



# Economic shifts and financial strain: Karnataka farmers' journey in the first two decades of the 21st century

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## Abstract

This study examines the economic transformations and financial pressures faced by farmers in Karnataka from 2002-03 to 2018-19. It explores shifts in landholding patterns, credit accessibility, income trends, and indebtedness among different farmer categories. Utilizing data from the Situation Assessment Survey (SAS) conducted in 2003 and 2019, the analysis reveals a trend towards smaller landholdings and increased credit access, especially among marginal and small farmers. Significant income growth is observed, particularly in agricultural earnings, alongside rising consumption expenditures. However, the debt burden has substantially increased, with variations across farmer categories. The findings highlight the importance of supporting sustainable land management, enhancing financial inclusion, and promoting diversified income sources to ensure the long-term economic stability of farmers in Karnataka.

**Keywords:** farmer, agricultural income, landholding size, SAS, indebtedness, loan, interest rate

## Introduction

Located in southwestern India, Karnataka is recognized for its diverse geography, rich cultural heritage, and vibrant economy. Home to a population exceeding 61 million, Karnataka encompasses a varied landscape, from the fertile plains of the Deccan Plateau to the forested hills of the Western Ghats (Pradhan *et al.*, 2013) [7]. This geographical diversity underpins a multifaceted economy, characterized by a blend of agriculture, industry, and services. While Karnataka has witnessed rapid urbanization and growth in its industrial and service sectors, agriculture continues to be a significant economic driver, particularly in rural areas where a substantial portion of the population resides (State of the Economy, n.d.). Agriculture forms the backbone of Karnataka's rural economy, providing livelihoods for a significant proportion of its workforce and contributing substantially to the state's Gross State Domestic Product (Appa *et al.*, 2018) [1]. The state holds a crucial position in India's agricultural landscape, renowned for its production of key crops such as rice, maize, sugarcane, coffee, and a variety of fruits and vegetables (Pavithra *et al.*, 2019) [6]. Additionally, Karnataka plays a vital role in India's livestock sector, contributing significantly to the nation's milk, poultry, and meat production (Naveen *et al.*, 2019) [5].

Understanding the dynamics of agricultural households in Karnataka is essential for comprehending the broader picture of rural living standards, employment quality, and overall economic well-being in the state. These households, often characterized by small landholdings, fragmented plots, and limited access to resources, face unique challenges in navigating the complexities of a rapidly changing economic

environment (Ashwini, 2013) [2]. Analyzing their income, consumption, and debt trends provides critical insights into their financial vulnerability, resilience, and the effectiveness of policy interventions aimed at improving their livelihoods (Banerjee & Duflo, 2007) [3].

This paper examines the evolving economic realities of Karnataka's farmers during the first two decades of the 21st century, a period marked by significant economic shifts, policy changes, and evolving global agricultural trends. By analyzing data from the 59th (2002-03) and 77th (2011-12) rounds of the National Sample Survey Organization (Land and Livestock Holding of Households and Situation Assessment of Agricultural Households, 2022) [4], this study aims to track longitudinal changes in key economic indicators among agricultural households in Karnataka, including income levels, consumption patterns, and debt burdens.

Through this comparative analysis, the paper seeks to shed light on the impact of economic transformations on the financial well-being of Karnataka's farmers. By understanding the factors influencing their economic stability and identifying potential vulnerabilities, policymakers and stakeholders can develop more effective interventions and support systems to foster a more equitable and sustainable agricultural sector in the state.

## Literature review

The economic and financial trajectories of farmers in Karnataka have been the focus of various studies, shedding light on the intricate dynamics of agricultural development in the region.

Appa *et al.* (2018) <sup>[1]</sup> analyzed district-level disparities in agricultural development within Karnataka, highlighting significant differences in development outcomes across districts. This study provides a foundational understanding of regional variations in agricultural progress and sets the stage for exploring how these disparities impact farmer economic well-being.

Ashwini (2013) <sup>[2]</sup> presents a detailed field view of contemporary agricultural issues in Dakshina Kannada, emphasizing local challenges and opportunities. This research offers insights into the specific regional factors affecting agricultural practices and farmer livelihoods, providing context for examining broader state-level trends.

Banerjee and Duflo (2007) <sup>[3]</sup> offer a broader perspective on the economic lives of the poor, including agricultural households. Their study, while not focused exclusively on Karnataka, provides a valuable framework for understanding the economic challenges faced by poor farmers, including issues of income, consumption, and financial stress.

Naveen *et al.* (2019) <sup>[5]</sup> focus on the socio-economic profile of farmers rearing Gir cattle in Karnataka. This study provides detailed information on the livelihoods of a specific group of farmers, contributing to a nuanced understanding of agricultural practices and financial conditions within Karnataka.

Pavithra *et al.* (2019) <sup>[6]</sup> utilized principal component analysis to assess food grain production in Karnataka. This research highlights trends in food grain production, which are crucial for understanding the agricultural sector's contribution to farmer income and economic well-being.

Pradhan *et al.* (2013) <sup>[7]</sup> discuss regional policies and their impact on firm characteristics and exporting in Karnataka. Although the focus is on industrial firms rather than agriculture, the insights into regional policy impacts are relevant for understanding how broader economic policies may influence agricultural development.

Finally, the Karnataka Economic Survey (2021-22) offers a comprehensive overview of the state's economic conditions, including agricultural performance. This document provides essential data and trends that are critical for contextualizing the changes in farmer economic conditions over the past two decades.

Together, these studies form a robust foundation for analyzing the economic shifts and financial strains experienced by Karnataka's farmers in the first two decades of the 21st century, highlighting both regional disparities and broader economic trends.

### Objective of the study

- Assess the shifts in landholding patterns and credit accessibility among farmers in Karnataka from 2002-03 to 2018-19.
- Explore the trends in annual agricultural income, overall income, and household expenditure for farmers in Karnataka.
- Investigate the levels of indebtedness among farmers of varying landholding sizes in Karnataka.

### Research methodology of the study

This study analyzes the economic well-being and indebtedness of farmers in Karnataka over the first two decades of the 21st century, utilizing data from the Situation Assessment Survey (SAS) conducted in 2003 and 2019. The 2003 survey, part of the 59th round by the National Sample Survey Office (NSSO), aimed to assess the standard of living among farmer households. It collected extensive data on consumer expenditure, income, productive assets, indebtedness, farming practices, resource availability, and access to modern agricultural technology. The survey sampled approximately 51,770 farmer households across 6,638 villages in rural India using a stratified multi-stage design. For Karnataka, the sample included 2,009 farmer families, encompassing a total population of 11,286 individuals.

In 2019, the 77th round of the SAS, conducted from January to December, integrated the Land and Livestock Holding Surveys (LHS) with the SAS of Agricultural Households. This round focused on generating indicators related to ownership and operational holdings, livestock ownership, income, productive assets, indebtedness, farming practices, technological awareness, and economic activities of agricultural households. Data collection involved two visits to the same sample households, covering the agricultural year from July 2018 to June 2019. For Karnataka, the survey included 1,946 farmer families, representing a total population of 9,230 individuals.

One significant challenge in comparing the 2003 and 2019 surveys is the change in definitions and methodologies. The 2003 survey defined a "farmer household" as one with at least one member who possessed land and engaged in agricultural activities on any part of that land during the previous 365 days. In contrast, the 2018-19 survey defined an "agricultural household" as one that received more than Rs. 4000 in value from agricultural activities over the preceding 365 days and had at least one member self-employed in agriculture either in principal or subsidiary status. Despite these definitional differences, macro-level comparisons provide valuable insights into trends and changes in the agricultural sector. For this study, the terms "Farmer Family" and "Agricultural Household" are used interchangeably.

To accurately compare the income of agricultural households between 2002-03 and 2018-19, it is essential to adjust these values for inflation using a consistent base year, which for this analysis is 2016-17. Annual Consumer Price Index (CPI) data from the Reserve Bank of India was used to convert the original CPI values based on the 1986-87 base year to the 2016-17 base year. This conversion was performed using the formula:

$$\text{CPI (2016-17 base)} = \left( \frac{\text{CPI (1986-87 base)}}{\text{CPI for 2016-17 (1986-87 base)}} \right) \times 100$$

Using these adjusted CPI values, nominal values for the years 2002-03 and 2018-19 were converted to real values, thus providing a clearer picture of the economic changes over time.

## Analysis of the study

### Landholding patterns and credit accessibility among farmers

**Table 1:** Karnataka farmers' landholdings and loan accessibility trends (2002-03 and 2018-19)

Year	Farmer Category	Farmer Households	%age Family	Avg Land (Acre)	%age Loaneer
2002-03	Marginal (< 1 Acre)	730,546	18.1	0.5	56.5
	Small (1-1.99 Acre)	997,488	24.7	1.5	57.4
	Medium (2-4.99 Acre)	1,402,565	34.7	3.0	63.6
	Large (5 Acre & more)	910,658	22.5	10.5	67.5
	Overall	4,041,257	100.0	3.9	61.7
2018-19	Marginal (< 1 Acre)	711,286	16.7	0.3	64.7
	Small (1-1.99 Acre)	1,309,503	30.8	1.5	62.5
	Medium (2-4.99 Acre)	1,354,424	31.9	3.2	67.7
	Large (5 Acre & more)	874,862	20.6	8.1	77.7
	Overall	4,250,075	100.0	3.2	67.6

The results are estimated by the author from SAS 2002-03 and SAS 2018-19.

As per Table 1, there have been notable changes in landholding patterns and credit accessibility among farmers in Karnataka from 2002-03 to 2018-19. These changes are integral to understanding the broader socio-economic dynamics within the agricultural sector in the state.

#### Landholding patterns

Over the period from 2002-03 to 2018-19, there has been a noticeable shift in the proportions of different landholding categories among farmer households in Karnataka. The proportion of marginal farmers (holding less than 1 acre) slightly decreased from 18.1% to 16.7%, while the percentage of small farmers (holding 1-1.99 acres) increased significantly from 24.7% to 30.8%. Medium farmers (holding 2-4.99 acres) also saw a slight increase from 34.7% to 31.9%. Conversely, the proportion of large farmers (holding 5 acres or more) decreased from 22.5% to 20.6%. This shift indicates a trend towards smaller landholdings over time, suggesting potential land fragmentation and changes in land tenure systems.

#### Average landholding

The average landholding size among agricultural families in Karnataka has also experienced changes. The average land size for marginal farmers decreased from 0.5 acres to 0.3 acres, while for small farmers, it remained constant at 1.5 acres. Medium farmers saw a slight increase in their average landholding size from 3.0 acres to 3.2 acres. However, large farmers experienced a reduction in average land size from 10.5 acres to 8.1 acres. Overall, the average landholding size decreased from 3.9 acres in 2002-03 to 3.2 acres in 2018-19. This decline in average landholding size reflects the broader trend of land fragmentation and could be indicative of increased pressure on land resources, population growth, and possibly the division of land among heirs.

#### Credit access

Credit accessibility among farmer households in Karnataka has shown notable changes. The percentage of loaneer families increased across all landholding categories. Among marginal farmers, the proportion of families accessing credit rose from 56.5% to 64.7%. For small farmers, there was a slight increase

from 57.4% to 62.5%. Medium farmers saw their credit access increase from 63.6% to 67.7%, and the most substantial increase was observed among large farmers, with the percentage rising from 67.5% to 77.7%. Overall, the percentage of loaneer families increased from 61.7% in 2002-03 to 67.6% in 2018-19.

#### Socio-economic interpretation

The shifts in landholding patterns towards smaller and more fragmented holdings suggest that land resources are under increasing pressure, potentially due to population growth, inheritance practices, and economic factors driving land sales and fragmentation. The increase in the proportion of small and medium landholders indicates a possible movement towards more intensive and diversified agricultural practices, as smaller plots may necessitate more efficient and varied farming techniques.

The increase in credit access across all categories of landholders indicates a growing reliance on financial support for agricultural activities. This trend could be attributed to several factors, including the rising cost of inputs, the need for investment in modern agricultural technologies, and possibly the increased availability and outreach of financial institutions and credit schemes. The substantial increase in credit access among large farmers suggests that even those with substantial landholdings are seeking financial assistance, perhaps for capital-intensive investments or to cope with market uncertainties and risks.

In summary, the analysis of landholding patterns and credit accessibility among Karnataka's farmers from 2002-03 to 2018-19 highlights significant trends towards land fragmentation and increased dependence on credit. These trends reflect broader socio-economic shifts within the agricultural sector, emphasizing the need for targeted policy interventions to support sustainable land management and improve financial inclusion for farmers of all sizes.

#### Farmer's earning and consumption expenditure pattern in Karnataka

##### Farmer agricultural and gross earnings trends in Karnataka

The data (Table 2) on farmers' annual earnings from

agricultural activities in Karnataka reveals significant changes from 2002-03 to 2018-19. The relative percentage change in income for different landholding categories shows substantial growth, particularly among marginal and small farmers.

Marginal farmers, with landholdings less than 1 acre, saw their income rise from Rs. 11,186 in 2002-03 to Rs. 36,927 in 2018-19, marking a 230.1% increase. Small farmers, with landholdings between 1 and 1.99 acres, experienced a 206.6% increase in income, from Rs. 16,556 to Rs. 50,758. Medium farmers, holding 2 to 4.99 acres, had their income grow by 181.4%, from Rs. 32,604 to Rs. 91,755. Large farmers, with holdings of 5 acres or more, saw the least percentage increase, from Rs. 103,967 to Rs. 175,262, an increase of 68.6%.

Overall, the average annual agricultural income for all farmer categories combined rose from Rs. 40,852 to Rs. 87,137, reflecting a relative percentage change of 113.3%. This growth suggests a positive trend in agricultural productivity and possibly better market access or improved agricultural practices over the years. However, the substantial increase in agricultural income for smaller landholders indicates that they might be diversifying their crops, adopting high-yield varieties, or benefiting from government schemes and subsidies aimed at small and marginal farmers.

**Table 2:** Farmer's annual earnings from agricultural activities in Karnataka

Farmer Category	2002-03	2018-19	Relative % Change
Marginal (< 1 Acre)	11,186	36,927	230.1
Small (1-1.99 Acre)	16,556	50,758	206.6
Medium (2-4.99 Acre)	32,604	91,755	181.4
Large (5 Acre & more)	103,967	175,262	68.6
Overall	40,852	87,137	113.3

Data are in rupees (Rs.) at constant prices of 2016-17. Estimated from SAS 2002-03 and SAS 2018-19.

The annual gross income of farmer households in Karnataka also showed considerable growth from 2002-03 to 2018-19, as evidenced by the data in Table 3. Marginal farmers' gross income increased by 60.7%, from Rs. 74,326 to Rs. 119,471. Small farmers experienced a 52.3% increase, from Rs. 65,549 to Rs. 99,831. Medium farmers saw their gross income grow by 133.1%, from Rs. 64,543 to Rs. 150,478. Large farmers experienced an 83.4% increase, from Rs. 128,007 to Rs. 234,786.

Overall, the average gross income for all farmer households combined rose from Rs. 80,861 to Rs. 147,038, an increase of 81.8%. This growth in gross income is significantly higher than the growth in agricultural income alone, particularly for medium and large farmers. This indicates that a substantial portion of the income growth can be attributed to non-agricultural activities. Many family members might be engaged in wage labor, private jobs, or non-farm businesses, contributing to the overall income. The diversification of income sources is a crucial strategy for mitigating agricultural risks and ensuring financial stability for farmer households.

**Table 3:** Farmer household annual earning level in Karnataka

Farmer Category	2002-03	2018-19	Relative % change
Marginal (< 1 Acre)	74,326	119,471	60.7
Small (1-1.99 Acre)	65,549	99,831	52.3
Medium (2-4.99 Acre)	64,543	150,478	133.1
Large (5 Acre & more)	128,007	234,786	83.4
Overall	80,861	147,038	81.8

Data are in rupees (Rs.) at constant prices of 2016-17. Estimated from SAS 2002-03 and SAS 2018-19.

**Annual consumption expenditure trends in Karnataka**

The trends in annual consumption expenditure for farmer households in Karnataka, as shown in Table 4, indicate a notable increase in spending from 2002-03 to 2018-19. Marginal farmers' consumption expenditure rose by 66.5%, from Rs. 40,308 to Rs. 67,106. Small farmers saw their expenditure increase by 106.9%, from Rs. 36,052 to Rs. 74,580. Medium farmers experienced a 101.0% increase, from Rs. 39,349 to Rs. 79,100. Large farmers' consumption expenditure grew by 102.0%, from Rs. 46,350 to Rs. 93,648. Overall, the average annual consumption expenditure for all farmer households combined rose from Rs. 40,286 to Rs. 78,695, reflecting a 95.3% increase. This significant rise in consumption expenditure indicates that farmers' living standards have improved, as they are spending more on non-durable goods. However, the growth in consumption expenditure is not uniformly aligned with the growth in income. While incomes have risen, the consumption expenditure has also grown substantially, suggesting that farmers are either experiencing higher costs of living or are spending more due to improved financial conditions.

**Table 4:** Farmer Household Annual Consumption Expenditure Trend Karnataka

Farmer Category	2002-03	2018-19	Relative % change
Marginal (< 1 Acre)	40,308	67,106	66.5
Small (1-1.99 Acre)	36,052	74,580	106.9
Medium (2-4.99 Acre)	39,349	79,100	101.0
Large (5 Acre & more)	46,350	93,648	102.0
Overall	40,286	78,695	95.3

The consumption expenditure is in rupees (Rs.) at constant prices of 2016-17. It is only out of pocket expenditure during the year. It is Estimated from SAS 2002-03 and SAS 2018-19.

**Socio-economic interpretation of trends**

The analysis of these trends provides several socio-economic insights into the condition of farmers in Karnataka. The substantial increase in agricultural income, especially among marginal and small farmers, highlights the positive impact of agricultural advancements and possibly government interventions targeting small-scale farmers. Improved access to technology, better agricultural practices, and favorable market conditions could have contributed to this growth.

The disparity in income growth between agricultural and gross income underscores the importance of non-agricultural income sources for farmer households. Medium and large farmers, in particular, have seen significant contributions from non-farm activities, indicating a diversification of income streams. This

diversification helps mitigate the risks associated with agriculture, such as price volatility, climate change, and crop failure, providing a more stable financial base for these households.

The increase in consumption expenditure, while indicative of improved living standards, also raises concerns about the sustainability of such expenditure levels. If the consumption expenditure grows faster than income, it could lead to increased indebtedness and financial strain. Therefore, while the rise in expenditure reflects better access to goods and services, it also highlights the need for careful financial management and possibly improved financial literacy among farmers to ensure long-term economic stability.

In conclusion, the trends in farmer income and consumption patterns in Karnataka from 2002-03 to 2018-19 reveal significant growth in both agricultural and overall income, with a notable shift towards diversified income sources. The rise in consumption expenditure reflects improved living standards but also necessitates prudent financial management to avoid potential economic stress. These insights underline the importance of continued support for agricultural advancements, income diversification, and financial education to enhance the socio-economic well-being of farmers in Karnataka.

#### ***Trends of indebtedness and its burden on Farmer in Karnataka***

Loans are crucial for farmers as they provide the necessary capital for purchasing inputs such as seeds, fertilizers, and equipment, as well as for investing in infrastructure like irrigation systems and storage facilities. Access to credit enables farmers to adopt new technologies, improve productivity, and increase their incomes. For marginal and small farmers, cheap loans are especially important as they often lack sufficient capital and face higher risks due to smaller landholdings. Affordable credit ensures that farmers can sustain their agricultural activities without falling into debt traps, thereby promoting economic stability and growth in the agricultural sector.

#### ***Farmer indebtedness trends in Karnataka***

The data on the debt burden of indebted farmers in Karnataka from 2002-03 to 2018-19 reveals a substantial increase across all landholding categories. For marginal farmers (less than 1 acre), the average debt increased from Rs. 38,875 to Rs. 103,850, a relative change of 167.1%. Small farmers (1-1.99 acres) saw their debt rise from Rs. 49,553 to Rs. 146,945, marking a 196.5% increase. Medium farmers (2-4.99 acres) experienced a 139.7% increase in debt, from Rs. 69,340 to Rs. 166,200. Large farmers (5 acres and more) had the least percentage increase, with their debt growing from Rs. 152,154 to Rs. 285,886, an 87.9% increase.

Overall, the average debt burden for all indebted farmers rose from Rs. 80,190 to Rs. 179,024, reflecting a 123.2% increase. This significant rise in debt levels could be attributed to several factors, including increased costs of agricultural inputs, higher living expenses, and greater investments in farm infrastructure. Additionally, the expansion of credit facilities and possibly

higher borrowing to cope with agricultural risks and uncertainties may have contributed to this trend.

**Table 5:** Debt burden on indebted farmer in Karnataka

Farmer_Category	2002-03	2018-19	Relative % change
Marginal (< 1 Acre)	38,875	103,850	167.1
Small (1-1.99 Acre)	49,553	146,945	196.5
Medium (2-4.99 Acre)	69,340	166,200	139.7
Large (5 Acre & more)	152,154	285,886	87.9
Overall	80,190	179,024	123.2

Data are in rupees (Rs.) at constant prices of 2016-17. Estimated from SAS 2002-03 and SAS 2018-19.

#### ***Farmer annual cost of loan trends in Karnataka***

The trends in the annual interest paid by farmers in Karnataka indicate varying changes across different landholding categories. Marginal farmers saw a slight decrease in their annual interest payments, from Rs. 12,123 in 2002-03 to Rs. 11,289 in 2018-19, a relative change of -6.9%. In contrast, small farmers experienced a 31.0% increase in annual interest payments, from Rs. 12,426 to Rs. 16,281. Medium farmers saw a 12.2% rise, from Rs. 15,054 to Rs. 16,888, while large farmers had a 15.0% increase, from Rs. 27,065 to Rs. 31,125. Overall, the average annual interest paid by all farmer households increased from Rs. 16,930 to Rs. 19,184, a 13.3% rise. The decline in interest payments for marginal farmers could be due to a reduction in interest rates or better access to cheaper credit sources. On the other hand, the increase in interest payments for other categories may reflect higher loan amounts taken by these farmers, despite the reduction in interest rates.

**Table 6:** Annual interest paid by farmer of Karnataka

Farmer_Category	2002-03	2018-19	Relative % change
Marginal (< 1 Acre)	12,123	11,289	-6.9
Small (1-1.99 Acre)	12,426	16,281	31.0
Medium (2-4.99 Acre)	15,054	16,888	12.2
Large (5 Acre & more)	27,065	31,125	15.0
Overall	16,930	19,184	13.3

Data are in rupees (Rs.) at constant prices of 2016-17. Estimated from SAS 2002-03 and SAS 2018-19.

#### ***Interest rate trends in Karnataka***

The interest rate on loans for farmers in Karnataka has seen a significant decline from 2002-03 to 2018-19. For marginal farmers, the interest rate dropped from 31.2% to 10.9%, a relative change of -65.1%. Small farmers experienced a 55.8% reduction, with interest rates falling from 25.1% to 11.1%. Medium farmers saw their interest rates decrease from 21.7% to 10.2%, a 53.0% drop, while large farmers had a 38.8% reduction, with interest rates declining from 17.8% to 10.9%. Overall, the average interest rate for all farmer households fell from 21.1% to 10.7%, a 49.3% decrease. This substantial reduction in interest rates can be attributed to several factors, including policy interventions aimed at providing cheaper credit to farmers, increased competition among credit providers, and efforts by the government to enhance financial inclusion in rural areas.

**Table 7:** Trends in the interest rate on loan for farmer in Karnataka

Farmer_Category	2002-03	2018-19	Relative % Change
Marginal (< 1 Acre)	31.2	10.9	-65.1
Small (1-1.99 Acre)	25.1	11.1	-55.8
Medium (2-4.99 Acre)	21.7	10.2	-53.0
Large (5 Acre & more)	17.8	10.9	-38.8
Overall	21.1	10.7	-49.3

The data is estimated by the author from SAS 2002-03 and SAS 2018-19.

### Interpretation of trends in Karnataka

The analysis of these trends highlights several important socio-economic implications for farmers in Karnataka. The significant increase in the debt burden suggests that farmers are increasingly relying on loans to meet their financial needs, whether for agricultural investments or personal consumption. This rising indebtedness can be a double-edged sword: while it enables farmers to invest in productivity-enhancing inputs and technologies, it also increases their financial vulnerability, especially if the returns from these investments are not sufficient to cover the debt.

The mixed trends in annual interest payments, with a decline for marginal farmers and increases for others, reflect the complex dynamics of credit access and utilization. The reduction in interest rates across all categories indicates improved access to cheaper credit, likely due to policy measures and financial sector reforms aimed at supporting farmers. However, the higher interest payments for small, medium, and large farmers suggest that despite lower rates, the increased borrowing has led to a higher overall interest burden. The substantial decline in interest rates is a positive development, as it reduces the cost of borrowing and makes credit more affordable for farmers. This trend is crucial for enhancing agricultural productivity and promoting sustainable farming practices. Lower interest rates can help farmers invest in better inputs, adopt new technologies, and manage risks more effectively, thereby improving their overall economic well-being.

In conclusion, the trends in farmer indebtedness, annual interest burden, and interest rate patterns in Karnataka from 2002-03 to 2018-19 reflect both opportunities and challenges. The increased debt levels underscore the growing reliance on credit, while the reduction in interest rates highlights the progress in making credit more accessible and affordable. Policymakers must continue to focus on ensuring that credit supports productive investments and that farmers are equipped to manage their debt effectively to achieve sustainable economic growth and stability.

### Conclusion of the study

The analysis of Karnataka's agricultural household from 2002-03 to 2018-19 reveals significant shifts in landholding patterns, credit accessibility, income, expenditure, and indebtedness. A trend towards smaller and more fragmented landholdings was observed, indicating potential pressures from population growth and inheritance practices. Concurrently, credit accessibility improved across all farmer categories, with a notable increase in the percentage of loanee families,

suggesting a growing reliance on financial support for agricultural activities.

Farmers' incomes saw substantial growth, particularly among marginal and small farmers, reflecting advancements in agricultural productivity and better market access. The diversification of income sources, with significant contributions from non-agricultural activities, highlighted the importance of non-farm income in ensuring financial stability. Despite the rise in incomes, consumption expenditures also increased significantly, indicating improved living standards but raising concerns about potential financial strain if expenditures outpace income growth.

Indebtedness levels increased across all landholding categories, driven by higher costs of agricultural inputs and investments in farm infrastructure. While marginal farmers experienced a slight decrease in annual interest payments, other categories saw increases, reflecting higher loan amounts despite potentially lower interest rates.

Overall, the study underscores the need for targeted policy interventions to support sustainable land management, financial inclusion, and prudent financial management among farmers. Continued support for agricultural advancements and income diversification, coupled with financial education, is crucial to enhancing the socio-economic well-being of Karnataka's farmers.

### References

- Appa G, Reddy VR, Kumar MR. District-disparities of agricultural development in Karnataka, India. *International Journal of Current Microbiology and Applied Sciences*. 2018;7(12):313-316. <https://doi.org/10.20546/ijcmas.2018.712.038>.
- Ashwini S. Contemporary agriculture issues from Dakshina Kannada: A field view. *International Journal of Social Science and Economic Research*, 2013, 2(1). <http://www.isca.in/IJSS/Archive/v2/i1/5.ISCA-IRJSS-2012-078.pdf>
- Banerjee A, Duflo E. The economic lives of the poor. *Journal of Economic Perspectives*. 2007;21(1):141-167. <https://doi.org/10.1257/jep.21.1.141>.
- Khoisnam N, Rao PS, Patel A. Land and livestock holding of households and situation assessment of agricultural households. *Microdata Repository*, 2022. <http://microdata.gov.in/nada43/index.php/catalog/157>.
- Naveen K, Kumar MV, Yadav RK. Socio-economic profile of farmers rearing Gir cattle in Karnataka, India. *International Journal of Current Microbiology and Applied Sciences*. 2019;8(10):877-882. <https://doi.org/10.20546/ijcmas.2019.810.101>.
- Pavithra NL, Kumar PR, Rao AS. Food grain production index using principal component analysis in Karnataka state. *International Journal of Current Microbiology and Applied Sciences*. 2019;8(01):3138-3143. <https://doi.org/10.20546/ijcmas.2019.801.335>.
- Pradhan P, Jaya B, Prasad K. Regional policies, firm characteristics, and exporting in the Indian state of Karnataka. *Journal of Development Studies*.

2013;48(1):45-81.

<https://doi.org/10.1177/001573251204800103>.

8. Government of Karnataka. State of the economy, 2021. [https://des.karnataka.gov.in/storage/pdf-files/karnataka%20economic%20survey%202021-22-m2\\_eng\\_final.pdf](https://des.karnataka.gov.in/storage/pdf-files/karnataka%20economic%20survey%202021-22-m2_eng_final.pdf)
9. Singh A, Langyan B. A study of farmer economic well-being and indebtedness in Rajasthan: A comparative analysis (2002-03 and 2018-19). *International Research Journal of Modernization in Engineering Technology and Science*, 2024, 6(7). <http://www.irjmets.com>.
10. Singh A, Singh M. Economic well-being and indebtedness of farmers in Bihar: A comparative analysis (2002-03 and 2018-19). *International Journal of Research Publication and Reviews*. 2024;5(7):3946-3955. <http://www.ijrpr.com>
11. National Sample Survey Office. Situation Assessment Survey of Farmers, NSS 59th Round, Schedule 33. Ministry of Statistics and Programme Implementation, Government of India, 2003. Retrieved from <https://microdata.gov.in/NADA43/index.php/catalog/104>
12. National Sample Survey Office. Situation Assessment of Agricultural Households, January 2019 – December 2019, 77th Round, Visit 1 and Visit 2. Ministry of Statistics and Programme Implementation, Government of India, 2019. Retrieved from [https://microdata.gov.in/nada43/index.php/catalog/157/related\\_materials](https://microdata.gov.in/nada43/index.php/catalog/157/related_materials).