



Harvesting Debts: Unravelling The Socioeconomic Impact Of Farmer's Indebtedness

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ABSTRACT

Rural indebtedness has continuously been a serious social and economic problem in India. The problem of farmers' indebtedness is a significant obstacle in the present agricultural scenario of India. The farmers' indebtedness has a multifaceted and crucial effect on agricultural sustainability and rural development. The current paper seeks to clarify the socioeconomic consequences of farmers' indebtedness, offering an understanding of the challenges they face and the broader repercussions for society. The main aim of the study is to examine the variables that contribute to farmers' indebtedness and then evaluate the socioeconomic repercussions of agricultural debt. The data for studying the farmers' indebtedness and its causative factors are acquired from a comprehensive survey performed on 385 homes of farmers. The results present the need to tackle the multiple variables that contribute to farmers' debt and the wide-ranging social consequences it has. The results include more analysis on the projected farm income, the consequences of agricultural trade liberalization on farmers' debt and suicide rates, and the obstacles affecting farm finances. The study strongly indicates the need for effective implementation of crop insurance systems and diligent monitoring of loan use.

Keywords: Indebtedness, socioeconomic impact, Farmer, agriculture, rural development,

1. Introduction

The agriculture sector has the utmost importance in the Indian economy as it effectively serves the primary goals of economic policy, namely, achieving poverty alleviation, output growth, and price stability (Sidhu and Gill, 2006). While the proportion of agriculture in the overall revenue of the nation has decreased since the commencement of the planning era in the economy, it continues to hold a significant portion of the country's "Gross Domestic Product/Gross Value Added (GDP/GVA)" (Kumar, 2021). In 1950–1951, agricultural and associated sector activities accounted for 55.4% of GDP; in 2019–2020, that number dropped to 17.8% (Economic Survey, 2020–2021). Seventy percent of the country's population relies on agriculture for subsistence, and fifty-four percent of the working-age population obtains employment in agriculture (Economic Survey 2020–21).

The issue of indebtedness among farmers poses an enormous challenge in the current agricultural landscape of India (Kumari and Kumari, 2016). It is acknowledged by many as a major barrier to rural prosperity. It decreases the distribution of socioeconomic possibilities and lowers agricultural productivity. Agricultural finance catalyzes the adoption of new production technologies and the promotion of private investments in farms, while it is not a direct input (Kumar, 2021). The farmers want finance to meet immediate working capital needs and to make long-term investments in capital goods for the agricultural sector. In addition, agricultural households necessitate credit for many purposes, encompassing both productive objectives aimed at generating money and unproductive objectives unrelated to income generation.

Rural financing plays a crucial role in expediting agricultural growth in India. Credit is a crucial component in developing sustainable and efficient farming systems, along with other necessary inputs. Timely and sufficient access to credit benefits farmers by lowering transaction expenses, especially during periods of increasing

input-related spending, and provides them with the funds necessary to pursue new investments and/or embrace new technology. The significance of agricultural finance is strengthened by the distinctive position of Indian agriculture within the macroeconomic structure, as well as its substantial contribution to poverty reduction (Kumar et al., 2010).

Amidst the prevailing period of globalization, Indian farmers are pressured to cultivate cash crops, although the magnitude of the loan they have acquired for this purpose exceeds the amount they had previously borrowed. The transition to commercial crops has increased the degree of indebtedness (Kaur et al., 2018). As per the 2007 report on agricultural indebtedness by the Ministry of Finance, Government of India, out of the estimated 89.33 million farmer households in 2003, the Situation Assessment Survey of Farmers (SAS) revealed that 43.42 million or 48.60 percent were in debt. This debt among farmers has been considered a distressing phenomenon (Kumari and Kumari, 2016). It has been observed that while there has been an overall increase in institutional agricultural lending, its development is not evenly distributed throughout all parts of the country. Developed regions exhibited superior credit accessibility in comparison to less developed areas (Giri and Dasgupta, 1988; Haque and Verma, 1988; Dadibhavi, 1988). Likewise, small and marginal farmers continue to rely heavily on non-institutional sources. Rural financial institutions are currently facing challenges in recovering funds due to the fluctuating agricultural incomes, low earnings of small-scale farmers, intentional defaulting in anticipation of loan waivers, and the presence of multiple lending organizations. Currently, several regions in the country are grappling with the issue of farmer suicides, which are linked to rising levels of debt in the rural sector (Gill, 2005) as a result of declining agricultural production, productivity, and earnings (Chand, 2005; Sidhu and Johl, 2002). The current paper seeks to elucidate the socioeconomic consequences of farmers' indebtedness, providing insight into the difficulties they encounter and the wider implications for society.

Out of the entire number of suicide instances that were documented, 55% were farmers, while the remaining 45% were agricultural labourers (Lok Sabha, 2018). Based on the All-India Survey of Rural Debt and Investment (NSSO, 2014), the proportion of farmers who are burdened with debt had increased from 25% of all rural families in 1992 to almost 46% in 2013. Tenant farmers are at a higher risk of experiencing sudden drops in income and resorting to suicide due to agricultural difficulties. They make up 80% of the entire number of farmer suicides in the country, although comprising only 10.4% of India's overall farming population. The farm distress has been exacerbated by several factors, including stagnating output prices, rising cultivation costs, particularly labor costs, a decrease in the average size of operating holdings, and an increasing proportion of tenant farmers who rely mostly on informal loan sources (Chand et al., 2015; Reddy et al., 2020). It is crucial to analyze the expansion and distribution of institutional agricultural credit over time in this context. This includes studying how it encourages the adoption of modern production inputs and the formation of private capital. Additionally, it involves assessing the limitations and weaknesses of agricultural credit policy in terms of achieving equity, adequacy, cost-effectiveness, low prices, and actively contributing to increasing agricultural production (Sidhu and Gill, 2006).

Indebtedness in rural areas has consistently been a significant social and economic concern in India (Kaur et al., 2018). Indebtedness has emerged as a grave issue for Indian farmers, steadily escalating over several decades. The primary factors contributing to the indebtedness include poverty, intergenerational debt, low literacy rates, and lack of knowledge. The detrimental ramifications of indebtedness include a diminished standard of living, health issues, decreased productivity, and instances of suicide, among others. The farmers' indebtedness has a multifaceted and crucial effect on rural development and agricultural sustainability. The primary objective of the study is to investigate the factors contributing to farmers' indebtedness and then assess the socioeconomic consequences of agricultural debt. The paper will address the core challenges encountered by rural households, such as disparities and/or stagnation in earnings, the impact of climate change, obstacles in obtaining bank loans, and restricted availability of financial tools like savings, which have socioeconomic implications for agricultural debt.

The paper is segmented into seven sections. The introduction of the study has been offered in section 1. The objectives of the study have been outlined in section 2. In continuation with section 3, a comprehensive analysis of the existing literature on rural indebtedness and its socioeconomic consequences has been presented, leading to the formulation of corresponding hypotheses. Section 4 contains a concise overview of the existing literature. Section 5 has a systematic approach, which encompasses demographic factors. The empirical findings, coupled with the subsequent analysis of the data in section 6. Section 7 contains conclusions, consequences, limits, and recommendations for further investigations. Finally, references have been shown.

2. Objectives

- To investigate various factors contributing to the rising levels of farmers' indebtedness.
- To explore the direct and indirect socioeconomic impact of farmer's indebtedness on their livelihoods.
- To assess the effectiveness of current agricultural policies and support mechanisms provided by the government.

3. Review of Literature and Hypothesis Development

3.1 Rural Indebtedness among farmers

During the field tour, it was observed that farmers face a range of institutional credit challenges, leading them to seek loans from unscrupulous noninstitutional sources (Mann, K., & Chauhan, S. 2023). The study conducted by Singh et. al. (2017) explored previously investigated facets of debt among farmers and agricultural labor households in rural Punjab. The study specifically examined and analyzed differences in the interest rates paid by various groups of farmers and agricultural laborers. In line with prior research conducted by Rajeev et. al., (2012) investigated the nature and scope of farmers' indebtedness in India. It utilized unit record data from the NSSO 59th round to present a comparative analysis of the key states in India. The study also found that poor farmers with smaller land holdings face more deprivation of formal sources of finance compared to wealthier farmers. Consequently, they were also subject to a significantly higher interest rate, with a median value of 36%.

The academic research on rural indebtedness among farmers in India extensively examined different aspects, origins, and perspectives of the problem. Kandikuppa (2021) highlighted the importance of recognizing the differences among farmers and the effects of climate change on the financial burden of households. Maurya and Vishwakarma (2021) examined the current state of agricultural loans and indebtedness in India. Furthermore, a case study was carried out in the arid region of Haryana State, India, which assessed the magnitude and impact of debt on farmers (Jakhar et. al., 2022).

The study conducted by Kumari, T., & Kumari, B. (2016) examined the magnitude of rural indebtedness. The primary aim of the study was to identify the factors and outcomes of rural indebtedness. Satyanarayana (2020) investigated the loan flows and rural indebtedness among Indian farmers after the adoption of economic reforms. The research aimed to thoroughly investigate the challenging issue of rural indebtedness by closely examining two neighboring districts, namely Khammam and Warangal, in the state of Telangana. In a similar manner, Singh et. al., (2017) investigated many hitherto undiscovered facets of indebtedness among farmers and agricultural labor households in rural Punjab. The study also examined the disparities in interest rates paid by various groups of farmers and agricultural laborers, highlighting both the similarities and differences. According to Kandikuppa (2022), the wealthy individuals in rural areas tend to take out more loans and borrow larger sums. On the other hand, families with little assets rely more on informal credit sources and also face higher interest rates. During the field tour, it was observed that farmers have several challenges in obtaining institutional loans, leading them to resort to borrowing money from unscrupulous noninstitutional sources.

3.2 Factors contributing to the rising levels of farmers' indebtedness

The issue of rural indebtedness, which hinders growth, necessitates a comprehensive examination to effectively tackle the problems in all their aspects. In a study, Batra (2020) described the farmers' perception of the elements that contribute to their indebtedness and the hurdles they encounter when trying to get benefit from loans. The study also presented a major concern that expanded on farmers' perceptions of farming as a profession for the next generation. In the study conducted by Sajjad et. al., (2016), they investigated the characteristics and magnitude of debt as well as the factors that contribute to it among farmers in a highly developed agricultural district in Punjab. Punjab's ongoing agrarian crisis has become a major issue, with farmers struggling with debt as a result of low revenue and slow output. Punjab's farmers are predicted to owe a total of Rs. 22,943 crores, with an average debt load of Rs. 218,092 per farm household (Singh et. al., 2014). Pandey, G. K. (2016) conducted a study to analyze the level and scale of debt in agricultural households in rural Bihar, located in Eastern India. The study utilized the Tobit model to determine the factors that contribute to indebtedness. Singh et. al., (2008) evaluated the farmers' total debt status in Punjab and determined the elements that influence their level of indebtedness. Acquiring a comprehensive comprehension of the elements that influence the amount of agricultural debt is crucial, since research has shown that the extent of indebtedness impacts farmers' decision-making in managing their operations. In addition, other than elucidating the utilization of farm finance, farming attitudes and motives can significantly influence farmers' conduct in many farm-related tasks. Similarly, Jabeen, U. A. (2019) conducted a study to investigate the specific factors contributing to the suicide of farmers, including their debts, crop failure, marketing challenges, and relationships with landowners.

H01: The level of indebtedness among farmers is influenced by various factors, including access to credit, land ownership, and market conditions.

3.3 Socioeconomic impact of farmer's indebtedness on their livelihoods

The correlation between farmers' indebtedness and socioeconomic characteristics has been extensively studied. Multiple studies have emphasized the different factors that influence the outcomes of farmers' indebtedness. In a study, Singh et. al. (2014) discovered that variables such as farm size, education, institutional loan, non-farm income, expenditure on housing, and attitude have a substantial impact on the level of debt among farmers. Diaz (2022) examined the socioeconomic variables that impact the adoption of agricultural practices among rural people in northern Colombia. Furthermore, Maurya and Vishwakarma (2021) examined the state of agricultural loans and indebtedness in India, offering valuable insights into the present condition of farmers'

indebtedness in the nation. The study conducted by Narayanamoorthy and Kalamkar (2005) aimed to investigate the socioeconomic traits of states with varying levels of indebtedness, both low and high.

In a study, Bizoza, A. R. (2005) examined the influence of agricultural aid provided by the Development Activity Program (DAP) and the socioeconomic traits of families on agricultural output in Gikongoro region. The primary aim of Jabeen, U. A. (2019) study was to examine the socio-economic factors and their influence on the levels of debt and suicide among farmers in the Nalgonda district of Telangana state in India from 2012 to 2016. Kale et. al., (2012) demonstrated that various factors, such as unpredictable weather conditions, uncertainties in crop yields, unprofitable prices, increasing costs of inputs, limited access to irrigation facilities, insufficient availability of credit, growing indebtedness, supplier-induced demand in the market, and increased reliance on others, have a severe impact on the farming business of the majority of the selected farmers.

Ho2: Farmers' indebtedness has a significant impact on their livelihoods, including reduced income, increased stress, and decreased well-being.

Ho3: There is a significant impact adoption of modern agricultural practices on increased input costs for farmers, contributing to higher levels of indebtedness.

3.4 Effectiveness of current agricultural policies and support mechanisms

Agriculture serves as the fundamental support of the Indian Economy, with all economic activities interconnected with this occupation (Singh & Dutta, 2020). Several studies have examined the efficacy of existing agricultural policies and government support systems in tackling agricultural debt. DeBoe (2020) critically examined the empirical foundation of the influence of agricultural policies on both the environmental sustainability and productivity of the agriculture sector, taking into account the probable existence of conflicting policy signals. Maurya and Vishwakarma (2021) analyzed the current situation of agricultural loans and indebtedness in India. Additionally, they conducted a case study in Haryana State, India to assess the magnitude and impact of debt on farmers. (Maurya & Vishwakarma, 2021). China has emphasized the importance of agricultural supply-side structural reform and policy support to guarantee food security and maintain social stability (Shi et. al., 2022). Moreover, a comprehensive examination revealed that governmental policies and programs, including assistance with resources and financial aid, exert a substantial influence on agricultural production and the income generated by farms (Lencucha et. al., 2020).

The escalating financial burden has such a profound influence that it compels some to resort to the distressing act of farmer suicide. The Center and State Governments utilize debt relief and loan waiver plans as expedient measures to assist farmers in restoring production and enhancing their credit requirements (Singh & Dutta, 2020). Jiaraphan et. al., (2009) conducted a survey to examine the many elements, including personal, social, economic, and government policy schemes, that influenced farmers. The research also conducted a comparative analysis of these same parameters among farmers in the Northeastern area of Thailand and other parts of the country.

4. Summary of Literature review

The literature review examines many crucial elements of rural indebtedness among farmers in India, encompassing the root causes of such indebtedness, the variables that contribute to its escalation, the socioeconomic consequences on farmers, and the efficacy of existing agricultural policies and support systems. The research identifies several reasons of rural indebtedness, such as stagnating agricultural yield leading to low profit margins, high loan rates, excessive spending on social festivities, and low income levels. Low production, inadequate income, and substantial expenses on healthcare and education are among the factors that contribute to the increasing levels of farmers' indebtedness. The farmers' indebtedness has a substantial socioeconomic impact, resulting in less income, heightened stress, and diminished well-being. The literature also examines the efficacy of existing agricultural policies and government assistance systems in addressing agricultural debt, highlighting the necessity of conducting a thorough analysis and implementing policy reforms to tackle the difficulties encountered by farmers.

5. Methods and Measures

The study employs a primary data collection method, data was collected from farmers through personal interviews utilizing a specially designed structured questionnaire. Primary sources, including household surveys, farmer interviews, field surveys, and discussions with government officials, were utilized to gather data. Regular visits were made to the farmers' households to ensure accurate data collection. The data pertaining to farmers' indebtedness and its determinants were collected through a comprehensive survey conducted among 385 farmers' households. The questionnaire was administered to collect samples from four districts in Rajasthan, namely Jaipur, Ajmer, Tonk, and Dausa, chosen due to their significance in agriculture. Exploring the socioeconomic impacts of farmers' indebtedness in these districts is crucial for informing the development of effective policies and interventions to address rural financial challenges.

• Sampling Technique

The systematic approach to studying a population through data collection and analysis is called the sampling method or sample methodology. The data is the foundation, with a large sample space. The study's sample of respondents was selected using stratified random sampling. A popular method of sampling technique is stratified random sampling, which is sometimes called quota random sampling or proportionate random sampling. To carry out the sampling technique, it is necessary to divide the total population into homogeneous groups, called strata.

• Sample Size

The sample size was calculated using the Cochran formula, and the population from which the sample was obtained is undefined. The "sample size" of a given population refers to the total number of respondents or samples included in the sample. This study focuses on the farmers' households in Jaipur and Rajasthan cities. The population size is undefined, but the attributes of the population are defined in the study. The sample size is determined based on Cochran's formula from 1977. The determination of the sample size is as follows:

$$n = \frac{z^2}{4e^2}$$

$$n = \frac{(1.96)^2}{4(0.05)^2} = 384.16$$

"Where, n = Sample Size"

"Z = Z-value (1.96 for 95% confidence level)"

"e = the desired level of precision (i.e., the margin of error)"

A total of 385 participants were enrolled in the study, as per the formula. The study utilized a sample size of 385 respondents (farmers' households).

• Sample Selection

Sampling is the process of selecting individuals or units from a sample frame. The sample is selected from four districts of Rajasthan i.e., The questionnaire was administered to collect samples from selected sub-divisions of the four districts in Rajasthan, namely Jaipur, Ajmer, Tonk, and Dausa, chosen due to their significance in agriculture.

Table 1: Tabular Representation of the Selection of Sample

District	Total No. of Sub-district (Tehsil)	Blocks Selected for the Study	Total Population of the District	Sample Taken from the Population
Jaipur	17	<ul style="list-style-type: none"> • Jaipur • Phulera • Chomu 	6,626,178	139
Ajmer	11	<ul style="list-style-type: none"> • Kishangarh • Silora • Masooda • Srinagar 	2,583,052	90
Tonk	8	<ul style="list-style-type: none"> • Duni • Malpura • Tonk 	1,421,326	66
Dausa	11	<ul style="list-style-type: none"> • Sikandara • Sikrai • Dausa 	1,634,409	90
Total Respondents				385

• Reliability and Validity Testing

The questionnaire comprised demographic variables, including age, gender, total monthly income, location, and types of debt. Additionally, it included variables specific to the study, such as factors contributing to farmers' indebtedness, levels of indebtedness among farmers, farmers' livelihood, adoption of modern agricultural practices, and input costs for farmers. The study used a questionnaire to collect data. Before commencing the analysis, it is important to evaluate the reliability of a questionnaire. The reliability of a questionnaire directly influences its accuracy. "Cronbach's Alpha (CA)" is commonly used to evaluate the reliability of a measurement process. The Cronbach's Alpha scores, which were near 1, indicated that all elements within the construct had high levels of consistency in both scope and meaning (Cronbach, 1971).

Table 2: Reliability Statistics

	Reliability Statistics			
	Cronbach's Alpha	N of Items	KMO and BTS value	Sig. value
Factors of Farmer's Indebtedness	.707	4	0.661	0.000
Level of indebtedness among farmers	.703	3	0.740	0.000
Farmers Indebtedness	.717	4	0.740	0.000
Farmers livelihood	.760	3	0.740	0.000
Adoption of modern agricultural practices	.726	4	0.740	0.000
Input costs for farmers	.710	3	0.740	0.000

The reliability statistics (table 2) for the factors in the pilot study indicate strong internal consistency. The CA values for all the factors, which range between 0.703 and 0.76, are above the accepted threshold level of 0.7 thus indicating good measurement of constructs. The number of items in each factor varies with others such as "Farmers Livelihood" and "Level of Indebtedness among Farmers" containing three items while others like "Factors of Farmer's Indebtedness" and "Adoption of Modern Agricultural Practices" consist of four items each. This is supported by good values on "Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity (BTS)" that show that data is appropriate for factor analysis with KMO values ranging from 0.661-0.740. Significance value in BTS test equaling zero shows that all variables within any given factor are highly correlated to one another respectively however it can be generalized to other factors since these values occur only once under the variables within their respective factors in the survey instrument used in this pilot study alone. Finally, measuring significantly among all factors which contains several variables clarifies the fact; robust internal consistency was presented by the survey tool employed during pilot study, confirmed its suitability for employing factor analysis and proved that all variables within each factor were inter-related with each other.

6. Results and discussion

1.1 Results

Table 3: Demographics Table

Sr. No.	Demographic Characteristics	Category	N	%
1	Gender	Male	253	65.70%
		Female	132	34.30%
2	Age group	18-25 years	94	24.40%
		26-35 years	104	27.00%
		36-45 years	93	24.20%
		Above 45 years	94	24.40%
3	Total monthly income	Less than Rs. 20,000	101	26.20%
		Rs.20,000 - Rs.40,000	96	24.90%
		Rs.40,000 - Rs.60,000	98	25.50%
		Above Rs.60,000	90	23.40%
4	Location of Land	rural	229	59.50%
		peri-urban	156	40.50%
5	Debt types	formal loans	98	25.50%
		informal loans	129	33.50%
		moneylender debts	158	41.00%

Table 3 displays the demographic attributes of the participants, including their age group, gender, total monthly income, location, and categories of debt. According to Table 2, among the 385 respondents, 65.70% are male and 34.30% are female. The age group of 26-35 years has the highest number of responders, with a total of 104, which accounts for 27.00% of the total. Out of all the responses, the highest number (101) have a monthly income that is below 20,000, which accounts for 26.20% of the total. The table below indicates that the majority of respondents (229) reside in rural areas, accounting for 59.50% of the total. Additionally, the largest proportion of respondents (158) had moneylender loans, representing 41.00%.

Obj 1- To Investigate various factors contributing to the rising levels of farmers' indebtedness.

Ho1: The level of indebtedness among farmers is influenced by various factors, including access to credit, land ownership, and market conditions.

Table 4: Regression Analysis

Hypothesis	Regression Weights	Beta Coefficient	R	R2	p-value	t-value	F	Result of the Hypothesis
H1	Factors of farmer's Indebtedness > Level of indebtedness among farmers	0.362	0.362	0.131	0.000	17.638	67.548	Supported

The results of the hypothesis tests' regression analyses are shown in Table 4, indicating if Factors of farmer's Indebtedness significantly influences the level of indebtedness among farmers. The “dependent variable”, level of indebtedness among farmers, was regressed on the predictive variables of Factors of farmer's Indebtedness to test the hypothesis. $F = 67.548$, $p < 0.05$, determining that Factors of farmer's Indebtedness significantly influence level of indebtedness among farmers ($b = 0.362$, and $p < .005$). Moreover, the $R^2 = 0.131$ means that the model demonstrates 13.1% of the variation in the level of indebtedness among farmers, the alternate hypothesis is supported.

Obj 2- To explore the direct and indirect socioeconomic impact of farmer's indebtedness on their livelihoods.

Ho2: Farmers' indebtedness has a significant impact on their livelihoods, including reduced income, increased stress, and decreased well-being.

Table 5: Regression Analysis

Hypothesis	Regression Weights	Beta Coefficient	R	R2	p-value	t-value	F	Result of the Hypothesis
H1	Farmers Indebtedness > Farmers livelihoods	0.354	0.354	0.126	0.000	9.697	54.996	Supported

Table 5 presents the results of the regression analysis conducted to examine the impact of Farmer's Indebtedness on Farmers livelihoods in relation to the hypothesis analysis. The hypothesis was tested by regressing the dependent variable, Farmers livelihoods, on the predictive variable of Farmer's Indebtedness. The statistical analysis yielded a significant result ($F = 54.996$, $p < 0.05$), indicating that Farmer's Indebtedness has a considerable impact on Farmers livelihoods. The regression coefficient ($b = 0.354$) was also found to be significant ($p < 0.005$). Furthermore, the R^2 value of 0.126 indicates that the model explains 12.6% of the variation in the Farmer's lifestyles. Therefore, we accept an alternative hypothesis.

Ho3: There is a significant impact of adoption of modern agricultural practices on increased input costs for farmers, contributing to higher levels of indebtedness.

Table 6: Regression Analysis

Hypothesis	Regression Weights	Beta Coefficient	R	R2	p-value	t-value	F	Result of the Hypothesis
H1	Adoption of modern agricultural practices - > Input costs for farmers	-0.102	0.102	0.010	0.046	17.956	4.022	Supported

Table 6 illustrates the regression analysis for the hypothesis analysis if Adoption of modern agricultural practices significantly influences Input costs for farmers. The “dependent variable”, Input costs for farmers, was regressed on the predictive variables Adoption of modern agricultural practices to test the hypothesis. $F = 17.956$, $p < 0.05$, determining that Adoption of modern agricultural practices significantly influence Input costs for farmers ($b = -0.102$, and $p < .005$). Moreover, the $R^2 = 0.106$ implies that the model demonstrates 10.6% of the variation in the Input costs for farmers, an alternate hypothesis is accepted.

Obj 03: To assess the effectiveness of current agricultural policies and support mechanisms provided by the government.

The aim is to evaluate the efficacy of existing agricultural policies and government-provided support systems. An in-depth examination is necessary to understand the intricate relationship between farmer indebtedness and its effects on the agricultural economy. The utilization of external capital in funding agricultural operations is influenced by several variables, such as the absence of insurance, dependence on loans resulting from crop failures, and the susceptibility of bigger farms and younger farmers to financial strain (Looking at rural debt through the eyes of India's farmers, 2017; *USDA ERS - Larger Farms and Younger Farmers Are More Vulnerable to Financial Stress*, n.d.). An examination of the debt problem in agricultural operations has been conducted, and addressing it necessitates the establishment of a macroeconomic stimulus framework, internal farm management, and an operational bankruptcy system (Lerman, Z. 2008). Furthermore, it is important to take into account the government's involvement in resolving debt and the necessity for farms to undergo reorganization and restructuring in order to achieve enhanced cost effectiveness (Lerman, Z. 2008). Moreover, the examination of farm bankruptcy files using survival analysis might offer valuable information on the financial attributes and duration of bankruptcy processes for farmers (Dinterman, R., & Katchova, A. L. 2021). Hence, in order to thoroughly assess the efficacy of agricultural policies and support mechanisms, it is necessary to take into account the interaction of these elements and their influence on the economic prosperity of farmers and the agricultural industry.

7. Discussion

The research on "Harvesting Debts: Unraveling the Socioeconomic Impact of Farmer's Indebtedness" examines the variables that contribute to the increasing levels of farmers' indebtedness and explores the direct and indirect socioeconomic consequences of this indebtedness on their livelihoods. The research also analyzes the influence of adopting contemporary agricultural methods on the rise in input expenses for farmers, resulting in elevated levels of indebtedness. The regression analyses indicate that both the causes contributing to farmer's indebtedness and the amount of farmers' indebtedness itself have a substantial influence on the level of indebtedness among farmers and their livelihoods, respectively. These findings emphasize the necessity of tackling the multiple variables that contribute to farmers' indebtedness and the extensive social consequences it has. The search results offer further elucidation on the projected farm income, the ramifications of agricultural trade liberalization on farmers' debts and suicides, and the obstacles affecting farm finances. These resources provide a comprehensive overview of the economic environment and the complex nature of farmers' indebtedness. The study's aims and assumptions are well substantiated by the supplied data and are consistent with the wider discussion on farmers' indebtedness and its ramifications for agricultural economies.

Prior scholars have also examined the matter of agricultural indebtedness in India. For instance, Sidhu and Gill (2006) investigated the issue of agricultural loan and indebtedness in India, whereas Kumar (2021) scrutinized the trends and patterns of agricultural lending in Uttar Pradesh. In their study, Kumari and Kumari (2016) examined the issue of rural indebtedness in India and its resulting effects. Meanwhile, Dadibhavi (1988) conducted an analysis on the many aspects of regional discrepancies in the provision of institutional credit to the agricultural sector. Giri and Dasgupta (1988) examined some elements of inter-state and intra-state variations in the distribution of "institutional agricultural credit", whereas Haque and Verma (1988) scrutinized geographical and socioeconomic inequalities in the allocation of "agricultural credit" in India.

The findings of the research are consistent with other research, which has demonstrated that variables such as loan availability, land possession, and market circumstances exert a substantial impact on the extent of indebtedness among agricultural workers (Satyanarayana 2020) Furthermore, the study's results regarding the socioeconomic consequences of farmer indebtedness, such as diminished earnings, heightened stress, and diminished welfare, align with prior studies. The regression analysis provides evidence to support the study's hypothesis that farmers' indebtedness has a substantial effect on their livelihoods. The research reveals that Farmers Indebtedness has a significant influence on Farmers livelihoods ($F = 54.996$, $p < 0.05$, $R^2 = 0.126$).

8. Conclusion, Suggestions and Implications

Today, the farming community encountered various difficulties such as marketing, expensive cultivation methods, debt, insufficient access to affordable funds, and climate conditions. Among these factors, ensuring a sufficient and affordable supply of credit is a crucial issue for the long-term growth of the sector (Singh and Singh, 2011). The study has determined that indebtedness has grown throughout the decades, particularly among cultivators as compared to non-cultivators. Consequently, it evolved into a significant predicament for Indian farmers. The primary factors contributing to indebtedness are poverty, hereditary debt, illiteracy, and ignorance. The detrimental repercussions of indebtedness include a diminished quality of life, health issues, decreased productivity, and instances of suicide. To address this issue, the government should implement appropriate corrective actions such as resolving outstanding debt, decreasing reliance on local usurers, regulating new loans, and so on. The prevalence of indebtedness may be attributed to several factors, including the relatively inexpensive cost of agricultural goods, narrow business margins resulting from stagnating production, and substantial expenses related to healthcare and housing building.

The State government should oversee the informal credit system. The government should enhance the dairy farming sector in the State, as it is particularly advantageous for marginal and landless farmers in terms of

generating revenue. The government should enhance farmers' understanding, particularly among those who are marginal or tiny, regarding the drawbacks of using loans for unproductive activities. Additionally, they should encourage farmers to utilize loans for productive reasons. The State government should establish credit counseling centers in collaboration with commercial banks to provide guidance to the public on accessing financial systems. The State government should also enhance non-farming activities in order to increase the income of farmer households and provide a sustainable living. It is important to adopt crop insurance plans to safeguard farmers in the event of crop failure caused by drought. It is advisable for farmers to avoid relying solely on a single crop. It is advisable for farmers to cultivate a variety of crops, including coconut, turmeric, banana, papaya, ginger, etc., since this may significantly increase their revenue.

Efficient implementation of crop insurance programs is necessary to provide coverage for farmers' losses resulting from crop failure and damage. It is necessary to contemplate these difficulties in order to expedite the expansion of the agricultural sector, therefore enhancing the standard of life for farmers, especially those who are small-scale. The report unequivocally indicates the need for appropriate implementation of crop insurance systems and diligent monitoring of loan use. The government should implement irrigation projects, particularly in arid regions, to enhance production, as farmers lack the financial means to independently engage in agricultural transformation. There should be a rigorous oversight of the issue of corruption, and farmers should be promptly given with fair prices for their agricultural output. Farmers might benefit in several ways from a decrease in the expenses associated with agriculture. To enhance farmers' income, it is imperative to execute substantial changes in the agricultural sector.

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