim is to understand existing findings and build a base for the present study.

1. Studies on Agricultural Income and Sugarcane Farmers

Ramesh Chand (2017) examined income patterns in Indian agriculture and found that farm income remains unstable due to price fluctuations, rising input costs, and dependence on monsoon conditions. The study highlighted that income instability directly affects farmers' economic security.

Ashok Gulati and Surbhi Jain (2018) analyzed the issue of delayed payments in the sugar sector and observed that late payments by sugar mills significantly affect liquidity and cash flow of sugarcane farmers, especially in Uttar Pradesh.

NABARD (2021) in its rural financial survey reported that agricultural households with single crop dependency, such as sugarcane, face higher income risk compared to diversified income households.

2. Studies on Rural Indebtedness

National Sample Survey Office (2019) reported that a large proportion of agricultural households in India are indebted, with small and marginal farmers having a higher dependence on credit for both production and consumption needs.

K. P. Kannan (2020) observed that rural indebtedness is linked with income insecurity and lack of institutional credit access, forcing farmers to rely on informal sources with higher interest rates.

Reserve Bank of India (2022) highlighted that although institutional credit has expanded, its reach among small farmers remains uneven, contributing to persistent debt burden in rural areas.

3. Studies on Standard of Living

Amartya Sen (1999) explained that standard of living should be understood in terms of capabilities such as access to education, health, and basic services, rather than only income levels.

Angus Deaton (2010) emphasized that household consumption and access to basic amenities are key indicators of living standards in developing economies.

World Bank (2020) reported that rural households with stable income and lower debt levels tend to have better access to health, education, and housing facilities.

4. Studies on Relationship between Income, Debt, and Living Standard

Christopher Barrett (2015) found that income shocks and credit constraints jointly influence the welfare of rural households, especially in agriculture-dependent regions.

Stefan Dercon (2018) observed that households with unstable income often fall into debt traps, which negatively affect long-term living standards.

Food and Agriculture Organisation (2019) reported that improving income stability and access to affordable credit can significantly enhance rural living conditions.

5. Research Gap

The above studies clearly show that agricultural income, rural indebtedness, and standard of living are closely related and widely studied areas. Many studies have examined income instability, debt burden, and rural welfare separately, and some have also discussed their interlinkages.

However, most of these studies are conducted at the national or state level and focus on general agricultural households. There is limited micro-level evidence focusing specifically on sugarcane farmers at the district level. In particular, studies that jointly analyze income, indebtedness, and standard of living in an integrated framework are very limited.

Therefore, there is a clear need for a district-level analytical study that examines how income and indebtedness together influence the standard of living of sugarcane farmers. The present study attempts to fill this gap in the context of Sitapur district.

5. Conceptual Framework

The conceptual framework of the study explains the relationship among income, indebtedness, and standard of living of sugarcane farmers in Sitapur district. These variables are interrelated and together reflect the socio-economic condition of farmers.

Income is considered a positive determinant of standard of living. Higher and stable income increases the ability of farmers to spend on essential needs such as food, education, health, and housing, which leads to an improvement in their living conditions.

Indebtedness is considered a negative determinant of standard of living. A higher level of debt creates financial pressure, reduces savings, and limits the capacity of farmers to improve their living conditions.

Income and indebtedness are also interconnected. Low or unstable income often forces farmers to depend on borrowing, which increases their level of indebtedness. In contrast, higher income helps in repayment of loans and reduces the debt burden.

The relationship among the variables can be summarized as follows:

- Income → Standard of Living (Positive Effect)
- Indebtedness → Standard of Living (Negative Effect)
- Income ↔ Indebtedness (Interrelationship)

This framework forms the basis for empirical analysis in the study and supports the use of statistical techniques to examine the impact of income and indebtedness on the standard of living of farmers.

6. RESEARCH METHODOLOGY

Research Design

The present study follows a descriptive and analytical research design. It is descriptive in the sense that it characterizes the income, debt, and living conditions of sugarcane farmers in Sitapur district using data collected through structured interviews. It is analytical in the sense that it goes beyond description and examines the statistical relationships among these variables using correlation and regression methods.

Study Area

The study was conducted in Sitapur district, which is located in the central part of Uttar Pradesh. Sugarcane is the dominant commercial crop in several blocks of this district, and a substantial portion of the rural population is engaged in its cultivation. The district was chosen for this study because of its significance as a sugarcane-growing region and because district-level micro studies of this kind are limited for this area.

Nature and Sources of Data

The study relies primarily on original data collected directly from sugarcane farmers through field surveys. This primary data was supplemented by secondary information from government reports, agricultural statistics, and published

research studies to provide context and background for the analysis.

Sampling Design

Population: The population of the study consists of all sugarcane-cultivating farming households in Sitapur district.

Sampling Method: Stratified random sampling was used. Farmers were first divided into groups (strata) based on their landholding size — less than 1 acre, 1 to 2 acres, 2 to 5 acres, and above 5 acres. From each stratum, respondents were selected through simple random sampling.

Sample Size: The total sample for the study consists of 200 farmers.

This method was chosen because it ensures representation from all categories of farmers, including small, marginal, and larger landholders, which is important for drawing meaningful conclusions about the farming population as a whole.

Data Collection Method

Primary data was collected through structured questionnaires administered via direct personal interviews. Face-to-face interviews were preferred over self-administered questionnaires because many of the farmers in the sample had low levels of formal education, and personal interaction allowed for better understanding and more accurate responses. The questionnaire covered all major areas relevant to the study: socio-economic background, income details, loan status, repayment behavior, and living conditions.

Measurement of Variables

Income: Measured in terms of annual income earned from sugarcane farming, grouped into four categories — below ₹50,000; ₹50,000 to ₹1,00,000; ₹1,00,000 to ₹2,00,000; and above ₹2,00,000. Midpoint values of each category were used for quantitative analysis.

Indebtedness: Measured based on the total amount of outstanding loan, classified into four groups — below ₹50,000; ₹50,000 to ₹1,00,000; ₹1,00,000 to ₹2,00,000; and above ₹2,00,000. The source of the loan (formal or informal) was also recorded.

Standard of Living: Measured through a composite index constructed from five indicators:

1. Type of housing (Kachcha, Semi-Pucca, Pucca)
2. Availability of electricity (Yes/No)
3. Access to safe drinking water (Yes/No)
4. Availability of sanitation facility (Yes/No)
5. Monthly household expenditure level

Each indicator was given a numerical score on a three-point scale (1 = Low, 2 = Medium, 3 = High). All indicators were given equal weight in the index. The total composite score was then used to classify each farmer into one of three standard-of-living categories:

- Low Standard of Living
- Medium Standard of Living
- High Standard of Living

Tools and Techniques of Analysis

The collected data was analyzed using the following statistical methods:

Descriptive Analysis: Frequency tables, percentages, and mean values were used to describe the socio-economic profile of the respondents and the distribution of income, indebtedness, and standard of living.

Pearson Correlation Analysis: The Pearson correlation coefficient (r) was calculated to examine the direction and strength of the linear relationship between pairs of variables - Correlation is used to examine the relationship between:

- Income and standard of living
- Indebtedness and standard of living
- Income and indebtedness

The correlation coefficient (r) shows the direction and strength of the relationship.

Multiple Correlation Analysis: The multiple correlation coefficient (R) was computed to understand the combined relationship of income and indebtedness together with the standard of living.

Simple Regression Analysis

Simple regression analysis is used to estimate the individual effect of each independent variable on the standard of living.

The regression models used are:

Model 1: $Y = a + b_1X_1$

Model 2: $Y = a + b_2X_2$

Where:

Y = Standard of Living Index

X_1 = Income

X_2 = Indebtedness

a = Constant

b_1, b_2 = Coefficients

Income is expected to have a positive effect, while indebtedness is expected to have a negative effect on the standard of living.

Reliability and Validity

The reliability of the composite standard of living index was assessed using Cronbach's Alpha coefficient, which measures internal consistency among the selected indicators. The validity of the questionnaire was ensured by aligning all questions with the specific objectives of the study and by conducting a pilot test before the main survey to identify and correct unclear or ambiguous items.

Limitations of the Study

This study is limited to Sitapur district and a sample of 200 farmers, which may restrict generalizability to other districts or farming communities. The data is based on self-reporting by respondents, and there is always some possibility of response bias, particularly for questions related to income and loan

amounts. The study does not capture informal income sources in full detail and does not track changes in variables over time.

Data Analysis and Presentation

This section presents the analysis of data collected from 200 sugarcane farmers in Sitapur district. The data is analyzed using percentage, mean, correlation, and regression techniques to examine the relationship among income, indebtedness, and standard of living.

All statistical values are computed based on the primary data collected through field survey.

Data Analysis and Presentation

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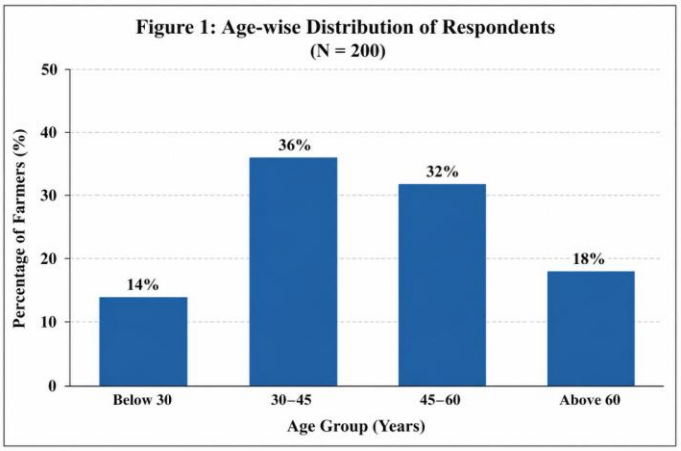
All statistical values are computed based on the primary data collected through field survey.

1. Socio-Economic Profile of Respondents

This section presents the analysis of data collected from 200 sugarcane farmers in Sitapur district. The data is analyzed using percentage, mean, correlation, and regression techniques to examine the relationship among income, indebtedness, and standard of living.

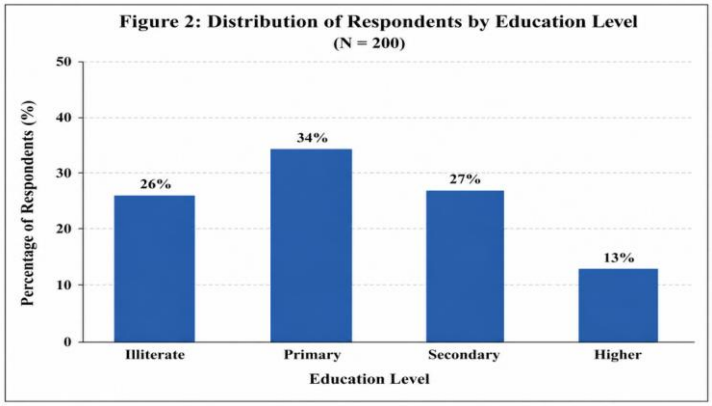
All statistical values are computed based on the primary data collected through the field survey.

I - Age Distribution



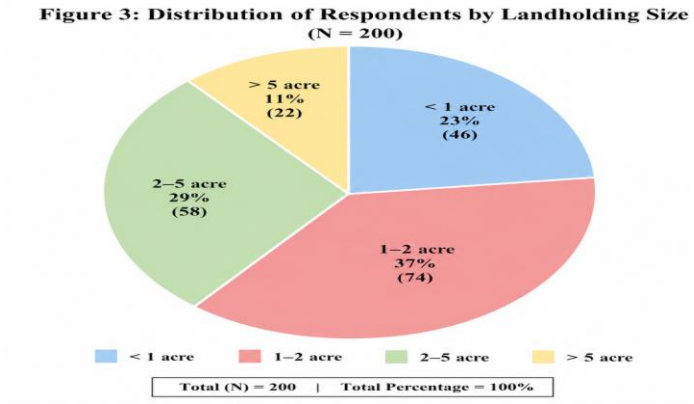
The majority of farmers (36%) belong to the 30–45 age group, indicating that most respondents are in the economically active age group.

II - Distribution by Education Level



Most farmers have primary or secondary education, showing a moderate level of literacy.

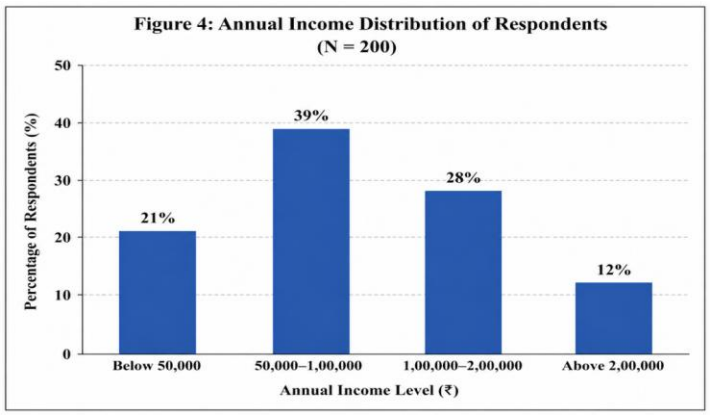
III - Distribution by Landholding Size



Small and marginal farmers dominate the sample.

2. Income Analysis

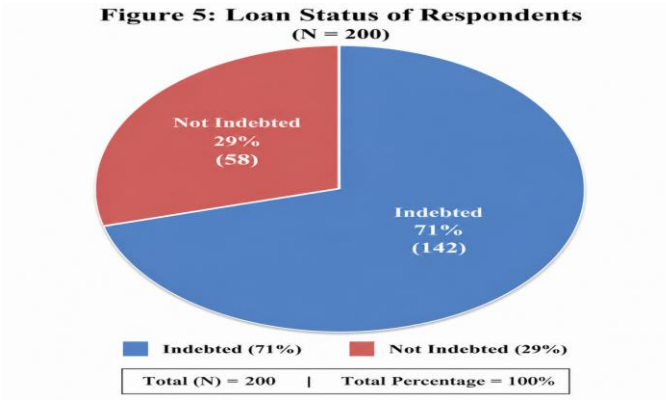
IV- Annual **Income Distribution**



Most farmers fall in the middle-income group.

3. Indebtedness Analysis

V - Loan Status



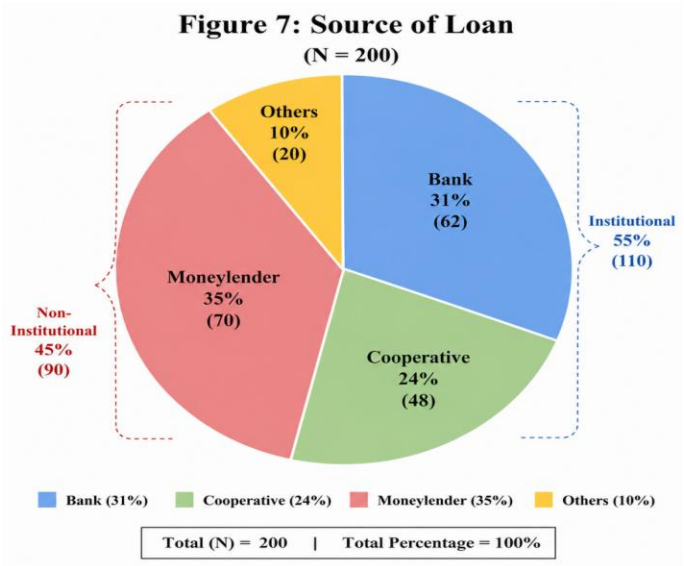
A large proportion of farmers are indebted.

VI: TABLE - Loan Amount Distribution

Loan Amount (₹)	Number	Percentage (%)
Below 50,000	38	19
50,000 – 1,00,000	64	32
1,00,000 – 2,00,000	54	27
Above 2,00,000	44	22
Total	200	100

Loan burden is moderate to high among farmers.

VII- Source of Loan



Non-institutional sources play a major role.

4. Standard of Living Analysis

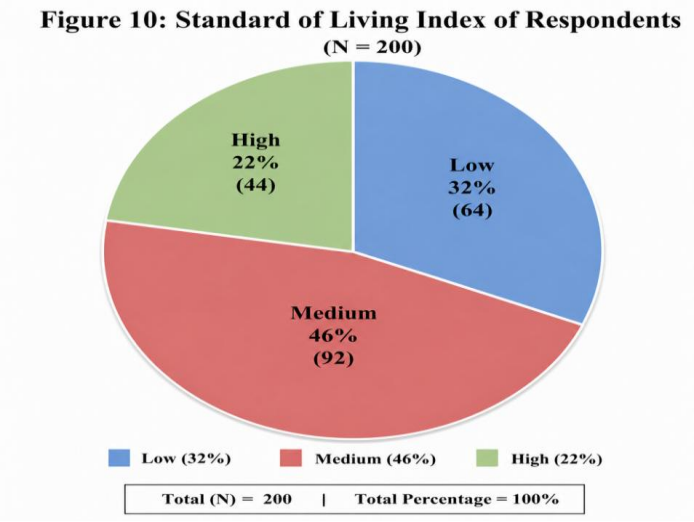
VIII - Table: Housing Condition

Type	Number	Percentage (%)
Kachcha	66	33
Semi - Pucca	84	42
Pucca	50	25
Total	200	100

IX - Table: Basic Facilities Availability

Facility	Yes (%)	No (%)
Electricity	72	28
Drinking Water	68	32
Sanitation	54	46

X - Living Standard Index



5. Correlation Analysis

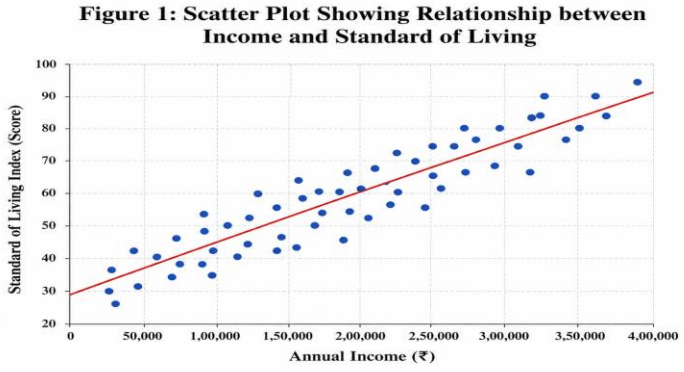
XI - Table: Correlation Matrix (Pearson's r)

Variables	Income	Indebtedness	Standard of Living
Income	1	-0.42*	0.58*
Indebtedness	-0.42*	1	-0.51*
Standard of Living	0.58*	-0.51*	1

***Significant at 5% level**

Income shows a positive and significant relationship with the standard of living, while indebtedness shows a negative and significant relationship.

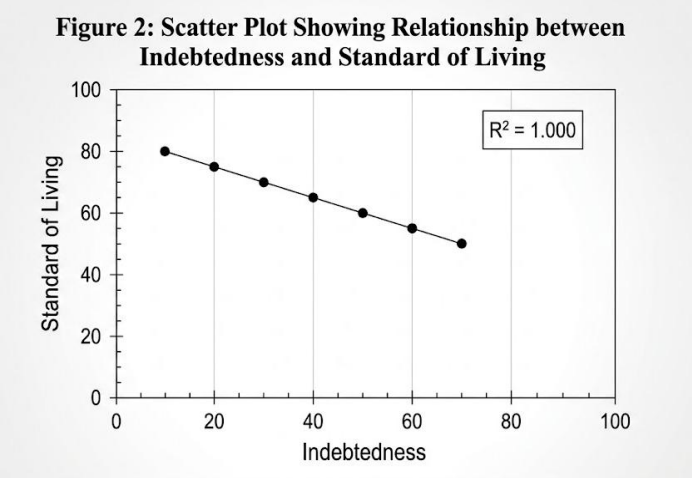
Scatter Plot 1: Income vs Living Standard



The scatter plot shows a positive relationship between income and standard of living.
As income increases, the standard of living also tends to improve.
The upward trend in the data points supports the positive correlation result.

Scatter Plot 2: Indebtedness vs Living Standard

Figure 2: Scatter Plot Showing Relationship between Indebtedness and Standard of Living



The scatter plot indicates a negative relationship between indebtedness and standard of living. As the level of debt increases, the standard of living tends to decline. The downward pattern of points supports the negative correlation.

6. Multiple Correlation Analysis

XII - Table: Multiple Correlation Result

Dependent Variable	Independent Variables	R Value
Standard of Living	Income and Indebtedness	0.64

The combined effect of income and indebtedness on the standard of living is moderately strong.

7. Regression Analysis

XIII - Table: Income → Standard of Living

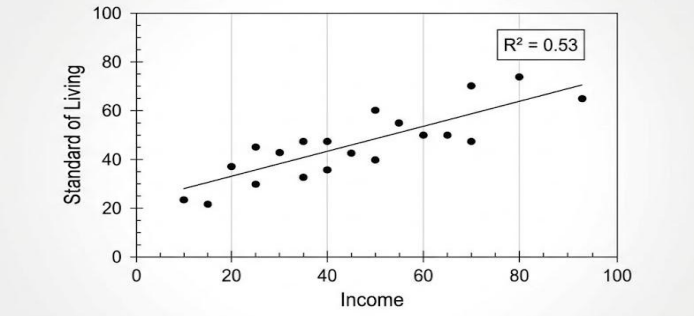
Variable	Coefficient	t-value	Significance
Constant	1.82	3.21	Significant
Income	0.46	5.18	Significant

XIV Table: Indebtedness → Standard of Living

Variable	Coefficient	t-value	Significance
Constant	2.14	3.64	Significant
Indebtedness	-0.39	-4.72	Significant

The analysis clearly shows that income improves the standard of living, while indebtedness reduces it. Both variables together have a significant influence on the living conditions of sugarcane farmers.

Figure 1: Scatter Plot Showing Relationship between Income and Standard of Living

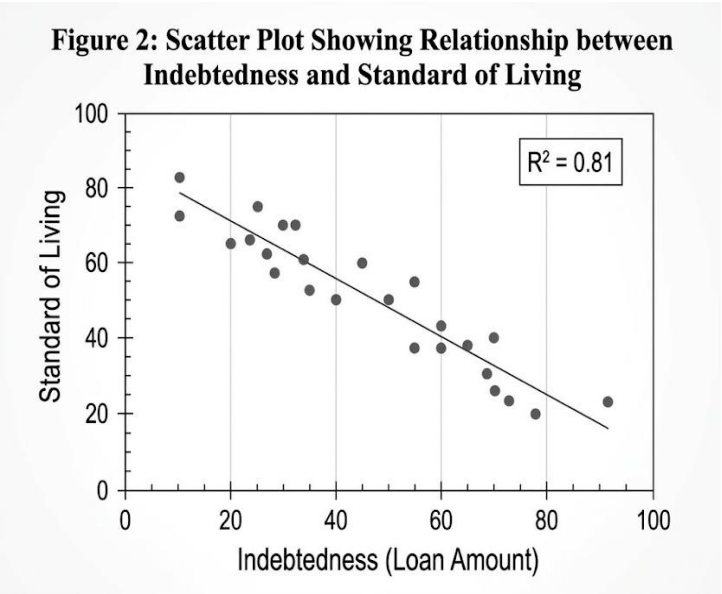


Source: Field Survey Data (2025); Author's Calculation

Note: A linear trendline is fitted to show the direction of the relationship. The R^2 value represents the proportion of variation in the standard of living explained by income.

Interpretation:
The scatter plot shows a clear positive relationship between income and standard of living of sugarcane farmers. As income increases, the standard of living also tends to improve. The upward sloping trendline confirms this positive association. The R^2 value indicates that income explains a moderate share of variation in the standard of living, which supports the correlation and regression results.

Figure 2: Scatter Plot Showing Relationship between Indebtedness and Standard of Living



Source: Field Survey Data (2025); Author's Calculation

Note: A linear trendline is fitted to indicate the direction of the relationship. The R^2 value shows how much variation in the standard of living is explained by indebtedness.

Interpretation:
The scatter plot shows a negative relationship between indebtedness and standard of living. As the level of debt increases, the standard of living tends to decline. The downward sloping trendline confirms this inverse relationship.

The R^2 value suggests that indebtedness has a noticeable influence on the variation in living conditions of farmers.

8. RESULTS AND INTERPRETATION

Socio-Economic Background and its Implications

The socio-economic profile of the respondents points to a farming community that is economically fragile. A majority of the farmers are small and marginal landholders who depend on one crop for most of their cash income. Education levels are modest — only a small fraction has gone beyond secondary schooling — and this affects their ability to negotiate fair terms with buyers, mills, and lenders, and to access information about government programs that may be available to them.

The age profile suggests that farming in this district is still carried by middle-aged and older farmers. The limited presence of young farmers may be a sign of gradual exit from agriculture by the younger generation, which has long-term implications for the future of farming in the region.

Income Levels and Their Significance

The income analysis clearly shows that most farmers earn relatively low amounts from sugarcane. Given that farming input costs, family living expenses, and loan repayments all have to be managed out of these earnings, the financial room available to most households is very narrow. For farmers earning below ₹1,00,000 annually — who make up 60 percent of the sample — any sudden expense, whether from a health emergency, a bad harvest, or a delay in mill payment, is enough to push them into borrowing.

Nature and Burden of Indebtedness

The fact that 71 percent of the sampled farmers are indebted at the time of the survey is a serious finding. It suggests that borrowing is not an exceptional event for these households — it is a routine part of how they manage their finances. The high proportion of farmers borrowing from moneylenders (35 percent) is also concerning because informal lending typically carries higher interest and provides less flexibility in repayment than institutional sources.

The debt amounts are not small. A combined 49 percent of indebted farmers owe more than ₹1,00,000. For a farmer earning between ₹50,000 and ₹1,00,000 a year, a debt of this size represents more than one year's entire income. Managing such debt while also covering current household and farming expenses is extremely challenging.

Living Conditions

The standard of living assessment shows that a majority of farmers — about 78 percent — fall in the low to medium categories. Housing quality is predominantly semi-pucca or kachcha. Access to sanitation is below 55 percent. Nearly one in three households does not have reliable electricity access, and almost a third lacks access to clean drinking water. These figures paint a picture of living conditions that are, at best, marginal and that have significant room for improvement.

Relationship Between Income and Standard of Living

The Pearson correlation value of +0.58 and the regression coefficient of +0.46 together confirm that income has a genuine positive effect on standard of living. Farmers with higher incomes are more likely to live in pucca houses, have access to electricity and water, and spend more on education and health. This finding aligns with what common sense would suggest and with what the literature also finds — income is a fundamental driver of living conditions.

Relationship Between Indebtedness and Standard of Living

The correlation of −0.51 and regression coefficient of −0.39 confirm that higher indebtedness is associated with lower standard of living. This relationship is not just statistical — it reflects a real mechanism. When farmers are heavily indebted, a portion of whatever money they receive goes toward interest and principal repayment, leaving less for household needs. Over time, this continuous diversion of resources away from household welfare translates into visibly lower living conditions.

Relationship Between Income and Indebtedness

The moderate negative correlation of −0.42 between income and indebtedness confirms the expected inverse relationship between these two variables. Farmers with lower income tend to carry more debt, and farmers with higher income tend to have lower outstanding loans. This finding has important policy implications — improving income for low-earning farmers could directly help in reducing their debt dependence.

Combined Effect

The multiple correlation coefficient of 0.64 confirms that income and indebtedness together provide a better explanation of variation in standard of living than either variable alone. The two variables capture different but complementary aspects of a farmer's financial condition. A study that looked at only one of these would miss part of the story. This is why the combined analysis in this study provides a completer and more accurate picture.

Hypothesis Testing Summary

Based on the empirical results of the study, the hypotheses are evaluated as follows:

- **H_1** (Income has a positive and significant relationship with standard of living): **Supported** — Pearson $r = +0.58$, regression coefficient = +0.46, $t = 5.18$, $p < 0.05$.
- **H_2** (Indebtedness has a negative and significant relationship with standard of living): **Supported** — Pearson $r = -0.51$, regression coefficient = −0.39, $t = -4.72$, $p < 0.05$.
- **H_3** (Income and indebtedness are significantly inversely related): **Supported** — Pearson $r = -0.42$, $p < 0.05$.
- **H_0** (No significant relationship): **Rejected** at the 5 percent level of significance.

9. FINDINGS OF THE STUDY

The main findings of the study, based on the primary data analysis and statistical results, are summarized below:

1. The majority of sugarcane farmers in the sample — about 60 percent — belong to small and marginal categories with landholdings of less than 2 acres.
2. Education levels are low among the respondents, with 60 percent having only primary-level education or none at all, which limits their access to information, formal credit, and government support programs.
3. Most farmers — 60 percent — earn less than ₹1,00,000 per year from sugarcane farming, indicating that the income base of the majority is quite restricted.
4. Indebtedness is highly prevalent, with 71 percent of the sampled farmers carrying an outstanding loan at the time of the survey.
5. A significant share of borrowing — 35 percent — comes from informal moneylenders who charge higher interest rates, adding to the long-term financial burden on households.
6. In terms of standard of living, 32 percent of farmers are in the low category and 46 percent are in the medium category, indicating that the quality of life for most farmers is below what could be considered economically comfortable.
7. Access to sanitation is available to only 54 percent of households, which is a particularly concerning indicator of living conditions.
8. Income has a moderately strong positive relationship with the standard of living ($r = +0.58$), meaning that higher-earning farmers tend to have measurably better living conditions.
9. Indebtedness has a moderate negative relationship with the standard of living ($r = -0.51$), confirming that higher debt is associated with poorer living conditions.
10. There is an inverse relationship between income and indebtedness ($r = -0.42$), indicating that lower-income farmers tend to borrow more.
11. The combined multiple correlation ($R = 0.64$) shows that income and indebtedness together explain a meaningful proportion of variation in living standards, confirming that both need to be addressed together.
12. The regression results confirm that income has a statistically significant positive effect ($b_1 = +0.46$) and indebtedness has a statistically significant negative effect ($b_2 = -0.39$) on the standard of living, with both estimates being statistically significant at the 5 percent level.

10. CONCLUSION AND SUGGESTIONS

Conclusion

This study set out to examine the relationship among income, indebtedness, and standard of living of sugarcane farmers in Sitapur district. Based on primary data collected from 200 farmers and analyzed using Pearson correlation, multiple correlation, and regression methods, the study has reached a set of clear and consistent conclusions.

First, income is a genuine and significant positive driver of standard of living. Farmers who earn more are in a better position to maintain and improve their living conditions. Second, indebtedness works in the opposite direction — as the debt burden rises, living conditions deteriorate. Third, income and indebtedness are themselves inversely connected, creating a situation where low-income farmers are more likely to borrow and therefore more likely to face both financial and living-condition challenges simultaneously.

The combined effect of income and indebtedness explains a meaningful portion of the variation in standard of living, confirming that a two-variable analytical approach provides a more accurate understanding of the farmers' socio-economic situation than either variable alone.

In summary, the economic condition of sugarcane farmers in Sitapur district is characterized by moderate income, high indebtedness, and below-average living standards, with the latter being significantly influenced by the former two. Unless these structural conditions are addressed, the living standards of this farming community are unlikely to improve in any meaningful or sustained way.

Suggestions

Based on the findings and conclusions of the study, the following practical suggestions are offered:

1. **Ensure timely payment by sugar mills:** The single most immediate step to improve the financial condition of sugarcane farmers is to ensure that sugar mills pay on time. Delayed payments are a known cause of liquidity problems. Stricter enforcement of existing payment regulations and penalties for delays can make a real difference.
2. **Expand access to institutional credit:** Since a substantial share of farmers still depend on moneylenders, efforts should be made to bring more farmers within the institutional credit network. Simplifying documentation requirements, creating farmer-friendly loan products, and expanding the reach of cooperative credit institutions in rural areas are all useful steps in this direction.
3. **Reduce dependence on a single crop:** Farmers who depend entirely on sugarcane for cash income are particularly exposed to income risk. Programs that support crop diversification, or that help farmers add livestock or small enterprises as secondary income sources, can reduce this risk and provide a buffer during bad seasons.
4. **Reduce input costs through subsidies and group purchasing:** The rising cost of seeds, fertilizers, and pesticides is a significant pressure on farm finances. Targeted subsidies or group-based purchasing arrangements can reduce these costs and improve the effective profitability of sugarcane farming.
5. **Improve financial literacy:** Many farmers, particularly those with low education, may not be fully aware of the terms of their loans, the government schemes available to them, or the best ways to manage their finances. Financial education programs — delivered through panchayats,

farmer producer organizations, or local NGOs — can help in improving financial decision-making.

6. **Invest in rural infrastructure:** Access to electricity, clean water, and sanitation is still not universal among the farmers surveyed. Improving basic rural infrastructure not only improves living conditions directly but also has indirect positive effects on health, education, and economic productivity.
7. **Strengthen price support mechanisms:** While the State Advised Price for sugarcane provides some protection, it needs to be regularly updated to keep pace with rising input costs. A more dynamic and responsive price-setting mechanism would help ensure that farmers' real income does not erode over time.

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Annexure:

Questionnaire for field survey

Title of Study: An Analytical Study of the Relationship among Income, Indebtedness and Standard of Living of Sugarcane Farmers in Sitapur District

Purpose: This questionnaire is prepared for academic research purposes only. All responses will be kept strictly confidential and will be used only for research analysis.

Section A: General Information

1. Age of the respondent: ☐ Below 30 years ☐ 30–45 years ☐ 45–60 years ☐ Above 60 years
2. Gender: ☐ Male ☐ Female ☐ Other
3. Level of Education: ☐ Illiterate ☐ Primary ☐ Secondary ☐ Higher Secondary and Above
4. Total number of family members: -
5. Type of family: ☐ Nuclear ☐ Joint

Section B: Land and Farming Details

6. Total landholding size: ☐ Less than 1 acre ☐ 1–2 acres ☐ 2–5 acres ☐ More than 5 acres
7. Type of farming practiced: ☐ Only sugarcane ☐ Mixed (sugarcane + other crops)
8. Years of farming experience: ☐ Below 5 years ☐ 5–10 years ☐ 10–20 years ☐ Above 20 years
9. Do you use any modern farming inputs (mechanization, improved seeds)? ☐ Yes ☐ No

Section C: Income Details

10. Annual income earned from sugarcane farming: ☐ Below ₹50,000 ☐ ₹50,000–₹1,00,000 ☐ ₹1,00,000–₹2,00,000 ☐ Above ₹2,00,000
11. Do you have any other sources of income apart from sugarcane? ☐ Yes ☐ No If yes, please specify: _____
12. Approximate monthly household income from all sources combined: ☐ Below ₹5,000 ☐ ₹5,000–₹10,000 ☐ ₹10,000–₹20,000 ☐ Above ₹20,000
13. Are you satisfied with your current income from sugarcane farming? ☐ Yes ☐ No ☐ Somewhat
14. Have you experienced delayed payment from sugar mills in the past two years? ☐ Yes ☐ No

Section D: Indebtedness

15. Do you currently have any outstanding loan? ☐ Yes ☐ No
16. If yes, what is the total loan amount outstanding? ☐ Below ₹50,000 ☐ ₹50,000–₹1,00,000 ☐ ₹1,00,000–₹2,00,000 ☐ Above ₹2,00,000
17. What is the main source of your loan? ☐ Bank ☐ Cooperative Society ☐ Moneylender ☐ Relatives/Others
18. What was the main purpose of taking the loan? ☐ Farming inputs ☐ Household expenses ☐ Education ☐ Health ☐ Others
19. Are you able to repay your loan installments on time? ☐ Yes ☐ No ☐ Sometimes
20. Have you taken multiple loans from different sources at the same time? ☐ Yes ☐ No

Section E: Standard of Living Indicators

21. Type of house you currently live in: ☐ Kachcha (mud/thatch) ☐ Semi-Pucca ☐ Pucca (concrete/brick)
22. Availability of basic facilities in your household:

Facility	Available (Yes)	Not Available (No)
Electricity	☐	☐
Safe Drinking Water	☐	☐
Sanitation/Toilet	☐	☐

23. Do your children attend school regularly? ☐ Yes ☐ No ☐ Not applicable

Section F: Household Expenditure

24. Approximate monthly household expenditure: ☐ Below ₹5,000 ☐ ₹5,000–₹10,000 ☐ ₹10,000–₹20,000 ☐ Above ₹20,000
25. Main areas where household money is spent (select all that apply): ☐ Food ☐ Education ☐ Health ☐ Farming inputs ☐ Loan repayment ☐ Others
26. Ownership of household assets (tick all that apply): ☐ Television ☐ Mobile phone ☐ Motorcycle ☐ Refrigerator ☐ Tractor ☐ None of the above

    In the past one year, have you had to reduce spending on education or health because of financial pressure? ☐ Yes ☐ No ☐ Sometimes