



## Measuring the trends of earning and banking business of state cooperative agriculture development bank of Punjab

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### Abstract

The financial sector is a crucial component of any country's economy, and in developing nations like India, the agriculture sector holds significant importance for overall development. Co-operative banks in India play a vital role in supporting and developing the agriculture sector, primarily serving rural areas. This study aims to measure the trends in earnings and banking business of the State Cooperative Agriculture Development Bank of Punjab. The analysis focuses on interest income, net interest income, and total income as earnings indicators, and investments to total assets and loans and advances to total assets as banking business indicators. The study covers a five-year period. The findings reveal that the State Cooperative Agriculture Development Bank of Punjab exhibited efficient financial performance, with no negative returns observed during the study period. The research highlights the significance of co-operative banks in promoting rural development and the economy. The least square method is used for trend analysis, providing reliable results for the study. Overall, this study sheds light on the bank's positive financial performance and its crucial role in supporting the agriculture sector and rural communities in Punjab, India.

**Keywords:** Cooperative banks, interest income, earnings

### Introduction

India, with its agrarian foundation and predominantly rural population, relies heavily on cooperative banks to provide vital financial assistance to the agriculture sector. These cooperative banks hold a significant position in the Indian banking system, serving as the primary source of institutional credit for farmers and rural communities. By breaking the stranglehold of private moneylenders, these cooperative institutions have played a pivotal role in providing much-needed credit to agriculturists while also promoting non-agricultural sectors.

Traditionally, farmers and rural residents faced exploitation at the hands of private moneylenders, who imposed exorbitant interest rates and unfavorable lending terms. To counter this exploitative system and provide financial aid to rural communities, cooperative institutions were introduced in India as early as 1904. These cooperative credit institutions have since then served as a crucial backbone of Indian society, providing credit facilities to cater to the financial needs of rural areas throughout the country.

One of the prominent institutions in this domain is the Punjab State Cooperative Agriculture Development Bank. The primary objective of PSCADB is to grant loans for agricultural activities, and over time, it has evolved to become a vital player in supporting the agricultural sector. Initially, central cooperative banks acted as intermediaries for PSCADB, but subsequently, primary cooperative development banks were established to directly offer long-term loans to farmers, streamlining the process of credit disbursement.

The impact of cooperative banks is not limited to rural areas alone they extend their services to urban regions as well, promoting self-employment and facilitating industrial growth. These banks are focused on serving middle and low-income segments of society, especially in rural areas,

where they play an instrumental role in ensuring financial inclusivity and empowerment of local communities.

As India continues on its economic trajectory, the role of cooperative banks in supporting the agriculture sector and rural communities remains steadfast. To measure their effectiveness and contribution, it becomes imperative to assess the trends in earnings and banking activities of State Cooperative Agriculture Development Banks. This research aims to delve into the financial performance of these cooperative banks, analyzing the trends in earnings, such as interest income, net interest income, and total income, along with their banking business in terms of investments and loans. Understanding these trends will shed light on the efficiency of cooperative banks in fulfilling their pivotal role in fostering sustainable growth and prosperity in India's rural heartland.

### Literature review

The literature revolves around the analysis and evaluation of financial performance and growth trends of various banks in different countries. The studies focus on different financial indicators and performance metrics to understand the stability and success of these banks. Masud & Haq (2016) analyzes the financial soundness and trend analysis of selected banks using various financial indicators such as deposits, loans and advances, investment, income, return on assets, and return on equity. The findings show upward trends in these indicators during the study period (2006-2014). Choudhury & Kasifa (2009) examines the development and growth of selected private commercial banks in Bangladesh. The findings indicate that all the selected private commercial banks achieved growth in various aspects, including branches, employees, deposits, loans and advances, net income, and earnings per share during the study period (2002-2006). Rayhan *et al.* (2011) <sup>[3]</sup> focuses on the development and growth of state-owned

commercial banks in Bangladesh. The results reveal that not all state-owned banks were able to achieve stable growth, net profits, earning per share, return on equity, and return on assets. Trend equations and correlation coefficient ( $R^2$ ) were tested for different activities of these banks. Rahman & Hasan (2019) evaluates and compares the financial performance of six state-owned commercial banks in Bangladesh. The study ranks the banks based on their performance and identifies factors influencing their better or poor performance. Growth rate, averages, and various statistical methods were used for the evaluation. Joseph (2014) assesses the trends of non-performing assets (NPAs) in scheduled commercial public and private banks. It also explores methods to overcome the burden of NPAs and identifies factors responsible for the existence of non-performing assets. Srivastava and Gupta (2013) <sup>[9]</sup> investigate the improvement in asset quality, specifically the decline in NPAs percentage, but raises concerns about the significant quantum of NPAs in public sector banks compared to foreign and private banks. Ayyappan and Sakthivadivel (2012) <sup>[7]</sup> The study highlights the higher compound growth rate in private sector banks and their efforts to compete with public banks in certain parameters. The research suggests that the recent growth of private banks could pose a challenge in the market and potentially dominate public banks in the future. Overall, the existing literature primarily focuses on commercial banks, both private and state-owned, while there is limited research on the financial performance and growth patterns of state cooperative agriculture development banks. The studies mentioned in the literature review concentrate on commercial banks, neglecting the unique characteristics and role of cooperative agriculture development banks.

**Research Gap**

Cooperative banks have a specific mandate to support the agricultural sector and rural communities, which may lead to different financial performance trends compared to commercial banks. While there are studies on the financial performance of cooperative banks in general, there is a lack of research focusing specifically on the State Cooperative Agriculture Development Bank of Punjab. As each state's cooperative banking system may have distinct policies, practices, and challenges, a dedicated analysis of Punjab's bank is essential for a deeper understanding of its financial performance.

The literature review does not explicitly address the trends in earnings and profit generation of cooperative agriculture development banks. Understanding the sources of income and the sustainability of earnings over time is crucial for assessing the bank's financial soundness and its ability to support the agriculture sector effectively.

Cooperative agriculture development banks are closely tied to the agricultural sector's performance. However, the literature gap is in exploring how the ups and downs of the agricultural sector influence the financial performance of the State Cooperative Agriculture Development Bank of Punjab. Most studies in the literature review focus on single banks or compare multiple commercial banks. A research gap exists in comparing the financial performance and growth trends of cooperative agriculture development banks in Punjab with other types of banks operating in the region.

The research gap lies in the lack of dedicated studies focusing on the financial performance and growth trends of the State Cooperative Agriculture Development Bank of Punjab. Exploring these aspects would provide valuable insights into the bank's contribution to the agricultural sector's development and its overall impact on the economic prosperity of the state.

**Research Objectives:**

To measuring the trends of Earnings, Banking business of State cooperative Agriculture Development bank of Punjab.

**Research Methodology**

The research methodology employed in this study encompasses the utilization of secondary data derived from the bank's annual reports. The study period spans from 2015-2016 to 2019-2020. The main objective is to analyze and trends in earnings, such as Interest Income, Other Income, and Total Income, as well as banking business indicators, such as Investment/Total Assets and Loans & Advances/Total Assets.

Trend analysis is a valuable tool frequently used to assess financial conditions, enabling the examination of past patterns to make future projections. The variables of interest in this study are specifically focused on Earnings (Interest Income, Net Interest Income, and Total Income) and Banking Business (Investment/Total Assets and Loans & Advances/Total Assets).

To evaluate the historical trends of the State Cooperative Agriculture Development Bank of Punjab, the study examined data from the years 2015 to 2016 through 2019 to 2020 for the selected variables. Regression models with linear equations were tested to assess their fitness for the data analysis process. This research methodology provides valuable insights into the financial performance and growth trends of the bank during the specified study period.

**Analysis and Discussion**

**Table 1:** Trends of Primary cooperative Agricultural Development Banks Earnings/Total Assets from 2015-2016 to 2019-2020

Year	Interest income/Total assets	Net interest income/total assets	Total income / Total Assets
2015-2016	0.06	0.02	0.08
2016-2017	0.07	0.01	0.09
2017-2018	0.06	0.02	0.07
2018-2019	0.06	0.01	0.07
2019-2020	0.06	0.02	0.07

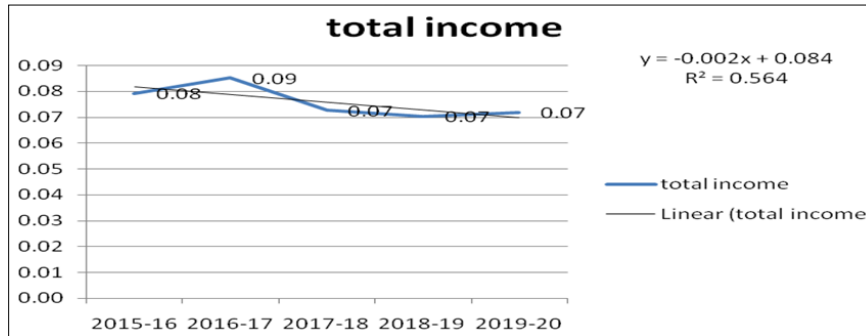
**Source:** Statistical Tables relating to State cooperative Agriculture Development Bank of Punjab Published Annual Report of state cooperative Agriculture Development Bank of Punjab

The data from Table 1 reveals that the State Cooperative Agriculture Development Banks of Punjab have shown consistent and positive earnings trends during the period from 2015-2016 to 2019-2020. The Interest Income and Total Income experienced a gradual increase in 2016, indicating potential growth in earnings. However, from 2017 onwards, both indicators remained stable, indicating a steady financial performance in terms of income generation. On the other hand, the Net Interest Income witnessed some fluctuations over the years, with its lowest value observed in 2016 and 2018. Despite these fluctuations, it still maintained

positive values, signifying that the banks managed to generate more interest income from their assets than they paid out on deposits and borrowings, ensuring a profitable operation.

The study employed the Least Square method, which is widely recognized and used for Time Series analysis. This method helps in identifying trends and patterns in the data, which is crucial for making financial projections and planning for the future.

Overall, understanding the trends of earnings and financial performance of State Cooperative Agriculture Development Banks of Punjab is vital for assessing their stability, growth potential, and contribution to the economic development of the agriculture sector and rural communities in the state. With the help of this study policymakers and stakeholders can make informed decisions to ensure the continued success and sustainability of these banks in fulfilling their crucial role in supporting rural development and agriculture.



Source: Published Annual Report of state cooperative Agricultural Development Bank of Punjab) (Statistical tables relating to Banks and Report on Trends and Progress-Variou Years

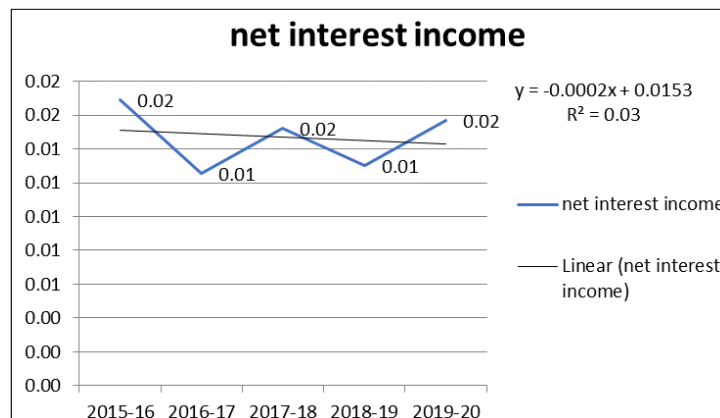
Fig 1: Linear Trends of Interest Income

Figure 1 illustrates the linear trend of interest income for the State Cooperative Agriculture Development Banks of Punjab from 2015-2016 to 2019-2020. The trend shows a noticeable increase from 2015 to 2016, reaching a peak value, and then maintains a consistent level from 2017 to 2020. The coefficient of determination (R2) for this trend is calculated to be 0.564, indicating a relatively strong fit of the regression model.

This means that the linear regression model effectively explains approximately 56.4% of the variation in interest

income over the study period. The higher R2 value suggests that the model is able to capture a significant portion of the observed fluctuations in interest income, making it a better representation of the underlying trend.

Overall, the findings from Figure 1 and the R2 value provide confidence in the accuracy and reliability of the linear trend analysis for interest income, indicating the presence of a meaningful and stable pattern in the earnings of the State Cooperative Agriculture Development Banks of Punjab during the specified period.



Source: Published Annual Report of state cooperative Agricultural Development Bank of Punjab) (Statistical tables relating to Banks and Report on Trends and Progress-Variou Years

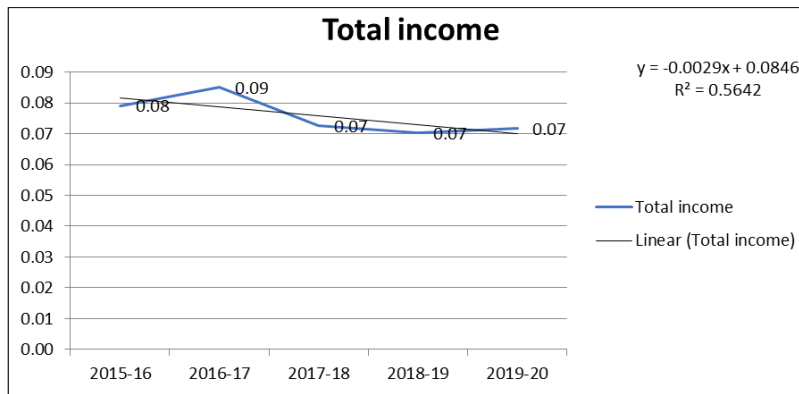
Fig 2: Linear Trends of Net Interest Income

Figure 2 presents the past linear trends of Net Interest income for the State Cooperative Agricultural Development Bank of Punjab from 2015-2016 to 2019-2020. The trend analysis reveals fluctuations in this ratio throughout the specified period. From 2015 to 2019, there is a gradual variation in the ratio, and in 2016, a significant decrease is observed. However, in 2017, the ratio shows an increase again.

The linear trend equation calculated for this ratio yields an R2 value of 0.03. This indicates that the regression model

fits the data below a satisfactory level. The low R2 value suggests that only a small portion (approximately 3%) of the variation in Net Interest income is explained by the linear trend equation.

The observed fluctuations and the low R2 value imply that the linear trend model may not be the most suitable representation of the Net Interest income trend for the State Cooperative Agricultural Development Bank of Punjab during the studied period.



**Source:** Published Annual Report of state cooperative Agricultural Development Bank of Punjab) (Statistical tables relating to Banks and Report on Trends and Progress-Variou Years

**Fig 3:** Linear Trend of Total Income

Figure 3 illustrates the linear trends of the total income for the State Cooperative Agricultural Development Bank during the period from 2015-2016 to 2019-2020. The trend analysis shows that there are significant fluctuations in the total income over the study period. In 2016, there was a substantial increase, followed by a steep decline in 2017. Subsequently, the total income remained constant from 2017 to 2019.

The calculated linear trend equation for this variable yields an R2 value of 0.564. This indicates that the regression model fits the data with a moderate level of goodness of fit. The R2 value of 0.564 means that approximately 56.4% of the variation in total income is explained by the linear trend equation. This suggests that the linear model captures a considerable portion of the observed variation in the total income of the State Cooperative Agricultural Development Bank. However, it is essential to note that the remaining 43.6% of the variation in total income is not accounted for by the linear trend equation.

**Past and Future Trends of Banking Business of State Cooperative Agriculture Development Bank of Punjab-Table Presentation**

**Table 2:** State Cooperative Agricultural Development Bank of Punjab Investment/Total Assets and loans & advances to total assets Trends from (2015-2016 to 2019-2020)

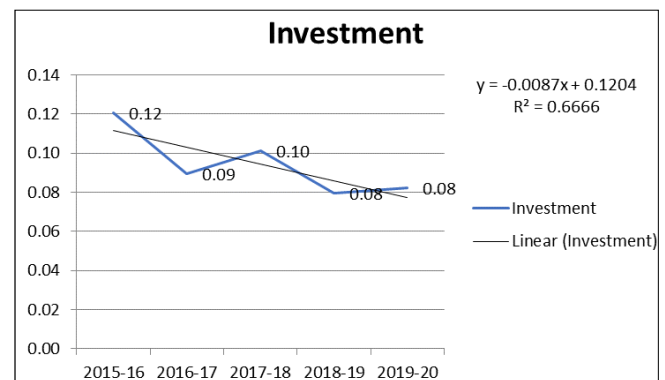
Years	Investment to Total Assets	Loan and advances to Total Assets
2015	0.12	0.70
2016	0.09	0.70
2017	0.10	0.68
2018	0.08	0.69
2019	0.08	0.67

**Source:** Published Annual Report of state cooperative Agricultural Development Bank of Punjab) (Statistical tables relating to Banks and Report on Trends and Progress-Variou Years

Table 2 provides insights into the investment and loans & advances trends of the State Cooperative Agriculture Development Bank of Punjab in relation to their total assets during the years from 2015 to 2019. According to the data, in 2015, the bank invested 0.12 percent of its total assets. However, in the following year, 2016, the percentage of investment decreased to 0.09. There was a slight increase in the percentage of investment in 2017, reaching 0.10.

On the other hand, the percentage of loans & advances showed a different pattern. In 2015 and 2016, the bank allocated a certain percentage of its total assets to loans & advances, which is not specified in the table. However, in 2018, the percentage of loans & advances declined to 0.08. The percentage remained constant in 2019.

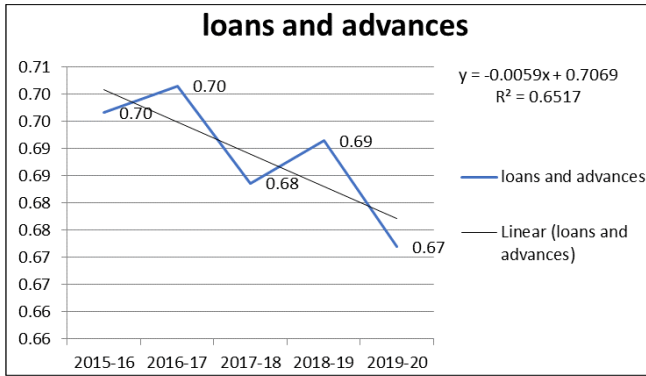
The table provides a snapshot of the investment and loans & advances trends of the bank over the specified period. It indicates that there were fluctuations in the bank's allocation of funds to investment and loans & advances. The changes in these percentages may be influenced by various factors, including the bank's financial strategy, economic conditions, and borrower demands.



**Source:** Published Annual Report of state cooperative Agricultural Development Bank of Punjab) (Statistical tables relating to Banks and Report on Trends and Progress-Variou Years

**Fig 4:** Linear Past Trends of Investment/Total Assets

Figure 4 illustrates the linear trend of investment by the State Cooperative Agricultural Development Bank of Punjab over the study period from 2015-2016 to 2019-2020. The data shows that the bank's investment was at its highest in 2015, but it experienced a decline in 2016. However, in 2017, the investment increased again. Subsequently, in both 2018 and 2019, the investment pattern remained constant at 0.08 percent. The calculated value of R2 for this trend is 0.66, which indicates a relatively good fit to the regression model. This value of R2 suggests that approximately 66 percent of the variation in the investment trend can be explained by the linear regression model, indicating a reasonable level of accuracy in predicting the bank's investment pattern based on the data from the specified period.



**Source:** Published Annual Report of state cooperative Agricultural Development Bank of Punjab) (Statistical tables relating to Banks and Report on Trends and Progress-Variou Years

**Fig 5:** Linear Past Trends of Loans and Advances/Total Assets

Figure 5 depicts the linear trend of financing by the Primary Cooperative Agricultural Development Bank of Punjab over the study period from 2015-2016 to 2019-2020. The data shows that the bank's financing was at 0.70 percent in 2015. It experienced a slight decline in 2017 to 0.68 percent, followed by an increase in 2018, and then another decline in 2019 to 0.67 percent. Based on the past data response, the evaluated value of R2 is 0.651. This value indicates that approximately 65.1 percent of the variation in the bank's financing trend can be explained by the linear regression model, which suggests a relatively good fit to the model. It is important to note that financing decisions are influenced by various factors, including the demand for loans and advances, the bank's risk appetite, credit policies, and the overall economic conditions. Moreover, changes in the financial needs of the agricultural sector and the bank's customer base can also impact its financing patterns.

### Conclusion

The research findings shed light on the importance of monitoring the financial performance of State Cooperative Agriculture Development Bank of Punjab. The positive trends observed in interest income signify the bank's ability to generate earnings from its interest-earning assets. This is crucial for the bank's sustainability and ability to meet its operational costs and provide financial support to its customers. However, the fluctuations in net interest income highlight the need for the bank to closely monitor and manage its interest rate risk and loan portfolio. It also indicates the impact of external factors, such as changes in economic conditions and market dynamics, on the bank's profitability. The wave-like pattern observed in total income emphasizes the significance of diversifying the bank's income sources. Relying on multiple income streams can help mitigate the impact of fluctuations in specific areas and ensure a more stable and sustainable revenue base for the bank.

The research also highlights the importance of using trend evaluation to make informed decisions. By utilizing regression models and correlation coefficients, the researchers were able to assess the goodness of fit of the trend equations, providing valuable insights into the reliability of the trends observed.

The research has practical implications for the management of State Cooperative Agriculture Development Bank of Punjab. It underscores the need for continuous monitoring and evaluation of financial indicators to identify areas of

improvement and opportunities for growth. By understanding the past trends and their potential implications for the future, the bank can devise strategies to optimize its financial performance and enhance its overall efficiency. Furthermore, the study's focus on earnings and banking business trends highlights the crucial role of cooperative banks in supporting the agricultural sector and rural communities. Cooperative banks play a vital role in providing financial assistance to farmers and promoting agricultural development, which is essential for the economic growth and prosperity of rural areas.

Overall, the research provides valuable insights into the financial performance and trends of State Cooperative Agriculture Development Bank of Punjab. It emphasizes the importance of monitoring financial indicators, managing risks, and diversifying income sources to ensure the bank's stability and sustained growth. The findings contribute to the broader understanding of the cooperative banking sector's role in supporting economic development in rural areas and can guide policymakers and stakeholders in making informed decisions to strengthen the banking system and foster sustainable growth in the agricultural sector.

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