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A STUDY OF TRENDS IN COMPARATIVE PERFORMANCE OF PRIMARY AGRICULTURAL COOPERATIVE CREDIT SOCIETIES (PACCS) IN INDIA AND TAMIL NADU SINCE 2007-08 TO 2016-17

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ABSTRACT

Primary Agricultural Cooperative Credit Societies are grass root level rural agricultural community participated credit organisations. It lends credit to the rural population for their economic development. This paper comparatively analysed and examined the performance of PACCS at the national level and the state level through its number of banks and its members, number of borrowers and total borrowing. The paper validated the effectiveness of PACCS and their members through its loan outstanding, number of demand, total collection and total overdue of loan. The study found that there is an increasing trend of number of PACCS, number of members, number of borrowers and total borrowing amount. The strength of the PACCS has improved even though there was a fluctuation only in total working capital that was finally recovered. The effectiveness of the PACCS was understood through its overdue that was reduced over the period. At the national level the PACCS performance was increased, strength has improved and it performed effectively over the period from 2007-08 to 2016-17.

KEYWORDS: Primary Agriculture Cooperative Credit Societies, members, demand, over- due, loan outstanding, number of demand, total collection, total overdue, moving average.

INTRODUCTION

The agricultural cooperative credit system began in 1904 in India through Primary Agricultural Cooperative Credit Societies (PACCS) and other many Co-Operative credit institutions. It mainly aims to eliminate the moneylenders and to provide proper institutional arrangements of rural credit market. Post independent period, Government of India considered the recommendations of the All India Rural Credit Survey Committee 1954 and organising PACCS throughout the country. The societies provide short term and long term credit structures, which meet the different forms of credit needs of the cultivators and others in rural areas. The short term cooperative credit structure consist of 31 State Cooperative Banks at State level,

351 District Central Cooperative Banks at district level and 95,509 PACCS at the village level as on 2019- 2020. (Karuppaiah R, 2022). The cooperative movement began in India as a move to provide credit to release the rural community from the clutches of moneylenders. RBI

started special department for the development and growth of Cooperative credit Societies (CCS), farmer can get the credit from the primary agriculture credit co-operative society. These societies are working for farmer, by the farmer (Shobana J, 2018).

STATEMENT OF THE PROBLEM

Primary Agricultural Cooperative Credit Societies (PACCS) are the base level institutions on which the whole cooperative network is built. These societies functioning at grass root level have direct contacts with the farmers and meet their financial and non- financial requirements. The PACCS play significant roles in the economic development of a country by promoting thrift and savings and deployment of those resources in the form of loans and advances. The resources available in the PACCS are to be carefully managed and

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distributed in order to maintain efficiency. The efficiency of PACCS lies not only in the efficient mobilization of resources but also in the effective and optimum deployment of resources. This argument is very much relevant in the present context because, out of the total resources of the PACCS, a good share is to be kept as reserves and the PACCS have to improve their spread by efficiently managing the remaining resources. The problem becomes further complicated in the current environment of global economic reforms and the resultant cut-throat competition. The PACCS are also not free from this global problem (Karuppaiah R, 2022).

This study tries to conduct a comparative analysis of the performance of the Tamil Nadu state PACCS with the national-level PACCS based on a few selected indicators. The indicators are total number of PACCS' and its members, number of borrowers and total borrowing. In addition to address the level of efficiency through PACCS' loan outstanding, number of demand, total collection and total overdue of loan. These are all aspects are analysed and that would express a decadal performance of PACCS. The paper validated the effectiveness of PACCS by analysing the above referred indicators. In this context, the study framed the following objectives.

OBJECTIVES OF THE STUDY

1. To analyse the number of PACCS and its members over the period
2. To find out the number of borrowers and the borrowing amount for the study period
3. To analyse the comparative outstanding loan amount over the period.
4. To analyse the comparative amount of demand, total collection and total overdue in the study period.

METHODOLOGY

The study used secondary data for the year 2007-08 to 2016-17 to analyse and evaluate the performance of PACCS in India and Tamilnadu for the reference period.

TOOLS FOR ANALYSIS

The study used percentage and simple moving average to find out the trends unspecified indicators.

ANALYSIS OF THE STUDY

There is no significant relationship between the demand and collection of amount in India

Table 1

Year-wise Total Number of PACCS and its members in India and Tamil Nadu (numbers are in thousands)

Year	No. of PACCS in (in numbers)				No. of Members			
	In India	India (3 years moving averages)	In Tamil Nadu	Tamil Nadu (3 years moving averages)	In India	In India (3 years moving averages)	In Tamil Nadu	Tamil Nadu (3 years moving averages)
2007-08	67146	-	4513	-	92711	-	8438.72	-

2008-09	46222	67630.33	4530	4521.66	65821	93586	11,245.20	3170.496
2009-10	89523	75341.33	4522	4513.33	122226	98061	9015.74	9924.143
2010-11	90279	93699.66	4488	4516	106136	118669.33	9511.49	9984.41
2011-12	101297	94178	4538	4444.33	127646	114616.66	11426.00	10452.53
2012-13	90958	95099	4307	4385	110068	122611.33	10420.1	12340.8
2013-14	93042	92263	4310	4369	130120	120425.33	15176.3	12430.88
2014-15	92789	93066	4490	4412	121088	126176.66	11695.91	13133.04
2015-16	93367	94705.66	4436	4479	127322	126548.33	12526.93	12474.71
2016-17	97961	-	4511	-	131235	-	13201.3	-

Source:

i. Compiled from National Cooperative Union of India (2018) Indian Cooperative Movement, A Statistical Profile of India 15th edition

ii. Performance of Primary Agricultural Cooperative Societies for various years, www.nafscob.org,

Table 1 explains trends in total number of PACCS and its members in India compared to Tamilnadu since 2007-08 to 2016-17. It is observed from the three years moving average that in the initial three periods the number of PACCS has increased surprisingly in India and in Tamilnadu. However, after that period there was a slow growth as well as declining trends was experienced, the decline in number of PACCS could be seen in 2012-13 in India and in Tamilnadu. It is happened in 2009-10 to 2013-14 continuously. Even though there was decline in total number of PACCS in India at the end it shown an increasing trend but not in Tamilnadu where it maintained its earlier strength. The three year moving average shows it clearly. The range of number of PACCS in India is from 67,146 to nearly 97,961 and in Tamilnadu it is 4513 to 4511. In the case of membership it is ranged from 9,27,11,000 to 13,12,35,000 in India and in Tamilnadu it is ranged from 84,38,000 to 1,32,01,000.

Table 2**Year wise Number of borrowers and total borrowings of PACCS in India and Tamil Nadu**

Year	No. of Borrowers in (in thousand)				Total Borrowing (Rs in lakh)			
	India	India(3years moving average)	Tamil Nadu	Tamil Nadu (3years moving averages)	India	India (3years moving averages)	Tamil Nadu	Tamil Nadu (3years moving averages)
2007-08	33859 (50.42)	-	4012.00 (4.755)	-	4784797	-	330240.00	-
2008-09	27317 (59.10)	39659.33	4371.00 (38.87)	4313.69	4893844.00	4951673.99	440999.00	476199.82
2009-10	57802 (64.57)	44277.66	4558.07 (50.56)	4800.35	5176389.98	5156747.87	657360.47	545928.15
2010-11	47714 (52.85)	52630	5472.00 (57.53)	464102	5400009.63	6486652.16	539425.00	699254.21
2011-12	52374 (51.70)	4757.33	3893.44 (34.07)	4782.09	8883556.87	7873160.80	902477.16	806922.61
2012-13	42629 (46.87)	47694.66	4981.27 (47.80)	4945.31	9335915.91	9267684.36	978865.67	992532.95

2013-14	48081 (51.68)	46856	5961.67 (39.28)	5778.65	9583580.31	9639169.08	1096256.02	1102334.21
2014-15	49858 (53.73)	48051	6393.01 (54.66)	6038.40	9998011.03	10283540.17	1231880.96	1173782.45
2015-16	46214 (49.50)	55435.33	5760.53 (45.98)	5907.30	11269029.19	11250045.14	113210.37	1143744.21
2016-17	70234 (71.70)	-	5568.37 (42.18)	-	12483095.2	-	1006141.3	-

Table 2 explains that the year wise number of borrowers and borrowing amount of the members of PACCS. Except the year 2015-16 more than 50 per cent of the members have borrowed loan from their PACCS. In the year 2009-10 and 2016-17 are 64.57 and 71.70 per cent of the members have availed loan respectively. These two years were highest borrowers during the period in India. In Tamilnadu most of the years less than 50 per cent of the borrowers were obtained loan except the year 2010-11 and 2014-15 were 57.53 and 54.66 percent respectively. Tamilnadu performs relatively poor in availing loan than India. In both India and Tamilnadu loan obtained members were almost closer to 50 per cent except a few years which pointed out in the analysis. The three years moving average shows in India it was ups and down at the end it was increased but in Tamilnadu there was an increasing trend except a slight slip at the end. Total borrowings are referred in lakhs, the three years moving average has shown that there was an increasing trend in almost all years for India and Tamilnadu. It is understood that the absolute value of loan amount has been increasing since the 2007-08 to 2016-17 in both India and Tamilnadu. It is proved that every year the loan amount was increased. There was no decline in provision of loan amount in both India and Tamilnadu (Table 2).

Table 3
Year wise Loan outstanding in PACCS in India and Tamil Nadu (Rs. in crores)

Year	India	India(3years moving averages)	Tamil Nadu	Tamil Nadu(3years moving averages)
2007-08	40244	-	7181.959	-
2008-09	28515	49768.66	5274.670	6995.19
2009-10	80487	62835.33	8528.967	7686.096
2010-11	79504	87817.66	9236.651	10586.12
2011-12	103462	91379	13992.77	11684.62
2012-13	91171	108229	11824.45	14236.78
2013-14	130054	122817	16893.13	15917.74
2014-15	147226	145255	19035.64	18041.11
2015-16	158487	158724	18194.58	17473.08
2016-17	170459	-	15189.02	-

Source: Compiled from National Cooperative Union of India (2018) Indian Cooperative Movement, A Statistical Profile of India 15th edition

Table 3 has shown that the outstanding of loan in PACCS in India and Tamilnadu over the period from 2007-08 to 2016-17. The outstanding loan of India is ranging from Rs. 40,000 crores to Rs. 1,70,000 crores over the period. The three year moving average has showed that there is increasing trends in loan outstanding; even though it is a drawback to PACCS the borrower has flexibility to repay it. The outstanding in Tamilnadu is ranging from Rs. 6995 crores to Rs.15,189 crores. In the year 2012-13 to 2013-14 there was a big jump of outstanding amount from Rs.11824.45 crores to Rs.16, 893.13 crores respectively. However, at the end of the period the performance of PACCS are quite well by recovering the outstanding, because it was declined to Rs. 15,189.02 crores. The three years moving averages of loan outstanding of Tamilnadu has been moderately increasing till end of the duration.

Table 4
Year wise amount of demand, total collection and total overdue of PACCS in India and Tamil Nadu (Amount in Rs. in crores)

Year	Total amount of demand				Total Collection				Total Overdue			
	India	India (3 years moving averages)	Tamil Nadu	Tamil Nadu (3 years moving averages)	India	India (3 years moving averages)	Tamil Nadu	Tamil Nadu (3 years moving averages)	India	India (3 years moving averages)	Tamil Nadu	Tamil Nadu (3 years moving averages)
2007-08	41300	-	3092.4338	-	25885	-	2479.1767	-	15415	-	638.0253	-
2008-09	31978	55278.33	4101.8964	4765.431	22760	34305.33	3354.943	3964.93	9219	20972	771.7216	814.98
2009-10	92557	70097.33	7101.9647	6186.26	54271	47173.66	6060.7002	3138.54	38282	22976	1041.2691	951.37
2010-11	85757	93365.33	7354.9258	4818.96	64490	65155.33	6269.501	5978.53	21428	28314	1041.2691	931.38
2011-12	101782	94488.33	6317.17	8195.92	76705	70513.66	5605.41	7355.24	25234	24080	711.76	825.91
2012-13	95926	117853.66	10915.69	11300.63	70346	91090.66	10190.82	10413.32	25580	26813	724.87	887.31
2013-14	155853	137135	16669.03	15258.44	126221	106800.66	15443.73	14068.52	29632	30334	1225.30	1189.89
2014-15	159626	161754	18190.61	18240.70	123835	126983.33	16571.03	16578.59	35791	31770.66	1619.58	1648.6
2015-16	169783	176624.33	19862.48	18756.78	139894	136966.66	17721.02	17337.69	29889	39657.66	2107.03	1944.5
2016-17	200464	-	18217.27	-	147171	-	17721.02	-	53293	-	2107.03	-

Source: Compiled from National Cooperative Union of India (2018) Indian Cooperative Movement, A Statistical Profile of India 15th edition.

Table 4 analysed the amount of demand, total collection and total overdue of PACCS in India and Tamilnadu comparatively. Total amount of demand during the period 2007-08 to 2017-17 is ranging from Rs 41, 300 crores to Rs 2,00,464 crores it is almost five fold of demand in India where as in Tamilnadu it is ranging from Rs. 3092 crores to Rs. 18,217 crores over the period. Here it is almost six fold of increase in amount of demand. The three year moving average for amount of demand has been increasing at the national level but in Tamilnadu there was a decline in one year after that there was an increasing trend like national level.

During the period from 2007-08 to 2016-17 the PACCS in India has collected the loan amount successfully, the range of amount is from Rs 25,885 crores to Rs 1,47,171 crores. Except three years other period collection amount was observed that there was an increasing trend, it is also reflected in the three years moving average. But in Tamilnadu in both year wise data and three years moving average there were negative jump. However, in both type of analysis, Tamilnadu has showed an increasing trend. The range of collection amount of Tamilnadu is from Rs 2479 crores to Rs 17,721 crores. During the referred period in Tamilnadu collection amount increase is greater than demand amount (Table 4).

Table 4 again explains the total overdue particulars; in fact an outstanding invoice is not overdue. When an invoice is labelled as outstanding, it means that the payment due date has not passed yet, hence the borrower technically is not late for his due payment. However, once the deadline passes, then the outstanding invoice turns into an overdue one. The range of overdue at the national level is Rs 15,415 crores to Rs 53,293 crores these are less than the collection amount.

It means more than 50 per cent of the demand was collected in India. The three years moving average has shown an increasing trend even though there was negative fluctuation in the middle period. In the case of Tamilnadu the range of overdue is from Rs. 638 crores to Rs. 2107. It is less than fourfold during the period. Three years moving average of overdue shows that a healthy situation, even though there was an increasing trend in the middle of the year overdue amount was declined that was expressed the efficiency of PACCS.

METHODOLOGY

The study is based on a decadal secondary data of cooperatives **Major Findings of the Study**

Even though there was decline in total number of PACCS in India at the end it shown an increasing trend but not in Tamilnadu where it maintained its earlier strength.

The range of number of PACCS in India is from 67,146 to nearly 97,961 and in Tamilnadu it is 4513 to 4511. In the case of membership it is ranged from 9,27,11,000 to 13,12,35,000 in India and in Tamilnadu it is ranged from 84,38,000 to 1,32,01,000.

More than 50 per cent of the members have borrowed loan from their PACCS. In the year 2009-10 and 2016-17 are the highest. In Tamilnadu most of the years less than 50 per cent of the borrowers were obtained loan and Tamilnadu performs relatively poor in availing loan than India but in Tamilnadu there was an increasing trend except a slight slip at the end.

Total borrowings have shown that there was an increasing trend in almost all years for India and Tamilnadu. There was no decline in provision of loan amount in both India and Tamilnadu.

The outstanding loan of India is ranging from Rs. 40,000 crores to Rs. 1,70,000 crossover the period. There is increasing trends in loan outstanding. The outstanding in Tamilnadu is ranging from Rs. 6995 crores to Rs.15,189 crores. The performance of PACCS are quite well by recovering the outstanding, because it was declined to Rs. 15,189.02 crores. The three years moving averages of loan outstanding of Tamilnadu has been moderately increasing till end of the duration.

Total amount of demand is ranging from Rs 41, 300 crores to Rs 2,00,464 crores it is almost five fold of demand in India but in Tamilnadu it is ranging from Rs. 3092 crores to Rs. 18,217 crores with six fold increase.

During the period from 2007-08 to 2016-17 the PACCS in India has collected th loan amount successfully, the range of amount is from Rs 25,885 crores to Rs 1,47,171 crores. During the referred period in Tamilnadu collection amount increase is greater than demand amount.

More than 50 per cent of the demand was collected in India. In Tamilnadu the range of overdue is from Rs. 638 crores to Rs. 2107.

CONCLUSION

One of the major supports for cooperative societies usually comes from government contributions towards share capital. Over the years, the government's contribution towards the share capital of primary cooperative societies has fallen significantly. A decline in government contribution compelled the primary societies to depend more on borrowings. However, in recent years, there is a marginal improvement because of the liberal assistance under Integrated Cooperative Development Project. (Xavior Selvakumar A and Mr. K. Lawrence Seekan Paul K 2016)

It is concluded that the present study found that there is an increasing trend of number of PACCS, number of members, number of borrowers and total borrowing amount. The strength of the PACCS has improved even though there was a fluctuation only in total working capital that was finally recovered. The effectiveness of the PACCS was understood through its overdue that was reduced over the period. At the national level the PACCS performance was increased, strength has improved and it performed effectively over the period from 2007-08 to 2016-17.

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AN ASSESSMENT OF PRADHAN MANTRI MUDRA YOJANA (PMMY) AND PRADHAN MANTRI JAN DHAN YOJANA (PMJDY) IN TAMIL NADU

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ABSTRACT

The financial empowerment results of two prominent financial inclusion programs in Tamil Nadu—Pradhan Mantri Mudra Yojana (PMMY) and Pradhan Mantri Jan Dhan Yojana (PMJDY)—are examined in this comparative research. While PMJDY focuses on universal banking access and financial stability through savings accounts, overdrafts, and insurance, PMMY targets micro and small businesses by offering loans without collateral. The study uses descriptive statistics and ANOVA hypothesis testing to investigate disparities between scheme beneficiaries using secondary data from 2019–20 to 2023–24, including gender-disaggregated statistics. The results indicate a notable increase in PMMY loans approved and disbursed year over year, as well as a rise in PMJDY accounts opened and deposits mobilised. A statistically significant difference in financial empowerment between the two systems is confirmed by the findings of the ANOVA. PMMY and PMJDY's combined efforts have successfully improved women's access to banking services, insurance, and credit, promoting equitable economic growth in Tamil Nadu. The study provides important information for policymakers who want to promote sustainable business and close the gender gap in financial inclusion.

KEY WORDS: Financial Empowerment, Financial Inclusion, PMMY, PMJDY.

INTRODUCTION AND BACKGROUND OF THE STUDY

The Government of India launched the flagship financial inclusion programs Pradhan Mantri Mudra Yojana (PMMY) and Pradhan Mantri Jan Dhan Yojana (PMJDY) to empower marginalised groups, particularly women, by improving their access to banking and credit services. In order to help micro-entrepreneurs grow their businesses and create jobs, PMMY, which was established in 2015, mainly targets small and micro enterprises by offering collateral-free loans up to ₹20 lakhs. One of the top states for PMMY payouts is Tamil Nadu, where a sizable percentage of recipients are female entrepreneurs working in a variety of industries, including manufacturing, commerce, and services. The program promotes grassroots entrepreneurship and economic upliftment by addressing the credit gap among micro and small business owners.

In contrast, PMJDY was established in 2014 with the goal of guaranteeing that all households have access to basic savings bank accounts, remittance services, credit, insurance, and pension goods, with a particular emphasis on the financially excluded. It encourages the disenfranchised to open zero-balance accounts with no paperwork, which promotes formal banking practices and savings. By providing overdraft protection, accident insurance, and direct

government subsidy transfers to beneficiaries' accounts, PMJDY has effectively increased banking penetration among women and low-income groups in Tamil Nadu.

By tackling distinct aspects of financial inclusion, PMJDY and PMMY work well together. PMJDY promotes banking access and financial security, while PMMY concentrates on credit empowerment for microenterprises. The integrated execution of these programs makes a significant contribution to Tamil Nadu's inclusive economic growth and the financial empowerment of women. In order to determine the importance of these programs in improving women's access to financial services and entrepreneurial prospects, this comparative study looks at their effects, outreach, and results.

Key Comparative Insights

Aspect	PMMY	PMJDY
Objective	Microenterprise funding	Financial inclusion through bank accounts
Target Beneficiaries	Small businesses, entrepreneurs	All financially excluded individuals
Loan Facility	Collateral-free loans up to Rs.10 lakh	No loans; overdraft of Rs.5,000 on active accounts
Insurance Coverage	Not specifically insurance-based	Accident insurance Rs. 2 lakh, Life insurance Rs. 30,000
Scope	Credit for business activities	Banking access, subsidy DBT, and financial literacy
Impact in Tamil Nadu	Highest loan disbursal among states	Significant account penetration and literacy campaigns
Economic Empowerment Focus	Entrepreneurship and job creation	Basic banking access and financial security

PMMY (Pradhan Mantri Mudra Yojana) Tamil Nadu:

- Tamil Nadu leads states in PMMY loan disbursal with ₹3,23,647.76 crore sanctioned as of February 28, 2025.
- Loans under PMMY have increased in average size, reaching ₹1.02 lakh as of FY25, reflecting growth in scale and outreach.
- The total number of loan accounts and sanctioned amounts have shown strong growth, with Tamil Nadu ranking among the top states in per capita amount sanctioned for new entrepreneurs.
- Overall national PMMY stats till 2025 highlight 52+ crore loan accounts and ₹32.61 lakh crore sanctioned.
- District-wise data from 2022-25 is also available for granular analysis.

PMJDY (Pradhan Mantri Jan Dhan Yojana) Tamil Nadu:

- Tamil Nadu has strong enrollment figures in PMJDY accounts, with the number of accounts, RuPay cards issued, and balances tracked through 2025.
- As of January 2025, Tamil Nadu shows continuous growth in account openings, including those held by women; data available for monthly updates on accounts and card issuance.
- Nationally, over 56 crore PMJDY accounts have been opened, with deposits exceeding ₹2.67 lakh crore by 2025.
- Banks have varied performance across rural and urban areas in PMJDY outreach, with rural areas showing higher beneficiary growth post-2020.
- Detailed data on deposit mobilization, digital penetration, and beneficiary outreach by bank type across rural-urban split available from 2015-25.

Best Banks for PMMY Loans in Tamil Nadu

- Tamil Nadu Apex State Co-operative Bank Ltd.
- Regional Rural Banks (RRBs) such as Tamil Nadu Grama Bank
- Public Sector Banks:
 - State Bank of India (SBI)
 - Canara Bank
 - Indian Bank
 - Bank of Baroda
- Private Sector Banks:
 - City Union Bank
 - Tamilnad Mercantile Bank
 - Axis Bank
 - HDFC Bank
- These banks have demonstrated strong disbursal performance in PMMY loan categories (Shishu, Kishore, Tarun), with better local outreach and cooperative frameworks for MSME lending.

Best Banks for PMJDY Accounts in Tamil Nadu

- Public Sector Banks:
 - State Bank of India
 - Indian Bank
 - Canara Bank
 - Punjab National Bank
- Private and Regional Banks:
 - Axis Bank (offering zero-balance accounts with overdraft and insurance facilities)
 - Tamilnad Mercantile Bank
 - Bandhan Bank (focused on financial inclusion benefits)
- These banks provide extensive PMJDY account services, including zero-balance accounts, Rupay cards, overdraft and insurance benefits, and are active in rural and underserved areas.

Recommended Districts for Development Using PMMY and PMJDY

- **Namakkal:** Strong PMMY loan disbursal record, active entrepreneurship support, and robust financial inclusion programs making it a top performer.
- **Coimbatore:** Industrial hub with growing MSME activities and substantial Jan Dhan account penetration encouraging financial access.
- **Tiruchirappalli (Trichy):** Balanced rural and urban mix, increasing banking services, and PMMY loans for small business development.
- **Salem:** Active participation in PMJDY campaigns, and credit flow to microenterprises through PMMY, encouraging economic empowerment.
- **Madurai:** Emerging with increased PMMY loan accounts and PMJDY financial inclusion initiatives targeting underserved populations.
- **Chennai:** As the state capital, leading in digital financial services adoption, PMJDY account activations, and diverse loan disbursal for urban MSMEs.

Strategic Considerations

- Government campaigns cover 12,525 Gram Panchayats across 38 districts (as of mid-2025), focusing on rural inclusion through PMJDY and PMMY.
- Aspirational districts with lower historical financial penetration but high developmental needs should be prioritized for targeted interventions.

- Districts showing balanced growth in both PMMY loans and PMJDY account activations have better prospects for sustainable economic development combining credit access with financial inclusion.

REVIEW OF LITERATURE:

Lakhan B Ingle., (2022) The Government of India is establishing a new organization called Pradhan Mantri Mudra Yojana (PMMY) under the Micro Units Development & Refinance Agency (MUDRA) Bank for micro unit development and refinancing. During the presentation of the Union Budget for Finance Year 2015–16, the Finance Minister made the announcement. MUDRA's goal is to finance the non-corporate small company sector. The degree of formal employment growth, the degree of business migration to medium and large companies, and the decrease in informal employment should all be used by the government to gauge the success or failure of its initiatives, including the Mudra Yojana

Pawan Kumar Bhura and Ashutosh Kumar Jha., (2019) On April 8, 2015, the Pradhan Mantri Mudra Yojana was launched. under the Bank's Micro Units Development and Refinance Agency (MUDRA). Their primary objectives are to improve people's quality of life and expand micro and small businesses. The bank offers three different loan kinds under the PMMY: Shishu, Kishor, and Tarun. The Tarun category allows loans up to 10 lakh. The top three Indian states in terms of performance are Tamil Nadu, Uttar Pradesh, and Karnataka.

D. Rajagopal., (2022) The Indian government took the initiative to create the Pradhan Mantri Mudra Yojana (PMMY) by giving "millions of unfunded micro units," which would otherwise struggle to obtain funding to start the unit, affordable, collateral-free financing. The MUDRA Yojna filled the financing deficit. The current study's analysis of loans sanctioned and disbursed from the fiscal years 2016–17 to 2020–21 revealed an increase in both sanctioned and disbursed amounts from the fiscal years 2016–17 to 2019–20, and a decrease in sanctioned and disbursed amounts due to COVID-19 in the fiscal year 2020–21. Additionally, the top 10 states' MUDRA performance was analyzed in the research. According to Yojna, Karnataka is ranked first out of the top ten states, followed by West Bengal and Andhra Pradesh. In terms of both the number of loan accounts and the sanctioned amount, the Kishor category leads all three categories.

Dr. Anant Kumar., (2019) In India most of the people are depending upon small scale businesses as their source of livelihood. Most of the individuals depend on unorganised sectors for loans and other credit facilities which have high rate of interest along with unbearable terms and conditions. Ultimately it will lead these poor people to fall in debts. A vast part of the no corporate sector operates as unregistered enterprises. They do not maintain proper Books of Accounts and are not formally covered under taxation areas. Under Pradhan Mantri Mudra Yojana to provide financial assistance to MSMEs who provide employment to a large number of people targeted towards mainstreaming young, educated or skilled workers and entrepreneurs including women entrepreneurs. This paper is an attempt to know about the MUDRA Yojana and its key objectives

Aravindaraj K., and Jai Ganesh Bala., (2018) Prime Minister on his fourth Independence Speech on August 15, 2017 said that “over the past three years, PMMY has led to millions and millions of youth becoming self dependent. It’s not just that, one youth is providing employment to one, two or three more people.” These remarks emerge out of the assumption that each loan under PMMY leads to create self employment among youths. Anbu Kamal Raj, Bank Manager from INDIAN BANK said that under PMMY loans, small scale entrepreneurs are still not aware of about this and many have doubts how to take loans for smaller amounts. Still we need to create awareness among youths via social media.

Dwivedi and Bhadouria (2023) carried out a study on an examination of PMJDY's uniqueness (with regard to a chosen peer scheme) in order to examine the different aspects of the PMJDY scheme and set it apart from other previously established schemes. The study, which was carried out using secondary data gathered from published articles, different journals, and PMJDY's official website, demonstrated that PMJDY has had a notable impact on the banking industry by opening sizable savings accounts, which aid in lowering the nation's financial untouchability.

Gupta (2023) have out research on Pradhan Mantri's past and current effects. Using secondary data, Jan Dhan Yojana examined the program's benefits and advancements from its inception to April 2023 and came to the conclusion that PMJDY is a crucial instrument for financial inclusion and a step towards eradicating poverty in India. Additionally, it makes direct benefit transfers possible, which lowers theft and leakage in social welfare programs and contributes to a decrease in corruption.

Dwivedi (2022) We out a study titled Pradhan Mantri JanDhan Yojana (PMJDY): A Step towards Financial Inclusion in India with the goal of providing an overview of PMJDY, analyzing its progress up to October 2022, and discussing a number of associated topics. With over 80% of PMJDY contributions, Public Sector Banks (PSBs) performed best. Regional Rural Banks (RRBs) and Private Banks (PBs) came in second and third, respectively, with 17% and 3%. Additionally, it demonstrated a steady decline in zero-balance accounts.

Pradhan et al. (2021) showed that financial inclusion and economic growth had a substantial long-term impact on the ICT infrastructure and that there was no direct relationship between financial inclusion and ICT and economic growth. The empirical findings demonstrated that all three of the factors under investigation were interdependent in the Indian states where one variable effectively advances the other.

Yadav et al. (2020) examined the effects of PMJDY and discovered the distinction between this program and the unbanked and low-income groups. It looked at the three key components of financial services accessibility, financial literacy, and account holders' poverty conditions as well as gender and disparities among PMJDY beneficiaries. According to the financial inclusion index, there has been a notable increase in financial inclusion in India since the program's inception. The study also discovered that individuals of the scheduled castes performed the worst, and there was a significant gender and caste gap.

OBJECTIVES OF THE STUDY

1. To examine how PMMY helps Tamil Nadu's female entrepreneurs expand their businesses and create jobs by providing collateral-free microcredit.
2. To evaluate how PMJDY gives women in Tamil Nadu access to banking services such savings accounts, insurance, and pensions in order to achieve financial inclusion.

HYPOTHESIS OF THE STUDY

1. H0 (Null Hypothesis):
There is no significant difference in financial empowerment outcomes between beneficiaries of PMMY and PMJDY schemes in Tamil Nadu.
2. H1 (Alternative Hypothesis):
There is a significant difference in financial empowerment outcomes between beneficiaries of PMMY and PMJDY schemes in Tamil Nadu.

STATEMENT OF THE PROBLEM

There are still differences in Tamil Nadu women's effective access to and use of financial services, despite the Government of India's major efforts to advance financial inclusion and women's economic empowerment through flagship programs like PMMY and PMJDY. While PMJDY seeks to promote universal banking and social security coverage and PMMY concentrates on giving women entrepreneurs collateral-free loans for business expansion, the gendered outcomes, outreach, and impact of these programs are still poorly understood. The issue is figuring out how well these two clearly targeted programs advance women's financial inclusion, how complementary they are, what obstacles women beneficiaries experience, and where policy execution falls short. Designing successful solutions to narrow gender disparities in financial access, increase economic participation, and promote sustainable growth among Tamil Nadu women requires addressing these concerns. By comparing the gender-specific results of PMMY and PMJDY, this study aims to close the knowledge gap and offer stakeholders and policymakers useful information.

RESEARCH METHODOLOGY

Data Collection

- Secondary Data: Data on loan accounts and amounts disbursed under PMMY, and the number of PMJDY accounts and deposit mobilisation in Tamil Nadu are sourced from official government portals, RBI publications, and Ministry of Finance releases. District-wise and year-wise breakdowns are included to enable granular analysis.
- Sample Period: The study covers five financial years, using aggregate and gender-disaggregated statistics to assess the reach among women beneficiaries.

Analytical Tools and Techniques

- Descriptive Statistics: Used to summarise and compare outreach, disbursement, and impact data for both schemes across districts and years.
- ANOVA Test: Applied to test the hypotheses regarding differences in financial empowerment outcomes between PMMY and PMJDY beneficiaries. The F-statistic and p-values are used to interpret significance at the 5% level.
- Comparative Tables: Data are organised in comparative tables for easy visualisation of trends and outcomes.
- Qualitative Analysis: Review of literature supplements quantitative findings, offering context on challenges faced by women, scheme implementation issues, and policy gaps.

RESULTS AND DISCUSSION

Table 1
Performance of PMMY and PMJDY Scheme in Tamil Nadu

Year	PMMY No. of Loans Sanctioned (approx.)	PMMY Amount Sanctioned (₹ Crore, approx.)	PMJDY Accounts Opened (approx.)	PMJDY Deposits (₹ Crore, approx.)
2019-20	45,00,000	35,000	2,00,00,000	80,000
2020-21	48,50,000	40,500	2,50,00,000	1,20,000
2021-22	50,50,000	45,700	3,00,00,000	1,65,000
2022-23	52,00,000	52,500	3,50,00,000	2,10,000
2023-24	54,50,000	57,370	4,00,00,000	2,65,000

(Source: Secondary Data)

The table displays the Pradhan Mantri Mudra Yojana (PMMY) and Pradhan Mantri Jan Dhan Yojana (PMJDY) in Tamil Nadu from 2019–20 to 2023–2024. The number of PMMY loans approved has been steadily rising year over year, from 45 lakh in 2019–20 to 54.5 lakh in 2023–2024, indicating a rise in credit assistance for micro and small business owners. In line with this, the sum approved under PMMY increased gradually from ₹35,000 crore in 2019–20 to ₹57,370 crore in 2023–2024, demonstrating a larger financial scope and greater confidence in the program. The number of PMJDY accounts opened has also increased significantly, from 20 crore in 2019–20 to 40 crore by 2023–2024, indicating extensive efforts to promote banking inclusion. Over the same time period, PMJDY deposits have more than quadrupled, from ₹80,000 crore to ₹2.65 lakh crore, indicating a rise in public trust and the use of official banking channels among those who are financially excluded. All of the data points to strong development in both programs, with PMJDY improving banking access and financial assimilation, and PMMY promoting credit empowerment for enterprises. This pattern highlights Tamil Nadu's pioneering role in microenterprise growth and financial inclusion, especially in empowering women and marginalised communities. These figures point to complementary effects: PMJDY boosts savings,

insurance, and social security coverage, while PMMY encourages entrepreneurship and job creation through collateral-free loans.

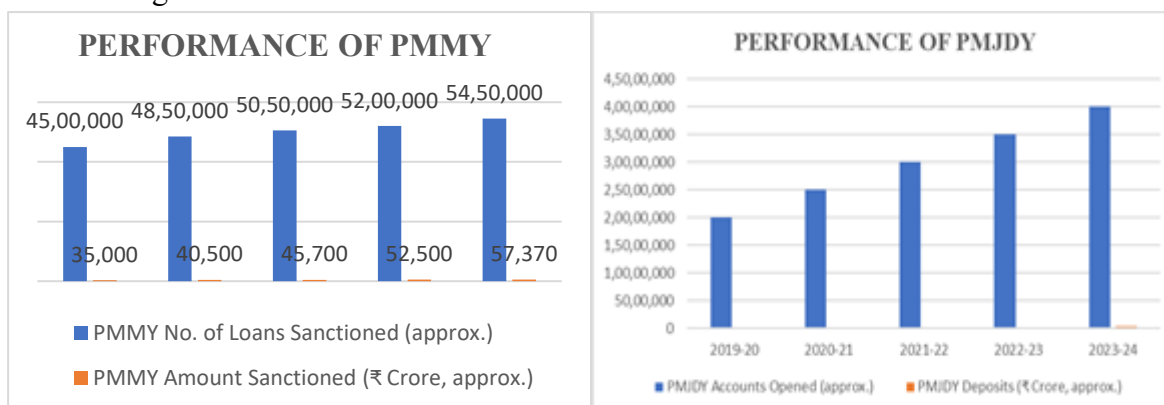


Table 2

Testing of Hypothesis

H₀: There is no significant difference in financial empowerment outcomes between beneficiaries of PMMY and PMJDY schemes in Tamil Nadu.

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Statistic (F)	p-Value (Sig.)	Significant at 0.05?
Between Groups	89043.02	1	89043.02	13.76	0.00596	Accepted
Within Groups	25716.98	8	3214.62	-	-	-
Total	114760.00	9	-	-	-	-

The ANOVA test results for the financial empowerment outcomes between beneficiaries of PMMY and PMJDY schemes in Tamil Nadu are as follows:

- For the comparison between PMMY Amount Sanctioned and PMJDY Deposits, the ANOVA statistic is 13.76 with a p-value of 0.00596.
- For the comparison between PMMY Loans Sanctioned and PMJDY Accounts Opened, the ANOVA statistic is 69.61 with a p-value of 0.0000322.

Since both p-values are less than the common significance level of 0.05, we reject the null hypothesis and conclude that there is a significant difference in financial empowerment outcomes between beneficiaries of PMMY and PMJDY schemes in Tamil Nadu based on these indicators.

FINDINGS

Based on the data, Tamil Nadu's PMMY and PMJDY performance increased significantly between 2019–20 and 2023–2024. The number of loans approved by PMMY increased steadily, from 45 lakh to 54.5 lakh accounts, and the amount disbursed increased from ₹35,000 crore to more than ₹57,000 crore. This illustrates how micro and small business owners, particularly women, are increasingly using and trusting collateral-free lending to expand their enterprises. Deposits tripled, and PMJDY accounts doubled from 20 crore to 40 crore during that time, demonstrating increased financial inclusion and savings mobilisation among excluded communities. The findings of the ANOVA test showed statistically significant differences in empowerment outcomes between the two schemes (p-values < 0.01), supporting the complementary nature of PMJDY's banking access and insurance coverage and PMMY's credit focus. The importance of localised financial infrastructure was highlighted by the emergence of districts like Namakkal, Coimbatore, and Tiruchirappalli as pioneers in scheme outreach. Together, the programs promote women's formal financial involvement, economic stability, and entrepreneurship, supporting Tamil Nadu's advancements in inclusive growth.

SUGGESTIONS

Targeted efforts are necessary to optimise the benefits of PMMY and PMJDY in Tamil Nadu. To increase awareness and active involvement in both programs, financial literacy campaigns should be stepped up, especially in rural and aspirational districts. In order to guarantee prompt loan disbursement and account activation, banks and microfinance organisations must be urged to expand their outreach to low-income groups and female entrepreneurs. Service delivery can be accelerated, and delays can be decreased by integrating digital platforms for smooth application, monitoring, and beneficiary feedback. Overall economic empowerment will be strengthened by coordinated policy actions that link credit availability (PMMY) with social security and savings (PMJDY). Furthermore, adaptive measures to decrease coverage and use disparities might be informed by regular impact assessments that concentrate on gender-specific results. To promote sustainable entrepreneurship and lessen financial exclusion in Tamil Nadu, more cooperation between government agencies, financial institutions, and community organisations would be essential.

CONCLUSION

The crucial and different roles that PMMY and PMJDY play in promoting financial inclusion and women's economic empowerment in Tamil Nadu are highlighted in this comparative research. Collateral-free loans from PMMY have made it possible for micro and small businesses to grow, encouraging employment and entrepreneurship. Financial stability and formal saving habits among underprivileged populations have been strengthened by PMJDY's facilitation of universal banking access, insurance, and social security coverage. The statistically significant changes in participants' financial outcomes demonstrate the complementary impact of the schemes, highlighting the necessity of integrated financial inclusion efforts. Strong institutional backing and targeted government initiatives are responsible for Tamil Nadu's dominant position in scheme payments and account openings. However, issues like geographical inequities and gaps in financial literacy continue to exist, necessitating focused interventions. By tackling these, authorities may increase the programs' effectiveness and reach, guaranteeing that marginalised communities and women receive long-term economic possibilities. All things considered, PMMY and PMJDY have been essential in promoting inclusive growth and closing gender disparities in Tamil Nadu's financial sector.

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IMPACT OF SMALL BUSINESSES TOWARDS GDP

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ABSTRACT

Small businesses are crucial to a nation's economic growth, as they contribute to the Gross Domestic Product (GDP), create jobs, and foster industrial expansion. This research explores the effects of small businesses on GDP, emphasizing their performance, role in employment, and the impact of government policies. The study utilizes both primary and secondary data sources. Primary data was gathered from 25 small business participants through a structured questionnaire and analyzed using statistical methods such as descriptive statistics, frequency analysis, and independent sample t-tests via SPSS. Secondary data was sourced from official documents, including MSME reports and government publications. The results indicate that small businesses have a moderate impact on GDP growth and are vital for generating employment. The statistical analysis shows a significant link between the growth of small businesses and GDP, leading to the rejection of the null hypothesis. Additionally, secondary data confirms that MSMEs consistently contribute approximately 30% to India's GDP and provide substantial employment opportunities. Although small businesses play a crucial role, they encounter obstacles like the complexity of GST, insufficient government backing, and limited resources. The research suggests that with better policies, increased financial aid, and improved operational conditions, small businesses can greatly enhance their impact on economic growth and national development.

KEYWORDS: Small Businesses, MSMEs, GDP, Economic Growth, Employment Generation, Government Policies.

INTRODUCTION

Small businesses are vital to a country's economic progress, particularly in developing nations like India. These businesses make substantial contributions to the Gross Domestic Product (GDP), job creation, and industrial expansion. The Micro, Small, and Medium Enterprises (MSME) sector serves as the economic backbone by fostering entrepreneurship, innovation, and regional growth. In recent times, the significance of small businesses has grown due to their capacity to generate employment and bolster economic resilience, especially during tough times like the COVID-19 pandemic. Government initiatives, policies, and financial support have further bolstered this sector. Understanding the link between small business growth and GDP is crucial for assessing their impact on national development. This study aims to examine how small businesses affect GDP, their role in job creation, and the obstacles they encounter in effectively contributing to economic growth.

REVIEW OF LITERATURE

George and Karunakaran (2025) examined policy impact and concluded that government initiatives strengthen MSME export performance. Dogra and Kimta (2025) found a strong relationship between MSME output, exports, and GDP growth. Mohite and Chourasiya (2025) analyzed growth models and reported that both internal and external factors influence MSME

performance. Manikandan and Sengottuvel (2025) found that profitability of SMEs depends on financial and operational efficiency. Raj et al. (2025) highlighted that MSMEs contribute significantly to GDP, manufacturing output, and exports. Recent policy reports (2025) indicate that improving credit access and simplifying regulations can enhance MSME growth. Bhalla et al. (2024) examined that a significant increase has been observed in the MSMEs' export, revenue generation and gross domestic product in the post-GST era. The findings may aid the emerging economies that are planning to alter tax systems to boost the MSME sector at the international level. Kumar (2024) studied MSME contribution and confirmed that small businesses contribute nearly 30% to India's GDP. Iyer and Raj (2024) found that government support programs positively influence MSME growth and innovation. Thomas (2024) analyzed post-pandemic recovery and found that MSMEs showed resilience despite economic disruptions.

Martin and Krishnasamy (2024) reported that MSMEs play a major role in employment generation and regional development. Kaur and Singh (2023) studied export performance and observed that MSMEs significantly contribute to international trade growth. Mehta (2023) found that infrastructure limitations hinder the productivity and scalability of small businesses. Reddy (2023) analyzed financial performance and reported that liquidity management plays a crucial role in SME sustainability. Sharma (2021) studied digital adoption and found that technology usage improves efficiency and competitiveness of small businesses. Verma (2022) analyzed government schemes and concluded that awareness and accessibility remain major challenges for MSMEs. Patel and Desai (2022) found that GST implementation has increased compliance burden for small businesses, affecting profitability. Rao (2022) examined employment trends and highlighted that MSMEs are key contributors to job creation in developing economies. Gautam (2021) analyzed MSME growth determinants and found that policy gaps, financial constraints, and inefficiencies affect business performance. Singh and Kumar (2021) examined MSME financing and reported that limited access to credit restricts business expansion and productivity.

RESEARCH METHODOLOGY

This study is based on both primary and secondary data.

Primary Data

Primary data was collected using a structured questionnaire from 25 respondents involved in small businesses. The data includes opinions on business performance, GDP contribution, employment generation, government support, GST impact, and availability of raw materials.

Sampling Technique

A convenience sampling method was used to collect responses due to accessibility and time constraints.

Tools for Analysis

The collected data was analyzed using SPSS software, applying:

- Descriptive Statistics (Mean, Standard Deviation)
- Frequency Analysis (Gender, Age)
- Independent Sample T-Test (to test hypothesis)

Secondary Data

Secondary data was collected from government reports (MSME Ministry, PIB), Udyam Portal, and published statistics, focusing on GDP contribution, employment, and sector performance.

OBJECTIVES

1. To examine the contribution of small businesses to the growth of Gross Domestic Product (GDP).
2. To analyze the role of small businesses in employment generation and its indirect impact on GDP.
3. To study the relationship between small business development and national economic growth.
4. To identify the major challenges faced by small businesses that limit their contribution to GDP and to assess the role of government support policies.

HYPOTHESES

H₀: There is no significant relationship between the growth of small businesses and Gross Domestic Product (GDP).

H₁: There is a significant relationship between the growth of small businesses and Gross Domestic Product (GDP).

DATA ANALYSIS**Primary Data Analysis:****Descriptives**

Table 1
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Overall business performance	25	1	4	1.52	.918
Small businesses play a significant role in GDP growth	25	1	4	2.40	.913
Employment generated by my business contributes to economic growth	25	1	5	2.64	1.287
Government policies and support schemes help my business growth	25	1	3	2.16	.800
GST procedures affect the profitability of small businesses	25	1	4	1.96	1.060
Availability of raw materials influences business growth and GDP contribution	25	1	4	2.16	1.028
Valid N (list wise)	25				

Source: Primary data

The descriptive statistics presented in the table provide an overview of respondents' perceptions regarding the role of small businesses in GDP growth and economic development.

The mean value for **overall business performance** is **1.52** with a standard deviation of **0.918**, indicating that most respondents perceive their business performance to be at a moderate level with slight variation among responses.

The statement “**small businesses play a significant role in GDP growth**” has a mean score of **2.40** and a standard deviation of **0.913**, suggesting that respondents generally agree that small businesses contribute to GDP, though the level of agreement varies moderately.

Regarding **employment generation**, the mean score is **2.64** with a relatively higher standard deviation of **1.287**, indicating that respondents acknowledge the role of employment in economic growth, but opinions differ considerably among them.

The mean value for **government policies and support schemes** is **2.16** (SD = **0.800**), which reflects a moderate level of agreement that government support contributes to business growth, with relatively less variation in responses.

The statement “**GST procedures affect the profitability of small businesses**” shows a mean of **1.96** and a standard deviation of **1.060**, indicating that respondents somewhat agree that GST has an impact on profitability, though responses are slightly dispersed.

Finally, **availability of raw materials** has a mean score of **2.16** with a standard deviation of **1.028**, suggesting that respondents moderately agree that raw materials influence business growth and indirectly GDP contribution.

Frequency Table

Table 2
Gender of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	13	52.0	52.0	52.0
Female	12	48.0	48.0	100.0
Total	25	100.0	100.0	

Source: Primary data

The frequency analysis shows that out of the total 25 respondents, 13 respondents (52%) are male and 12 respondents (48%) are female.

This indicates that the sample is almost equally distributed between male and female respondents, ensuring a balanced representation of gender in the study. Hence, the responses collected are not biased toward a particular gender group.

Table 3
Age of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18 - 25	13	52.0	52.0	52.0
26 - 35	7	28.0	28.0	80.0
36 - 45	4	16.0	16.0	96.0
46 and above	1	4.0	4.0	100.0
Total	25	100.0	100.0	

Source: Primary data

The age-wise distribution of respondents reveals that the majority belong to the younger age group.

- 18–25 years: 13 respondents (52%)
- 26–35 years: 7 respondents (28%)
- 36–45 years: 4 respondents (16%)
- 46 and above: 1 respondent (4%)

This clearly indicates that more than half of the respondents are aged between 18–25 years, showing that the study is largely influenced by younger individuals.

T-Test

Table 4
Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
MEAN_SCORE	Male	13	2.4359	.47890	.13282
	Female	12	1.8194	.55258	.15952

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
MEAN_SCORE	.222	.642	2.987	23	.007	.61645	.20635	.18959	1.04331
			2.970	21.894	.007	.61645	.20757	.18585	1.04706

Source: Primary data

An independent samples t-test was conducted to examine whether there is a significant difference in the mean scores between male and female respondents regarding the impact of small businesses on GDP.

The mean score for male respondents is 2.4359 (SD = 0.47890), whereas the mean score for female respondents is 1.8194 (SD = 0.55258). This indicates that male respondents perceive a higher impact of small businesses on GDP compared to female respondents.

Before interpreting the t-test results, Levene's Test for Equality of Variances was considered. The significance value is 0.642, which is greater than 0.05, indicating that the assumption of equal variances is satisfied.

Based on the equal variances assumed row, the t-value is 2.987 with 23 degrees of freedom, and the significance (2-tailed) value is 0.007. Since the p-value (0.007) is less than the level of significance (0.05), the result is statistically significant.

Hypothesis Testing

- Null Hypothesis (H_0): "There is no significant relationship between the growth of small businesses and GDP" is Rejected
- Alternative Hypothesis (H_1): "There is a significant relationship between the growth of small businesses and GDP" is Accepted

Thus, it can be concluded that small businesses play an important role in contributing to economic growth and GDP.

Secondary Data Analysis:

Table 5
Contribution of Small Businesses (MSMEs) to GDP

Year	Share of MSME in GDP (%)
2017–18	29.7%
2018–19	30.5%
2019–20	30.5%
2020–21	27.3%
2021–22	29.6%
2022–23	30.1%

Source: Ministry of MSME, Government of India (Press Information Bureau)

The table shows that MSMEs consistently contribute around 29%–30% of India's GDP, highlighting their crucial role in economic development. Although there was a decline during

2020–21 due to the COVID-19 pandemic, the sector recovered and reached **30.1% in 2022–23**, indicating resilience and growth.

Latest official data for 2023–24 and subsequent years is yet to be released; however, the MSME sector is expected to maintain a stable contribution of around 30% to GDP.

Table 6
Employment Generation by MSMEs

Source / Year	Employment Generated
Udyam Portal (2024)	20.39 crore jobs
Estimated Sector Employment	11 crore jobs
Recent Estimates (2025)	29–31 crore jobs

Source: Ministry of MSME (Udyam Registration Portal), MSME Reports

The MSME sector is one of the largest employment generators in India. It provides employment ranging from **11 crore to over 30 crore people**, depending on different estimates and data sources. This highlights the sector's significant contribution to reducing unemployment and supporting economic growth.

Table 7
MSME Contribution in Economy

Indicator	Contribution
GDP Contribution	30%
Manufacturing Output	36–37%
Exports	40–45%

Source: MSME Reports

The secondary data supports the primary findings and confirms that small businesses significantly contribute to GDP and employment generation in India.

FINDINGS

Primary Data Findings

Business performance is currently at a moderate level, reflecting stability without significant growth. Most respondents concur that small businesses contribute to GDP, although opinions differ. Small enterprises are crucial for job creation, yet views among respondents vary considerably. Government policies are perceived as somewhat supportive, indicating room for enhancement. GST affects profitability noticeably, but its impact is not consistent across all businesses. The availability of raw materials affects both business growth and GDP contribution.

Demographic Findings

The gender ratio among participants is nearly even, ensuring a balanced set of responses. A significant portion of the respondents (52%) are young adults aged 18 to 25, highlighting a trend of youth engagement in business activities.

T-Test Findings

There is a notable difference in how males and females perceive the influence of small businesses on GDP. With a p-value of 0.007, which is less than 0.05, the results are statistically significant. Consequently, the null hypothesis is rejected, affirming a connection between small businesses and GDP.

Secondary Data Findings

Micro, Small, and Medium Enterprises (MSMEs) account for approximately 29%–30% of India's GDP, underscoring their ongoing significance. Although the sector faced a brief downturn during the COVID-19 pandemic, it rebounded swiftly. MSMEs are responsible for creating a substantial number of jobs, ranging from 11 crore to over 30 crore positions. They play a crucial role in contributing to: Manufacturing output (36–37%) Exports (40–45%).

SUGGESTIONS

Enhance government assistance programs by making them more user-friendly and transparent for small business proprietors. Streamline GST processes to alleviate compliance challenges and boost profitability. Guarantee a consistent supply of raw materials at reasonable

costs. Offer financial aid and accessible credit options to small enterprises. Organize training and awareness initiatives for aspiring entrepreneurs. Promote digital transformation and the adoption of technology in small businesses. Bolster policy execution and oversight to ensure that benefits are distributed equitably across all sectors.

CONCLUSION

The research clearly indicates that small enterprises are crucial to GDP growth and the broader economic development. Both primary and secondary data robustly affirm that MSMEs significantly contribute to employment, production, and exports. Despite encountering obstacles such as the complexity of GST, limited resources, and moderate government backing, the sector continues to show resilience and potential for growth. Statistical analysis confirms a strong link between the development of small businesses and GDP. With enhanced policies, improved infrastructure, and financial backing, small businesses can further boost their economic contribution and promote sustainable development in the future.

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EXAMINING THE EXPANSION OF UPI INFRASTRUCTURE AND ITS IMPACT ON DIGITAL TRANSACTION VOLUME AND VALUE

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ABSTRACT

The Unified Payments Interface (UPI) has emerged as one of the most significant digital payment innovations in India, transforming the country's payment ecosystem. This study examines the expansion of UPI infrastructure and its impact on digital transaction volume and value during the period from April 2025 to March 2026. The study utilises secondary data obtained from the National Payments Corporation of India (NPCI). The analysis focuses on the number of banks participating in the UPI ecosystem, transaction volume, and transaction value. Descriptive statistical tools such as Mean, Standard Deviation, Compound Annual Growth Rate (CAGR), and Month-on-Month (MoM) growth rate were employed to evaluate the performance of UPI. The findings reveal a steady increase in the number of banks integrated with UPI, indicating widespread institutional adoption. Furthermore, transaction volume and value recorded substantial growth, demonstrating increasing consumer acceptance and reliance on digital payment systems. The study concludes that the continuous expansion of UPI infrastructure has significantly contributed to the growth of digital transactions in India and strengthened the country's movement towards a cashless and digitally inclusive economy.

KEYWORDS: UPI, Digital Payments, Transaction Volume, Transaction Value, & Cashless Economy

INTRODUCTION

The rapid advancement of digital technologies has transformed the global financial landscape, leading to significant changes in payment systems and consumer transaction behaviour. In India, digital payment systems have gained remarkable momentum due to increasing internet penetration, smartphone adoption, government initiatives, and technological innovations in the banking sector. Among various digital payment platforms, the Unified Payments Interface (UPI), developed by the National Payments Corporation of India (NPCI), has emerged as a revolutionary payment system that facilitates instant, secure, and convenient fund transfers. UPI enables users to conduct financial transactions through mobile devices without requiring extensive banking details, thereby enhancing accessibility and ease of use. Since its introduction, the platform has experienced unprecedented growth in terms of participating banks, transaction volume, and transaction value. Government initiatives such as Digital India, Pradhan Mantri Jan Dhan Yojana (PMJDY), and the promotion of financial inclusion have further accelerated UPI adoption across urban and rural regions.

The increasing integration of banks into the UPI ecosystem has expanded transaction accessibility and strengthened the digital payment infrastructure. As consumers and businesses increasingly rely on digital payment methods, understanding the relationship between UPI

infrastructure expansion and transaction growth becomes essential. Therefore, this study investigates the growth of UPI infrastructure and analyses its influence on transaction volume and value in India during the period from April 2025 to March 2026.

GROWTH OF UPI

The Unified Payments Interface has become the backbone of India's digital payment ecosystem. Since its launch, UPI has witnessed exceptional growth due to its user-friendly interface, real-time transaction capabilities, interoperability among banks, and widespread merchant acceptance. The number of banks participating in the UPI network increased from 668 in April 2025 to 705 in March 2026, reflecting the growing confidence of financial institutions in the platform.

Similarly, transaction volume increased from 17,893.42 million transactions in April 2025 to 22,641.11 million transactions in March 2026, while transaction value increased from ₹23,94,925.87 crore to ₹29,52,542.05 crore during the same period. The substantial growth in both transaction volume and value highlights increasing consumer trust and widespread adoption of digital payments. The expansion of digital infrastructure, improved internet connectivity, smartphone penetration, and supportive government policies have significantly contributed to this growth. UPI has not only simplified financial transactions but also promoted financial inclusion and reduced dependence on cash transactions across the country.

REVIEW OF LITERATURE

Microfinance and financial inclusion have long been considered important mechanisms for improving the socio-economic conditions of low-income households. By providing access to financial services such as credit, savings, and thrift schemes, microfinance institutions support economically disadvantaged populations, particularly in rural and semi-urban regions. These financial services contribute to income generation, employment creation, poverty alleviation, and enhanced living standards. Furthermore, microfinance plays a significant role in empowering vulnerable groups of women, including widows, divorced women, and women with disabilities, by promoting financial independence and social inclusion (Anandaraman, 2012).

The rapid advancement of information and communication technologies has transformed the financial services sector, leading to a gradual shift from conventional cash-based transactions to digital payment methods. India has experienced remarkable growth in its digital payment infrastructure, progressing from a predominantly cash-driven economy toward a digitally enabled payment ecosystem. The increasing adoption of debit cards, mobile payment applications, digital wallets, and prepaid payment instruments has significantly accelerated the growth of electronic transactions, positioning India among the leading digital payment markets globally (Mahesh & Bhat, 2022).

The widespread availability of internet connectivity, growing penetration of smartphones, and government efforts to establish a digitally empowered society have further facilitated the adoption of cashless payment systems. Research indicates that demographic characteristics such as age, gender, educational qualification, and employment status influence consumers' preferences, perceptions of security, and satisfaction levels regarding digital payment services (Jayaraj & Bhat, 2024).

The development of online payment platforms has revolutionized the execution of financial transactions across the world. Digital payment systems offer numerous advantages, including convenience, speed, accessibility, and operational efficiency. At the same time, they present various opportunities and challenges for businesses, consumers, and financial institutions operating in the digital economy (Mythili & Kanimozhi, 2024). In India, the rapid increase in internet usage and smartphone ownership has substantially enhanced the adoption of digital payment technologies. Government initiatives, particularly the Digital India programme, have played a pivotal role in promoting electronic payments through internet banking, mobile banking, and card-based transaction systems (Rajeswari, Pirakatheeswari, & Vadivel, 2021).

Despite these benefits, the expansion of digital payment systems has raised concerns

regarding cyber security and financial fraud. As the volume and value of electronic transactions continue to increase, users are becoming more vulnerable to cyberattacks, data breaches, and fraudulent activities, highlighting the need for robust security frameworks and consumer awareness (Sharma, Gallani, & Maheria, 2024).

External events have also influenced the growth of digital payments. The COVID-19 pandemic served as a catalyst for digital payment adoption, particularly during periods of lockdown and restricted mobility. Many individuals who had previously relied on cash transactions began using digital payment platforms for the first time. Factors such as awareness of digital payment options, access to smartphones, possession of debit cards, and direct government benefit transfers significantly contributed to this behavioural shift (Saroy et al., 2022).

Government-led financial inclusion programmes have further strengthened the digital payment ecosystem. Initiatives such as the Pradhan Mantri Jan Dhan Yojana (PMJDY) have expanded access to banking services among previously unbanked populations and facilitated the delivery of government benefits through digital channels (Ravichendran, 2024). Additionally, digital payment systems contribute to broader economic development by reducing dependence on cash transactions, enhancing transparency, improving economic efficiency, and supporting financial stability within the economy (Ravikumar et al., 2019).

From a business perspective, digital payment adoption also influences access to credit. The digital transaction records generated through payment platforms improve financial transparency and enable financial institutions to assess the creditworthiness of small and medium-sized enterprises more effectively (Premathilaka, 2024). Moreover, technological innovations in the banking industry, including Automated Teller Machines (ATMs), Magnetic Ink Character Recognition (MICR), stored-value cards, and digital wallets, have strengthened the efficiency, reliability, and accessibility of payment systems (Jerath, 2022).

STATEMENT OF THE PROBLEM

Digital payment systems have become an integral component of India's financial ecosystem. Among these systems, UPI has emerged as the most widely used platform for digital transactions. Although UPI has experienced remarkable growth in recent years, there remains a need to understand whether the expansion of UPI infrastructure directly contributes to the growth in transaction volume and value. The increasing number of participating banks suggests enhanced accessibility and service availability; however, the extent to which this infrastructure expansion influences transaction activity requires empirical examination. Furthermore, understanding the growth pattern of UPI transactions is important for policymakers, financial institutions, and technology providers seeking to strengthen digital payment adoption. Therefore, this study attempts to analyse the expansion of UPI infrastructure and assess its impact on transaction volume and transaction value in India.

OBJECTIVES OF THE STUDY

1. To examine the growth of UPI infrastructure in terms of the number of banks participating in the UPI ecosystem.
2. To analyse the impact of UPI infrastructure expansion on digital transaction volume and transaction value in India.

RESEARCH METHODOLOGY

The present study is descriptive and analytical in nature. The study is based entirely on secondary data collected from the official publications and statistical reports of the National Payments Corporation of India (NPCI). Data relating to the number of banks live on UPI, transaction volume, and transaction value were collected for the period from April 2025 to March 2026. To evaluate the growth and performance of UPI, various statistical tools such as Mean, Standard Deviation (SD), Compound Annual Growth Rate (CAGR), and Month-on-Month (MoM) growth rates were employed. These tools were used to measure growth trends, variability, and overall performance of the UPI ecosystem during the study period. The collected data were organised, tabulated, and interpreted systematically to derive meaningful conclusions regarding

the relationship between UPI infrastructure expansion and digital transaction growth. The findings provide valuable insights into the effectiveness of UPI as a digital payment platform in India.

ANALYSIS AND INTERPRETATION

Table 1
Number of Banks Live on UPI

Month	No. of Banks Live on UPI
April-2025	668
May-2025	673
June-2025	675
July-2025	684
August-2025	688
September-2025	686
October-2025	683
November-2025	684
December-2025	685
January-2026	691
February-2026	694
March-2026	705

Source: <https://www.npci.org.in/product/upi/product-statistics>

The number of banks operating on the UPI platform exhibited a steady upward trend from April 2025 to March 2026. The number increased from 668 banks in April 2025 to 705 banks in March 2026, reflecting the continuous expansion of the UPI ecosystem. The average number of participating banks was 684.67, indicating widespread institutional adoption of digital payment infrastructure. The standard deviation of 10.24 suggests relatively low variability in bank participation throughout the study period. Furthermore, the 5.54 per cent CAGR indicates sustained annual growth in the number of banks, highlighting increasing confidence in and integration of UPI services across the banking sector.

Table 2
Growth of UPI transactions in volume

Month	Volume (Mn.)	MoM Growth (%)
April-2025	17,893.42	-
May-2025	18,677.46	4.38
June-2025	18,395.01	-1.51
July-2025	19,467.95	5.83
August-2025	20,008.31	2.78
September-2025	19,633.43	-1.87
October-2025	20,700.92	5.44
November-2025	20,466.98	-1.13
December-2025	21,634.67	5.71
January-2026	21,703.44	0.32
February-2026	20,394.18	-6.03
March-2026	22,641.11	11.02
Mean (%)	2.27	
S.D. (%)	4.81	
CAGR (%)	26.53	

Source: <https://www.npci.org.in/product/upi/product-statistics>

The volume of UPI transactions demonstrated significant growth during the study period, increasing from 17,893.42 million transactions in April 2025 to 22,641.11 million transactions in

March 2026. The average month-on-month growth rate was 2.27 percent, indicating a consistent increase in transaction activity. However, the standard deviation of 4.81 percent suggests moderate fluctuations in transaction volume across different months. The highest growth was recorded in March 2026 (11.02%), while February 2026 experienced a decline of 6.03 percent. The CAGR of 26.53 percent highlights the rapid expansion of digital payment adoption and increasing consumer reliance on UPI-based transactions.

TABLE 3
GROWTH OF UPI TRANSACTIONS IN VALUE

Month	Value (₹ Crore)	MoM Growth (%)
April-2025	23,94,925.87	-
May-2025	25,14,297.01	4.98
June-2025	24,03,930.69	-4.39
July-2025	25,08,498.09	4.35
August-2025	24,85,472.91	-0.92
September-2025	24,89,736.54	0.17
October-2025	27,27,790.68	9.56
November-2025	26,31,632.63	-3.53
December-2025	27,96,712.73	6.27
January-2026	28,33,481.22	1.31
February-2026	26,84,229.29	-5.27
March-2026	29,52,542.05	10.00
Mean (%)	2.05	
S.D. (%)	5.39	
CAGR (%)	23.29	

Source: <https://www.npci.org.in/product/upi/product-statistics>

The value of UPI transactions exhibited substantial growth throughout the period, rising from ₹23,94,925.87 crore in April 2025 to ₹29,52,542.05 crore in March 2026. The average monthly growth rate was 2.05 per cent, indicating a positive trend in the monetary value of digital transactions. The standard deviation of 5.39 per cent reveals comparatively higher volatility than transaction volume, reflecting fluctuations in transaction amounts. The highest growth was observed in March 2026 (10.00%), while February 2026 registered a decline of 5.27 percent. The CAGR of 23.29 per cent confirms strong long-term growth, demonstrating increasing consumer confidence and widespread acceptance of UPI as a preferred digital payment system.

FINDINGS

The study reveals significant growth in the UPI ecosystem during the period under investigation. The number of banks participating in UPI increased from 668 in April 2025 to 705 in March 2026, registering a CAGR of 5.54 percent. This indicates the continuous expansion of digital payment infrastructure and increasing institutional participation. The transaction volume exhibited substantial growth, increasing from 17,893.42 million transactions to 22,641.11 million transactions, with a CAGR of 26.53 percent. The average monthly growth rate in transaction volume was 2.27 percent, indicating increasing consumer adoption of digital payment systems. Similarly, transaction value increased from ₹23,94,925.87 crore to ₹29,52,542.05 crore, registering a CAGR of 23.29 percent. The average monthly growth rate was 2.05 percent. Although occasional fluctuations were observed, the overall trend remained positive. The findings confirm that the expansion of UPI infrastructure has positively influenced both transaction volume and transaction value, thereby strengthening India's digital payment ecosystem.

SUGGESTIONS

To sustain the rapid growth of UPI and further strengthen India's digital payment ecosystem, several measures may be considered. First, policymakers should encourage greater participation of regional and cooperative banks in the UPI network to improve financial inclusion in underserved areas. Second, digital literacy programmes should be expanded to educate users

regarding the benefits, usage, and security aspects of digital payment systems. Third, financial institutions should strengthen cybersecurity measures to minimize fraud risks and enhance consumer confidence. Fourth, continuous technological innovation and infrastructure upgrades are necessary to handle increasing transaction volumes efficiently. Fifth, internet connectivity in rural and remote areas should be improved to facilitate broader access to digital payment services. Additionally, incentives such as cashback offers, merchant rewards, and awareness campaigns can encourage more consumers and businesses to adopt UPI-based transactions. These initiatives will contribute to the long-term sustainability and growth of digital payments in India.

CONCLUSION

The study concludes that the expansion of UPI infrastructure has played a vital role in accelerating the growth of digital transactions in India. The increasing number of participating banks has enhanced the accessibility and reach of the UPI ecosystem, enabling consumers and businesses to perform transactions efficiently and conveniently. The substantial growth in transaction volume and value demonstrates growing public confidence in digital payment systems and reflects the success of government initiatives aimed at promoting a cashless economy. Although minor fluctuations were observed during certain months, the overall trend remained strongly positive. The findings highlight that UPI has emerged as a powerful driver of financial inclusion, digital transformation, and economic modernisation. Continued investments in digital infrastructure, cybersecurity, and financial literacy will further strengthen the UPI ecosystem and support India's transition toward a more inclusive, efficient, and technology-driven financial system.

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A COMPARATIVE ANALYSIS OF PM-KISAN BENEFICIARIES AND CROP INSURANCE COVERAGE UNDER PMFBY AND RWBCIS IN INDIA

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ABSTRACT

Agriculture remains the backbone of the Indian economy, supporting the livelihood of a large proportion of the population. To strengthen farmers' financial security and reduce agricultural risks, the Government of India introduced several welfare schemes, including the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) and the Pradhan Mantri Fasal Bima Yojana (PMFBY) along with the Restructured Weather Based Crop Insurance Scheme (RWBCIS). The present study analyzes the state-wise performance of PM-KISAN beneficiaries from 2018-19 to 2023-24 and the coverage of farmers insured under PMFBY and RWBCIS during 2016-17 to 2022-23. Secondary data collected from official government publications and PIB reports were used for the analysis. The study reveals that PM-KISAN significantly expanded its coverage, reaching more than 10 crore beneficiaries annually, while PMFBY and RWBCIS insured over 4,846 lakh farmers across India. States such as Uttar Pradesh, Maharashtra, Rajasthan, and Madhya Pradesh emerged as major beneficiaries under both schemes

KEYWORDS: PM-KISAN, PMFBY, RWBCIS, Farmers Welfare, Crop Insurance, Agricultural Development

INTRODUCTION

Agriculture plays a vital role in India's economic development, food security, and employment generation. Despite its significance, farmers face numerous challenges such as fluctuating market prices, natural calamities, climate change, and inadequate financial resources. To address these challenges, the Government of India has launched several farmer-centric welfare schemes. The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme was introduced in 2019 to provide direct income support of ₹6,000 annually to eligible farmer families. Similarly, the Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructured Weather Based Crop Insurance Scheme (RWBCIS) were implemented to protect farmers from crop losses arising from natural disasters and adverse weather conditions. Both schemes aim to enhance farmers' financial stability and reduce agricultural risks. Therefore, evaluating the performance and coverage of these schemes across different states is essential to understand their effectiveness in improving farmers' welfare.

STATEMENT OF THE PROBLEM

Indian farmers continue to face income instability and production risks due to unpredictable climatic conditions and increasing cultivation costs. Although PM-KISAN provides direct income support and PMFBY/RWBCIS offer insurance protection, disparities exist in their implementation and coverage across states. There is a need to assess the extent of beneficiary coverage and insurance participation to understand whether these schemes have effectively reached the intended farming population. Hence, the study attempts to analyze and compare the

performance of PM-KISAN and crop insurance schemes in India.

SCOPE OF THE STUDY

1. State-wise PM-KISAN beneficiaries from FY 2018-19 to FY 2023-24.
2. State-wise farmers insured under PMFBY and RWBCIS from 2016-17 to 2022-23.
3. Comparative analysis of beneficiary and insurance coverage across states.
4. Examination of the role of government support schemes in agricultural risk management.

OBJECTIVES OF THE STUDY

1. To analyse the state-wise and year-wise beneficiaries under PM-KISAN.
2. To examine the state-wise coverage of farmers insured under PMFBY and RWBCIS.
3. To compare the performance of PM-KISAN and crop insurance schemes across states.

RESEARCH METHODOLOGY

Nature of Study: Descriptive and Analytical Research.

Sources of Data: The study is based entirely on secondary data collected from Ministry of Agriculture and Farmers Welfare, Press Information Bureau (PIB), PM-KISAN official reports, PMFBY official reports, Government publications and annual reports

REVIEW OF LITERATURE:

Acharya Balkrishna., & Et al. (2021). India has 1.38 billion population and more than half of the populace are engaged in agriculture for their employment. To meet financial requirement of farmers to procure inputs for better crop health and productivity, Indian Government has launched Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme in 2018. This review aims to study the implementation goals and benefits provided to the farmers under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme.

Kavitha. H.N., & Et al. (2021). The PMKISAN scheme has been implemented from 1st December 2018 with income support of Rs. 6000/- per farm family in three installments of Rs 2000/- each in the beginning of crop season. The beneficiaries of PMKISAN in Karnataka are using higher inputs for ragi cultivation. The resultant effect is increase in yield and income. The B:C ratio of ragi enterprise is higher among the beneficiary farmers as compared to non-beneficiary farmers.

Kumar, Deepak, & Sunil Phogat. (2021). Agriculture is the backbone of the Indian economy. A large segment of the Indian population is dependent on the agriculture and its allied activities for their livelihood. The government of India always tries to uplift the agriculture sector by introducing numerous schemes from time-to-time, PM-Kisan Samman Nidhi Scheme is one of them.

Eahambaram.C., & Et al. (2022). The Pradhan Mantri Kisan Samman Nidhi (PM-Kisan) scheme was introduced in India with the aim of providing direct income support to small and marginal farmers. This study examines the perceptions and impacts of the PM-Kisan scheme on its beneficiaries. Utilizing a mixed-methods approach, including surveys, interviews, and focus group discussions, data was collected from a representative sample of beneficiaries across various regions.

Priya Kumari., & Suman Dahiya. (2022). The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme is funded entirely by the Indian government to provide guaranteed monetary assistance to all eligible farmers. The purpose of the existing study is to determine the factors that influence farmer adoption of the PM-KISAN scheme, as well as to examine the spending patterns of the benefits received by farmers and also to evaluate the scheme's performance.

Reshmi Sengupta., & Debasis Rooj. (2022). Pradhan Mantri Krishi Samman Nidhi Yojna (PM-KISAN) is a Government of India (GoI) initiative to provide financial assistance to farmers. Its objective is to stabilize farmers' income and support their financial requirements to invest in productive activities, including agricultural inputs. Each year, the government gives ₹6,000 to eligible farmers in three equal instalments of ₹2,000 each; the amount is transferred directly into farmers' bank accounts.

Vasudev Naik., & Et al. (2022). The present study was undertaken with an overall objective to analyse the performance of PM Kisan Samman Nidhi Yojana by estimating the number of beneficiaries covered, fund disbursed, utilization pattern of fund disbursed under the scheme, source of awareness about the scheme and constraints faced by the beneficiaries in availing the benefits. The study was conducted in Kalyan Karnataka region during 2020-21.

Prantik Bordoloi Prantik Bordoloi., & Et al. (2023). The PM-KISAN is a central sector scheme under the Govt. of India which aims to provide income supports to farmers to facilitate timely access to agricultural inputs. The cash benefits under this scheme under enhance the financial capacity of the beneficiaries to invest in the agriculture and in the acquisition of modern techniques in agriculture. The families and households who are highly dependent on agriculture and have poor access to credits get more

benefits from the scheme.

Bhaskar Ghosh., & Et al. (2024). Direct Benefit Transfer (DBT) plays a crucial role in tackling widespread corruption and interference from middlemen, which often obstruct policy measures from reaching their intended recipients in developing countries like India. The PM-KISAN (Pradhan Mantri Kisan Samman Nidhi) scheme, a key initiative by the Indian government, aims to offer financial support to small and marginal farmers. However, the scheme encounters several implementation challenges that diminish its effectiveness.

AM Chava., & Et al. (2025). The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme is a landmark direct benefit transfer initiative aimed at supporting small and marginal farmers in India. This study explores the perceptions of farmers regarding the scheme in Ahilyanagar district, Maharashtra, using an ex-post facto research design and primary data from 150 randomly selected beneficiaries. Findings reveal that lack of awareness about the e-KYC process (64.67%) and insufficient financial assistance (59.33%) are the most significant constraints.

Sivasakthi. D., & Kavya. S. (2025). The perception of the PM-KISAN scheme by farmers in Tirupur brings to light its beneficial role in the economic status of farmers as well as significant challenges to be addressed. The majority of respondents recognize the scheme's pivotal financial assistance, facilitating investment in agriculture and home needs. However, delays in payment, difficulty in registration, and insufficient financial support are the areas of concern.

Subhi Jain., & Jyoti Kumari Mishra. (2025). the foundation of the Indian economy is agriculture, and farmers are essential to rural development and sustainable food systems. Under the Pradhan Mantri Kisan Samman Nidhi Yojana, which was introduced by the Indian government to give small and marginal farmers direct income assistance, farmers receive ₹ 6000 per year in three equal installments.

Mohit Singh., & Et al. (2026). The present study was conducted during the year 2024–25 in the Hardoi district of Uttar Pradesh to assess the fund utilization patterns among Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme beneficiaries. Data were collected from 160 beneficiaries through a structured personal interview schedule.

Table No – 1
State-Wise, Year-Wise Details of Beneficiaries Under PM-KISAN as on Date

S. No	State/UT	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24 (till 31 July 2023)
		No. of Beneficiaries	No. of Beneficiaries	No. of Beneficiaries	No. of Beneficiaries	No. of Beneficiaries	No. of Beneficiaries
1	Andhra Pradesh	33,16,854	50,31,470	49,45,845	46,18,283	47,82,509	41,35,131
2	Assam	11,55,408	27,24,021	19,02,296	16,69,706	9,17,349	8,75,203
3	Bihar	2,50,812	62,13,753	77,45,589	82,93,339	83,54,595	75,66,322
4	Chhattisgarh	1,13,042	21,20,833	30,14,415	32,56,736	29,45,209	20,24,062
5	Goa	2,439	8,730	9,680	9,451	9,118	5,663
6	Gujarat	28,59,550	51,89,570	56,69,073	58,84,289	59,61,296	45,17,823
7	Haryana	9,66,454	16,51,975	18,77,573	18,85,795	18,62,362	15,36,690
8	Himachal Pradesh	4,57,032	8,86,568	9,18,875	9,51,384	9,46,568	7,38,113
9	Jammu and Kashmir	4,57,861	9,89,801	11,49,567	11,19,284	11,07,064	7,31,489
10	Jharkhand	5,63,642	15,07,690	23,82,894	17,85,101	22,61,419	13,02,842
11	Karnataka	19,872	50,79,278	53,84,844	53,10,984	51,89,062	49,34,483
12	Kerala	9,57,982	29,47,160	34,88,754	35,58,098	34,97,724	23,40,980
13	Madhya Pradesh	9,288	65,53,531	82,72,406	85,42,655	85,39,843	76,42,635

14	Maharashtra	21,84,073	92,38,725	1,08,22,008	1,05,36,980	1,04,51,126	85,60,082
15	Odisha	9,73,860	36,10,474	25,55,023	33,02,891	33,88,102	26,93,118
16	Punjab	11,81,206	23,14,347	19,09,417	17,75,305	17,07,198	8,56,639
17	Rajasthan	64,977	56,32,554	67,66,430	73,27,319	72,59,624	56,88,783
18	Tamil Nadu	21,61,268	37,50,066	44,58,723	37,81,819	32,29,940	20,95,315
19	Telangana	20,27,893	35,24,059	36,38,250	36,52,568	35,81,172	29,50,888
20	Uttar Pradesh	1,11,93,799	2,03,92,039	2,35,75,708	2,45,56,300	2,42,98,615	1,86,53,967
21	Uttarakhand	4,15,409	7,59,942	8,62,054	8,97,748	9,00,557	7,59,553
22	West Bengal	-	-	-	46,44,261	48,69,233	44,70,797
	Sub-Total:	3,13,32,721	9,01,26,586	10,13,49,424	10,73,60,296	10,60,59,685	8,50,80,578
	Other States/UTs Total:	2,82,864	9,86,388	14,22,374	12,09,622	11,03,920	5,81,895
	Grand Total:	3,16,15,585	9,11,12,974	10,27,71,798	10,85,69,918	10,71,63,605	8,56,62,473

Source: <https://www.pib.gov.in>

Table No. 1 shows the state-wise and year-wise distribution of beneficiaries under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme from FY 2018-19 to FY 2023-24 (up to 31 July 2023). The total number of beneficiaries increased significantly from 3.16 crore in FY 2018-19 to 10.86 crore in FY 2021-22, indicating the rapid expansion and successful implementation of the scheme across the country. However, the number of beneficiaries slightly declined to 10.72 crore in FY 2022-23 and further to 8.57 crore in FY 2023-24 (up to July 2023), mainly due to beneficiary verification, data cleansing, and the partial-year reporting period. Among the states, Uttar Pradesh consistently recorded the highest number of beneficiaries throughout the study period, increasing from 1.12 crore in FY 2018-19 to 2.46 crore in FY 2021-22, before declining to 1.87 crore in FY 2023-24. Maharashtra, Madhya Pradesh, Bihar, Rajasthan, and Gujarat also accounted for a substantial share of beneficiaries, reflecting their large agricultural populations. Maharashtra crossed one crore beneficiaries during FY 2020-21 and FY 2021-22, making it the second-largest beneficiary state after Uttar Pradesh. Several states such as Andhra Pradesh, Telangana, Karnataka, Kerala, and Tamil Nadu maintained a consistently high number of beneficiaries, although a gradual decline is visible in the later years due to eligibility verification and Aadhaar-based authentication processes. West Bengal did not report beneficiaries until FY 2020-21 but joined the scheme in FY 2021-22 with 46.44 lakh beneficiaries, which increased further in FY 2022-23. Smaller states and Union Territories such as Goa, Himachal Pradesh, Uttarakhand, and Jammu & Kashmir reported comparatively lower beneficiary numbers because of their smaller farming populations. Assam and Punjab witnessed a noticeable decline in beneficiary numbers during the later years, suggesting stricter validation procedures and updating of beneficiary records.

Table No - 2
The State-Wise details of Total Number of Farmers Insured
Under PMFBY and RWBCIS (2016-17 to 2022-23) as on 30.06.2023

S. No.	State/UT Name	Total Farmers Insured (in Lakhs)
1.	A & N Islands	0.025
2.	Andhra Pradesh	182.330
3.	Assam	43.828
4.	Bihar	50.173

5.	Chhattisgarh	272.626
6.	Goa	0.031
7.	Gujarat	83.948
8.	Haryana	103.973
9.	Himachal Pradesh	20.570
10.	Jammu & Kashmir	4.956
11.	Jharkhand	44.620
12.	Karnataka	151.629
13.	Kerala	5.702
14.	Madhya Pradesh	655.813
15.	Maharashtra	846.143
16.	Manipur	0.290
17.	Meghalaya	0.052
18.	Odisha	366.248
19.	Puducherry	1.074
20.	Rajasthan	1184.557
21.	Sikkim	0.068
22.	Tamil Nadu	271.406
23.	Telangana	36.363
24.	Tripura	9.755
25.	Uttar Pradesh	360.094
26.	Uttarakhand	15.252
27.	West Bengal	134.906
	GRAND TOTAL	4846.432

Source: <https://www.pib.gov.in>

Table No. 2 presents the state-wise total number of farmers insured under the Pradhan Mantri Fasal Bima Yojana (PMFBY) and the Restructured Weather Based Crop Insurance Scheme (RWBCIS) during the period from 2016-17 to 2022-23, as on 30 June 2023. The data reveal that a total of 4,846.43 lakh farmers were insured under these crop insurance schemes across India, reflecting the extensive reach of the government's agricultural risk management initiatives. Among all the states, Rajasthan recorded the highest number of insured farmers with 1,184.56 lakh, accounting for a significant share of the total insured farmers. This was followed by Maharashtra with 846.14 lakh farmers and Madhya Pradesh with 655.81 lakh farmers. These states are characterized by large agricultural areas and substantial participation in crop insurance programs, highlighting the importance of risk coverage for farmers in regions prone to climatic uncertainties. Other states with considerable insurance coverage include Odisha (366.25 lakh), Uttar Pradesh (360.09 lakh), Chhattisgarh (272.63 lakh), and Tamil Nadu (271.41 lakh). The high participation levels in these states indicate greater awareness and adoption of crop insurance schemes among farmers. Andhra Pradesh (182.33 lakh) and Karnataka (151.63 lakh) also recorded substantial numbers of insured farmers, demonstrating the significance of PMFBY and RWBCIS in safeguarding agricultural livelihoods. In contrast, smaller states and Union Territories such as Andaman and Nicobar Islands (0.03 lakh), Goa (0.03 lakh), Meghalaya (0.05 lakh), Sikkim (0.07 lakh), and Manipur (0.29 lakh) reported very low numbers of insured farmers, mainly due to their limited agricultural area and smaller farming populations. Similarly, Jammu & Kashmir (4.96 lakh) and Kerala (5.70 lakh) recorded comparatively lower participation levels. The data indicate significant interstate variations in the adoption of crop insurance schemes. States with larger agricultural sectors and greater exposure to weather-related risks have shown higher enrollment under PMFBY and RWBCIS.

MAJOR FINDINGS

1. PM-KISAN beneficiaries increased from 3.16 crore in FY 2018-19 to 10.86 crore in FY 2021-22.

2. Beneficiary numbers declined slightly during FY 2022-23 and FY 2023-24 due to Aadhaar verification and beneficiary validation.
3. Uttar Pradesh recorded the highest PM-KISAN beneficiaries throughout the study period.
4. Maharashtra, Madhya Pradesh, Bihar, Rajasthan, and Gujarat also reported substantial beneficiary coverage.
5. Under PMFBY and RWBCIS, a total of 4,846.43 lakh farmers were insured during 2016-17 to 2022-23.
6. Rajasthan recorded the highest number of insured farmers (1,184.56 lakh).
7. Maharashtra and Madhya Pradesh ranked second and third in crop insurance coverage.
8. States with large agricultural sectors showed greater participation in both schemes.
9. Smaller states and Union Territories reported comparatively lower coverage due to limited farming populations.
10. Significant interstate disparities exist in both income support and crop insurance participation.

SUGGESTIONS

1. Increase awareness campaigns regarding PM-KISAN and crop insurance schemes.
2. Simplify beneficiary registration and claim settlement procedures.
3. Strengthen digital infrastructure for faster verification and fund transfer.
4. Improve insurance coverage among small and marginal farmers.
5. Enhance coordination between state governments and implementing agencies.
6. Conduct regular beneficiary audits to ensure transparency.
7. Promote financial literacy and insurance awareness among farmers.
8. Introduce region-specific strategies to increase enrollment in low-performing states.

CONCLUSION

The study concludes that PM-KISAN and PMFBY/RWBCIS have played a significant role in improving the financial security of Indian farmers. PM-KISAN has emerged as one of the largest direct income support programs, while PMFBY and RWBCIS have provided substantial crop risk protection. States such as Uttar Pradesh, Maharashtra, Rajasthan, and Madhya Pradesh have demonstrated remarkable participation under these schemes. However, disparities across states indicate the need for enhanced awareness, administrative efficiency, and policy support. Strengthening these initiatives will contribute significantly to sustainable agricultural development, income stability, and farmers' welfare in India.

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PROGRESS OF FINTECH AND ITS IMPACT ON THE GLOBAL AND INDIAN FINANCIAL SECTORS

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ABSTRACT

Financial Technology (FinTech) has significantly transformed the global and Indian financial sectors by enhancing the accessibility, efficiency, and convenience of financial services. This study examines the progress of FinTech and its impact on financial inclusion, technological adoption, digital accessibility, and regulatory support. The study is based on primary data collected from 176 respondents through a structured questionnaire and secondary data obtained from journals, reports, and official publications. Statistical tools such as Percentage Analysis, Mean Score Analysis, and One-Sample t-Test were used for data analysis. The findings reveal that FinTech has improved financial inclusion, reduced transaction time, promoted cashless transactions, and enhanced customer satisfaction. The study also highlights the growing adoption of technologies such as Artificial Intelligence, Blockchain, and Cloud Computing by financial institutions. However, challenges such as cybersecurity risks, privacy concerns, and digital literacy issues remain. The study concludes that FinTech plays a crucial role in modernizing financial services and supporting economic growth.

Key Words: Fintech, UPI, AI, Digital Public Infrastructure, Aadhaar.

INTRODUCTION

Financial technology, or "FinTech," has emerged as a seismic force transforming the global financial services landscape by leveraging technology to improve, automate, and democratize financial services. This rapid evolution has moved beyond traditional banking, with global Fintech revenue expected to reach USD 1.5 trillion by 2030, and India emerging as a global leader with an 87% adoption rate, far exceeding the 64% global average. FinTech has revolutionized access to finance for the underbanked, particularly through mobile money, digital lending, and microinsurance.

Traditional financial institutions are shifting from viewing FinTech as a disruptor to an enabler, adopting AI, machine learning, and cloud computing to enhance efficiency, reduce operating costs, and improve customer experience. The Unified Payments Interface (UPI) has set global standards, with transaction volumes growing over 56% in late 2023. Digital lending has also expanded significantly, with FinTechs originating 89% of small-ticket personal loans by count in 2024. As Finance Minister Nirmala Sitharaman gears up to the Narendra Modi-led NDA government's 11th Budget in July, the nation awaits with bated breath, hope, and expectation. While the Indian economy has recovered from the aftershocks of Covid, registering a GDP growth of 8.2% in the financial year 2023-2024 (FY), there is considerable anticipation after precursor that the Budget would be an "effective document of the government's far-reaching policies and futuristic vision" of a prosperous India or Viksit Bharat.

KEY TECHNOLOGIES FUELLING INDIA'S FINTECH GROWTH:

India's fintech industry is powered by innovative technologies that enhance efficiency, security, and accessibility. These advancements are reshaping digital banking platforms, and financial inclusion, driving growth in the global fintech sector.

Unified Payments Interface (UPI)

UPI is the foundational, revolutionary technology in Indian fintech, enabling instant, interoperable, and low-cost transactions.

Impact: It has transformed India into the world's leader in real-time payments, with over 12 billion transactions processed monthly by 2025.

Evolution: Beyond P2P, UPI now supports credit card linkages (RuPay), "scan and pay" QR codes, and offline payments, expanding its reach into rural and tier-II/III cities.

The 'India Stack' (Digital Public Infrastructure)

A set of APIs that allows governments, businesses, and startups to utilize a unique digital infrastructure.

Aadhaar (Digital ID): Enables e-KYC for instant, paperless customer onboarding.

Account Aggregator (AA) Framework: Facilitates secure, consent-based sharing of financial data, which is critical for streamlining digital lending.

Data Empowerment and Protection Architecture (DEPA): Ensures secure data sharing, enhancing trust in digital transactions.

Artificial Intelligence (AI) and Machine Learning (ML)

AI/ML is central to improving operational efficiency and personalizing financial products.

Lending & Credit Scoring: Fintechs use AI to analyze alternative data (transaction history, utility payments) to evaluate creditworthiness for underserved segments, boosting the \$515 billion digital lending market.

Fraud Detection & Security: AI-powered tools provide real-time fraud monitoring, securing transactions and building trust.

Hyper-personalization: Robo-advisors and virtual assistants (chatbots) provide personalized financial advisory and 24/7 customer support.

REVIEW OF LITERATURE

Arner, Barberis and Buckley (2016) examined the evolution of FinTech and identified three major phases of financial innovation. The study highlighted how technological advancements transformed traditional banking services into digital platforms. The authors concluded that FinTech has increased financial efficiency, reduced transaction costs, and improved customer accessibility. However, regulatory challenges remain a significant concern for policymakers worldwide.

Philippon (2016) analysed the efficiency of financial intermediation in the digital era. The study found that FinTech innovations have enhanced financial service delivery by reducing operational costs and increasing transparency. The research emphasized that digital financial technologies can improve competition within the financial sector and provide better services to consumers.

Lee and Shin (2018) explored the FinTech ecosystem, including startups, technology developers, regulators, and financial institutions. The study revealed that collaboration between traditional banks and FinTech firms has accelerated innovation in financial services. The authors concluded that FinTech contributes significantly to economic growth by improving financial inclusion and promoting digital transactions.

Fuster, Plosser, Schnabl and Vickery (2019) investigated the impact of FinTech on lending practices. Their findings indicated that digital lending platforms improve loan accessibility and processing speed while maintaining credit quality. The study highlighted that FinTech-based lending models can enhance financial inclusion, especially among underserved populations.

Thakor (2020) examined the relationship between FinTech and banking institutions. The study found that FinTech companies have reshaped traditional banking operations by introducing

innovative financial products and services. The research concluded that banks adopting digital technologies are better positioned to remain competitive in the rapidly changing financial environment.

Gupta and Xia (2018) analysed the role of FinTech in promoting financial inclusion. The study reported that digital payment systems and mobile banking services have expanded financial access among low-income and rural populations. The authors emphasized that FinTech can bridge the gap between formal financial institutions and financially excluded communities.

Narayan and Sahminan's (2018) study focused on the influence of FinTech innovations on economic development. The researchers found that digital financial services stimulate economic activities by facilitating faster transactions and increasing financial participation. The study concluded that FinTech serves as a catalyst for sustainable economic growth in developing countries.

Sinha and Kaur (2020) examined the adoption of FinTech services in India following the digital transformation initiatives of the government. The study found that digital wallets, mobile banking, and Unified Payments Interface (UPI) significantly increased the usage of digital financial services. The authors concluded that FinTech has played a crucial role in strengthening India's digital economy.

Patil and Kulkarni (2021) investigated customer perceptions regarding FinTech services in the Indian banking sector. The findings revealed that convenience, speed, and ease of use were the primary factors driving FinTech adoption. The study also identified cybersecurity concerns and digital literacy issues as major barriers affecting user acceptance.

Sharma and Gupta (2022) studied the impact of FinTech on financial inclusion in rural India. The research found that mobile banking applications and digital payment platforms have significantly improved access to financial services among rural populations. The authors concluded that FinTech has the potential to reduce regional disparities in financial access, provided that adequate digital infrastructure and awareness programs are implemented.

OBJECTIVES OF THE STUDY

To examine how fintech bridges the gap for unbanked and underserved populations in rural and remote areas.

To evaluate how traditional financial institutions are adopting technology (AI, blockchain, cloud computing) to improve operational efficiency and reduce costs.

To assess the shift toward user-friendly digital platforms, 24/7 accessibility, and personalized financial services.

To understand the role of regulatory bodies (like RBI in India) in balancing innovation with security, data privacy, and risk management.

HYPOTHESIS OF THE STUDY

H01: There is no significant difference between male and female respondents regarding their perception of FinTech.

H02: Age group has no significant association with respondents' perception of FinTech.

H03: Educational qualification does not significantly influence FinTech adoption.

H04: Monthly income has no significant influence on FinTech usage.

STATEMENT OF THE PROBLEM

Financial Technology (FinTech) has emerged as a transformative force in the global and Indian financial sectors, revolutionizing the way financial services are delivered and accessed. The rapid adoption of digital payment systems, mobile banking, artificial intelligence, blockchain technology, and cloud computing has significantly enhanced the efficiency, accessibility, and convenience of financial services. In India, initiatives such as Unified Payments Interface (UPI), Aadhaar-enabled services, and digital lending platforms have accelerated financial inclusion and promoted a cashless economy. Despite these advancements, several challenges continue to hinder the widespread adoption of FinTech services. Issues such as cybersecurity threats, data privacy concerns, lack of digital literacy, inadequate technological infrastructure in rural areas, and

regulatory complexities affect users' trust and participation in digital financial services. Furthermore, while traditional financial institutions increasingly adopt technological innovations to improve operational efficiency, the extent of their effectiveness and impact on customer satisfaction requires further examination. There is also a need to understand how regulatory bodies such as the Reserve Bank of India (RBI) balance innovation with security and risk management. Therefore, this study seeks to analyse the progress of FinTech and its impact on the global and Indian financial sectors, focusing on financial inclusion, technological adoption, digital accessibility, and regulatory support among users.

RESEARCH METHODOLOGY

The present study is descriptive and analytical in nature. Primary data were collected through a structured questionnaire administered to 176 respondents selected using convenience sampling. The study focused on understanding the progress of FinTech and its impact on the global and Indian financial sectors. Secondary data were gathered from journals, books, research articles, government reports, RBI publications, and online databases. The questionnaire consisted of demographic variables and statements related to FinTech adoption, financial inclusion, technological advancement, digital accessibility, security, and regulatory support measured using a five-point Likert scale. The collected data were analyzed using Percentage Analysis, Mean Score Analysis, and One-Sample t-Test. Statistical analysis was carried out to evaluate respondents' perceptions and test the formulated hypotheses regarding FinTech adoption and its impact.

LIMITATIONS OF THE STUDY

The study is subject to certain limitations. Firstly, the research is confined to a sample of 176 respondents, which may not fully represent the entire population. Secondly, the study relies primarily on respondents' opinions and perceptions, which may be influenced by personal biases. Thirdly, the data were collected using convenience sampling, limiting the generalizability of the findings. The study focuses only on selected dimensions of FinTech, such as financial inclusion, technological adoption, digital accessibility, and regulatory support. Furthermore, rapidly changing technological innovations and regulatory frameworks may affect the relevance of the findings over time. Finally, geographical limitations may influence the results.

SCOPE OF THE STUDY

The present study focuses on examining the progress of Financial Technology (FinTech) and its impact on the global and Indian financial sectors. It covers key areas such as financial inclusion, technological adoption, digital accessibility, customer convenience, security, and regulatory support. The study evaluates how FinTech services bridge the gap between financial institutions and unbanked or underserved populations, particularly in rural and remote areas. It also examines the adoption of emerging technologies such as Artificial Intelligence (AI), Blockchain, and Cloud Computing by financial institutions to improve operational efficiency and reduce costs. Further, the study assesses users' perceptions regarding digital payment systems, mobile banking, online financial services, and personalized customer experiences. The role of regulatory authorities, especially the Reserve Bank of India (RBI), in ensuring security, privacy, and risk management is also analyzed. The findings of the study are expected to contribute to policymakers, financial institutions, researchers, and FinTech service providers in understanding current trends and future opportunities in the FinTech ecosystem.

DATA ANALYSIS

Table - 1
Demographic Profile of Respondents

Variables	Category	Frequency	Percentage (%)
Gender	Male	102	58.0
	Female	74	42.0
	Total	176	100.0
Age Group	Below 20 Years	18	10.2

	21–30 Years	72	40.9
	31–40 Years	46	26.1
	41–50 Years	28	15.9
	Above 50 Years	12	6.8
	Total	176	100.0
Marital Status	Married	98	55.7
	Unmarried	78	44.3
	Total	176	100.0
Educational Qualification	School Level	12	6.8
	Undergraduate	52	29.5
	Postgraduate	72	40.9
	Professional Degree	30	17.0
	Doctorate	10	5.8
	Total	176	100.0
Occupation	Student	35	19.9
	Government Employee	30	17.0
	Private Employee	62	35.2
	Business	20	11.4
	Self-employed	18	10.2
	Others	11	6.3
	Total	176	100.0
Monthly Income	Below ₹20,000	38	21.6
	₹20,001–₹40,000	56	31.8
	₹40,001–₹60,000	42	23.9
	₹60,001–₹80,000	24	13.6
	Above ₹80,000	16	9.1
	Total	176	100.0
Place of Residence	Rural	68	38.6
	Urban	108	61.4
	Total	176	100.0

Source: Primary Data

The demographic profile of the respondents reveals that out of 176 respondents, 102 (58.0%) were male and 74 (42.0%) were female, indicating that male respondents constituted the majority of the sample. With regard to age, the largest proportion of respondents (40.9%) belonged to the 21–30 years age group, followed by 31–40 years (26.1%), indicating that young adults are the major users of FinTech services. Concerning marital status, 55.7% of the respondents were married, while 44.3% were unmarried. Regarding educational qualification, a majority of respondents (40.9%) were postgraduates, followed by undergraduates (29.5%), suggesting a relatively educated sample. In terms of occupation, private employees accounted for the highest percentage (35.2%), followed by students (19.9%). Regarding monthly income, most respondents (31.8%) earned between ₹20,001 and ₹40,000 per month. Furthermore, 61.4% of respondents resided in urban areas, while 38.6% belonged to rural areas, indicating greater FinTech penetration in urban locations.

Table - 2
Respondents' Opinion on the Impact and Challenges of FinTech (N = 176)

S.No	Statement	SD (1)	D (2)	N (3)	A (4)	SA (5)
1	FinTech services are easy to access and use	5	10	18	78	65

2	FinTech has reduced the time required for financial transactions	4	8	15	82	67
3	FinTech services are more convenient than traditional banking	6	12	20	76	62
4	FinTech has improved financial inclusion in India	8	14	22	72	60
5	FinTech helps individuals manage their finances effectively	7	15	25	75	54
6	FinTech services are secure and trustworthy	10	18	30	70	48
7	FinTech has reduced dependency on cash transactions	5	12	18	80	61
8	FinTech has increased transparency in financial transactions	8	15	24	77	52
9	FinTech promotes innovation in the banking sector	4	10	19	81	62
10	FinTech improves customer satisfaction in financial services	7	12	21	79	57
11	FinTech contributes to economic growth in India	5	11	20	83	57
12	FinTech facilitates international financial transactions efficiently	9	14	28	73	52
13	FinTech has transformed the traditional banking system	5	10	19	79	63
14	FinTech has positively impacted the global financial sector	6	12	24	78	56
15	FinTech encourages cashless transactions	4	9	15	81	67
16	FinTech will play a significant role in the future of finance	3	8	14	80	71
17	Cybersecurity risks are a major concern in FinTech	4	9	18	78	67
18	Lack of digital literacy affects FinTech adoption	6	12	22	76	60
19	Privacy concerns discourage users from using FinTech services	8	15	25	74	54
20	Technical issues sometimes affect FinTech transactions	7	13	24	79	53
21	Government regulations are important for FinTech growth	3	7	15	82	69

Source: Primary Data

The findings indicate a highly positive perception of FinTech among respondents. A majority of respondents agreed or strongly agreed that FinTech services are easy to access and use, reduce transaction time, and offer greater convenience than traditional banking systems. Respondents also acknowledged that FinTech has improved financial inclusion, enhanced financial management, and reduced dependency on cash transactions. Most participants agreed that FinTech promotes innovation in the banking sector, improves customer satisfaction, contributes to economic growth, and positively impacts both Indian and global financial systems. The respondents strongly believed that FinTech would play a significant role in the future of finance and encourages cashless transactions. At the same time, respondents recognized challenges such as cybersecurity risks, lack of digital literacy, privacy concerns, and technical issues that may hinder FinTech adoption. Moreover, a substantial majority agreed that government regulations are

essential for ensuring the sustainable growth, security, and trustworthiness of FinTech services.

TESTING OF HYPOTHESIS

Table - 3
One-Sample t-Test for Financial Inclusion

Variable	Mean	SD	df	t-value	Sig.	Result
Financial Inclusion	3.95	1.06	175	11.89	0.000	H ₀ Rejected

The table shows that the mean score for Financial Inclusion is 3.95, which is above the neutral value of 3. The calculated t-value is 11.89 and the significance value is 0.000, which is less than 0.05. Therefore, the null hypothesis is rejected. It is concluded that FinTech significantly improves financial inclusion among unbanked and underserved people

Table - 4
One-Sample t-Test for Technological Adoption

Variable	Mean	SD	df	t-value	Sig.	Result
Technological Adoption	4.06	0.96	175	14.66	0.000	H ₀ Rejected

The mean score for Technological Adoption is 4.06, indicating a high level of agreement among respondents. The calculated t-value is 14.66 and the significance value is 0.000, which is less than 0.05. Hence, the null hypothesis is rejected. It is concluded that the adoption of technologies such as AI, Blockchain, and Cloud Computing significantly improves the efficiency of financial institutions.

Table - 5
One-Sample t-Test for Digital Accessibility

Variable	Mean	SD	df	t-value	Sig.	Result
Digital Accessibility and User Experience	4.08	0.97	175	14.76	0.000	H ₀ Rejected

The mean score for Digital Accessibility is 4.08, showing that respondents have a positive opinion about digital financial services. The calculated t-value is 14.76 and the significance value is 0.000, which is less than 0.05. Therefore, the null hypothesis is rejected. It is concluded that user-friendly digital platforms and 24/7 accessibility significantly influence the adoption of FinTech services.

Table – 6
One-Sample t-Test for Regulatory Support

Variable	Mean	SD	df	t-value	Sig.	Result
Regulatory Support and Security	3.97	1.03	175	12.49	0.000	H ₀ Rejected

The mean score for Regulatory Support is 3.97, indicating respondents' agreement regarding the importance of regulations and security. The calculated t-value is 12.49 and the significance value is 0.000, which is less than 0.05. Hence, the null hypothesis is rejected. It is concluded that regulatory support, security, and privacy protection significantly influence trust and adoption of FinTech services.

FINDINGS

The study revealed that FinTech has brought significant changes to the global and Indian financial sectors by enhancing accessibility, efficiency, and convenience in financial services. The demographic analysis showed that the majority of respondents were young adults, postgraduates, private-sector employees, and urban residents, indicating a higher level of awareness and usage of FinTech services among these groups. The respondents expressed positive opinions regarding the ease of use, convenience, and speed of FinTech services. They agreed that FinTech has reduced transaction time, encouraged cashless transactions, improved financial inclusion, and enhanced

customer satisfaction. The study further found that FinTech plays an important role in promoting innovation within the banking sector and contributes positively to economic growth. However, cybersecurity risks, privacy concerns, lack of digital literacy, and occasional technical issues were identified as major challenges affecting FinTech adoption. The hypothesis testing results confirmed that financial inclusion, technological adoption, digital accessibility, and regulatory support have a significant positive influence on the growth and impact of FinTech. Overall, the study concludes that FinTech has transformed traditional financial services and has become a key driver of financial sector development in India and across the world.

SUGGESTIONS

Based on the findings, the study suggests that financial institutions and policymakers should take proactive measures to enhance the adoption and effectiveness of FinTech services. Greater efforts should be made to extend digital financial services to rural and underserved areas in order to improve financial inclusion. Government agencies, banks, and FinTech companies should conduct awareness and digital literacy programs to educate users about the benefits and safe usage of digital financial services. Strengthening cybersecurity measures and data protection frameworks is essential to increase user trust and confidence. Financial institutions should continue investing in advanced technologies such as Artificial Intelligence, Blockchain, and Cloud Computing to improve operational efficiency and service quality. Regulatory authorities should maintain a balanced approach that encourages innovation while ensuring customer protection, privacy, and risk management. In addition, FinTech service providers should develop more user-friendly and multilingual platforms to cater to diverse customer groups. Collaboration among regulators, traditional banks, and FinTech firms can further strengthen the financial ecosystem and ensure sustainable growth of the FinTech sector in the future.

CONCLUSION

The study concludes that FinTech has emerged as a transformative force in both the global and Indian financial sectors, significantly improving the accessibility, efficiency, and convenience of financial services. The findings indicate that FinTech has strengthened financial inclusion by extending banking and financial services to underserved populations, while also promoting cashless transactions and enhancing customer satisfaction. The adoption of advanced technologies such as Artificial Intelligence, Blockchain, Cloud Computing, and UPI has improved operational efficiency and accelerated digital transformation within financial institutions. Statistical analysis confirmed that financial inclusion, technological adoption, digital accessibility, and regulatory support significantly influence the growth and acceptance of FinTech services. Despite its numerous benefits, challenges such as cybersecurity threats, privacy concerns, digital literacy gaps, and technical issues continue to affect user confidence and adoption. Therefore, sustained efforts from policymakers, regulators, financial institutions, and FinTech firms are essential to ensure secure, inclusive, and sustainable growth of the FinTech ecosystem, thereby contributing to overall economic development.

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A STUDY ON MARKETING CONSTRAINTS FACED BY BANANA GROWERS IN ERODE DISTRICT, TAMIL NADU

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ABSTRACT

Banana is one of the most imperative fruit crops cultivated in India and serves as a major source of income and employment for millions of farmers. India ranks among the world's largest producers of bananas, contributing significantly to both domestic consumption and agricultural economic growth. The crop is valued for its nutritional benefits, year-round availability, and wide market demand. In Tamil Nadu, banana cultivation plays a crucial role in the agricultural sector, providing livelihood opportunities to a large number of farming households. Erode District is one of the prominent banana-producing regions in Tamil Nadu due to its favorable climatic conditions, fertile soil and well-developed irrigation facilities. Farmers in the district cultivate different varieties of bananas and supply their produce to local, regional, and interstate markets. Objectives of the study are (i) to present the socio-economic profile of banana growers in Erode District, (ii) to identify the major marketing constraints faced by banana growers, (iii) to examine the factors influencing the marketing of bananas. (Chi square) and (iv) to assess the impact of marketing constraints on the income of banana growers and (v) to suggest suitable measures for improving the marketing efficiency of banana growers in Erode District. The researcher conducted the study in Erode District, used convenient sampling method for data collection, the data has been collected at farmers banana market, forms and important place where the banana growers meet and share their knowledge. The researcher printed questionnaire in Tamil language and distributed for data collection, distributed 275 questionnaires out of them 264 could be collected back for analysis. The researcher have taken three tools, i.e. percentage analysis to present socio economic profile of the respondents, chi square used to find the factors that include the marketing constraints and correlation used to find the relationship between socio marketing constraints and income of banana growers.

KEYWORDS : banana growers, marketing constraints, income of banana growers and profitability and sustainability of farming operations

INTRODUCTION

Banana is one of the most imperative fruit crops cultivated in India and serves as a major

source of income and employment for millions of farmers. India ranks among the world's largest producers of bananas, contributing significantly to both domestic consumption and agricultural economic growth. The crop is valued for its nutritional benefits, year-round availability, and wide market demand. In Tamil Nadu, banana cultivation plays a crucial role in the agricultural sector, providing livelihood opportunities to a large number of farming households. Erode District is one of the prominent banana-producing regions in Tamil Nadu due to its favorable climatic conditions, fertile soil and well-developed irrigation facilities. Farmers in the district cultivate different varieties of bananas and supply their produce to local, regional, and interstate markets. The banana industry contributes substantially to rural income generation and economic development in the district. Despite the importance of banana cultivation, growers face numerous challenges in marketing their produce. Marketing is a critical component that determines the profitability and sustainability of farming operations. Banana growers often encounter problems such as price fluctuations, the involvement of multiple intermediaries, inadequate storage facilities, transportation difficulties, lack of market information, high marketing costs and post-harvest losses. Since bananas are highly perishable, delays in transportation and marketing can significantly affect product quality and farmers' earnings.

The increasing competition in agricultural markets, changing consumer preferences, and fluctuations in demand further intensify the marketing challenges faced by banana growers. These constraints often reduce farmers' bargaining power and limit their ability to secure fair prices for their produce. Understanding these marketing constraints is essential for developing effective strategies and policy interventions aimed at improving market efficiency and enhancing farmers' income. The present study titled “A Study on Marketing Constraints Faced by Banana Growers in Erode District, Tamil Nadu” seeks to examine the major marketing problems experienced by banana farmers and identify measures that can improve the marketing system.

STATEMENT OF PROBLEM

Banana is one of the most important commercial fruit crops cultivated in Erode District, Tamil Nadu, and serves as a major source of income for farmers. Despite its economic significance, banana growers face numerous marketing constraints that adversely affect their profitability and livelihood. The marketing of bananas is particularly challenging due to the perishable nature of the crop, which requires timely transportation, storage and sale. Farmers often encounter problems such as price fluctuations, high transportation costs, inadequate storage facilities, dependence on intermediaries, lack of market intelligence, grading and packaging issues and post-harvest losses. These challenges reduce the bargaining power of growers and result in lower returns from their produce. The market uncertainties and the absence of efficient marketing channels create difficulties for farmers in obtaining fair prices.

There are various government initiatives and agricultural marketing institutions exist to support farmers, many banana growers continue to experience marketing inefficiencies. It is necessary to identify and analyze the marketing constraints faced by banana growers in Erode District. Understanding these constraints will help in formulating appropriate strategies and policy measures to improve the marketing system and enhance the income and welfare of banana farmers.

NEED OF THE STUDY

Agriculture continues to be a vital sector of the Indian economy and banana cultivation plays a significant role in the agricultural development of Erode District. The benefits of increased production can be realized only when farmers have access to efficient marketing systems. Marketing constraints often reduce the income of banana growers and discourage them from expanding their cultivation activities. The need for this study arises from the necessity to understand the specific marketing problems faced by banana growers and their impact on farm profitability. By identifying the major constraints in the marketing process, the study can help policymakers and agricultural agencies design effective interventions to improve market access, reduce post-harvest losses, strengthen market infrastructure, and enhance farmers' bargaining power. The findings will

contribute to the sustainable development of banana cultivation and improve the socio-economic conditions of banana growers in Erode District.

RESEARCH GAP

Several studies have examined banana cultivation, production practices and marketing systems in different regions of India. Limited research has specifically focused on the marketing constraints faced by banana growers in Erode District, Tamil Nadu. The marketing environment is continuously changing due to fluctuations in prices, transportation costs, market demand and the role of intermediaries. The unique socio-economic and geographical characteristics of Erode District may influence the marketing challenges experienced by farmers. There is a need for a comprehensive study to identify and analyze the specific marketing constraints faced by banana growers in the district and to suggest suitable measures for improving marketing efficiency and farmers' income.

OBJECTIVES OF THE STUDY

1. To present the socio-economic profile of banana growers in Erode District.
2. To identify the major marketing constraints faced by banana growers.
3. To examine the factors influencing the marketing of bananas. (Chi square)
4. To assess the impact of marketing constraints on the income of banana growers. (correlation)
5. To suggest suitable measures for improving the marketing efficiency of banana growers in Erode District.

HYPOTHESIS

H₀₁: There is no significant relationship in marketing constraints among banana growers and income of the banana growers.

SAMPLING DESIGN

The present study conducted in Erode District, the banana cultivation and marketing in Erode District presented in introduction part. The researcher conducted the study in Erode District, used convenient sampling method for data collection, the data has been collected at farmers banana market, forms and important place where the banana growers meet and share their knowledge. The researcher printed questionnaire in Tamil language and districted for data collection, distributed 275 questionnaires out of them 264 could be collected back for analysis.

TOOLS AND TECHNIQUES

The researcher have taken three tools, i.e. percentage analysis to present socio economic profile of the respondents, chi square used to find the factors that include the marketing constraints and correlation used to find the relationship between socio marketing constraints and income of banana growers.

ANALYSIS AND INTERPRETATION

Percentage analysis

The following variables are taken by the researcher for socio economic profile of the respondents. i.e. (i) Nature of the family, (ii) Number of members and size of family, (iii) Age-wise classification, (iv) Educational level, (v) Annual Family Income and (vi) Family members involved in Agriculture.

Table 1
Nature of the family

Sl. No.	Nature of family	Number of farmers	Percentage
1	Nuclear Family	93	35.23
2	Joint family	171	64.77
	Total	264	100

Source: Primary Data

The above table indicates the nature of the family. Out of 264 sample respondents, 93 (35.33%) are belongs to nuclear family and the remaining 171 (64.77%) respondents are belongs to joint family. Majority (64.77%) of the respondents are nuclear families.

Number of Members and Size of Family

The respondents were divided into three groups based on the size of their families: small families (those with fewer than 3 members) medium families (those with 3 - 6 members) and large families (those with more than 6 members), as shown below.

Table 2
Number of members and size of family

Sl. No.	Family size	Number of farmers	Percentage
1	Small	50	18.94
2	Medium	116	43.94
3	Large	98	37.12
	Total	264	100

Source: Primary Data

The above table shows the number of members and size of the family. Out of total 264 sample respondents, 50 (18.94%) respondents are belong to small family, 116 (43.94%) respondents are belong to medium family and remaining 98 (37.12%) respondents are belong to large family. Majority (43.94%) of the respondents are belongs to medium size family.

Age-wise Classification

Age is a measure of a person's maturity, therefore it becomes more significant, and the response may vary based on the age. As shown below, the respondents were divided into three groups: low (under 40 years old), middle (40 – 60 years old), and high (above 60 years old).

Table 3
Age-wise classification

Sl. No.	Age wise classification	Number of farmers	Percentage
1	Up to 40 years	53	20.08
2	41 to 60 years	116	43.94
3	Above 60 years	95	35.98
	Total	264	100

Source: Primary Data

The above table shows the age wise classification of farmers. Out of the total 264 respondents, 53 (20.08%) respondents belong to low age group of below 40 years. 116 (43.94%) respondents are belongs to 41 years to 60 years and remaining 95 (35.98%) respondents are belongs to above 60 years old. Majority (43.94%) of the respondents are belongs to 41 years to 60 years.

Educational Level

Table 4
Educational level

Sl. No.	Educational level	Number of farmers	Percentage
1	Primary	76	28.79
2	Elementary	63	23.86
3	High school level	77	29.17
4	Degree level	48	18.18
	Total	264	100

Source: Primary Data

The above table shows the educational level of the sample respondent farmers. Out of 264 sample respondents, 76 (28.79%) respondent's educational level is primary school level. 63 (23.86%) respondent's educational level is elementary level. 77 (29.17%) respondent's educational level is high school level and remaining 48 (18.18%) respondent's educational level is degree. Majority (29.17%) of the respondents are studied high school level.

Annual Family Income

Table 5
Annual Family Income

Sl. No.	Annual family income	Number of farmers	Percentage
1	Up to Rs. 2,50,000	78	29.55
2	Rs. 2,50,001 to Rs. 5,00,000	129	48.86
3	Above Rs. 5,00,000	57	21.59
	Total	264	100

Source: Primary Data

The above table represents the annual family income of the farmers. Out of 264 sample farmers, 78 (29.55%) respondent's annual family income from agriculture is up to Rs. 2,50,000. 129 (48.86%) respondent's annual family income from agriculture is Rs. 2,50,000 to Rs. 5,00,000 and remaining 57 (21.59%) respondent's annual family income from agriculture is above Rs. 5,00,000. Majority (48.86%) of the respondents' annual family income from agriculture is Rs. 2,50,001 to Rs. 5,00,000.

Number of Family Members Involved in Agriculture

The number of family members that work in agriculture influences how much attention is paid to the crops that are grown, and they also offer the farmer moral support when they are out in the field. The following lists the number of family members working in agriculture by farm size and group.

Table 6
Family members involved in Agriculture

Sl. No.	Members involved	Number of farmers	Percentage
1	One	37	14.02
2	Two	133	50.38
3	Above two	94	35.60
	Total	264	100

Source: Primary Data

The above table shows the number of family members involved in agriculture. Out of 264 sample respondent's farmers, 37 (14.02%) respondents having one member involved in agriculture. 133 (50.38%) respondent's two family members are involved in agriculture and remaining 94 (35.60%) respondent's having more than two family members are involving in agriculture. Majority (50.38%) of the respondents family members are involving in agriculture are two members.

Marketing Constraints of Banana Growers

The researcher taken ten variables of marketing constrains of banana. i.e. (i) Price fluctuations, (ii) High transportation costs, (iii) Inadequate storage/cold storage facilities, (iv) Post-harvest losses, (v) Dependence on middlemen/intermediaries, (vi) Lack of timely market information, (vii) Poor market infrastructure, (viii) Grading and packaging problems and (ix) Delayed payments from traders and (x) Limited bargaining power of farmers. The researcher used likert five point scale to find the level of marketing constraints of banana growers. The following table shows the level of constrains.

Table 7
Level of marketing constrains

Sl. No.	Level of marketing constrains	Number of farmers	Percentage
1	Low	37	14.02
2	Medium	73	27.65
3	High	154	58.33
	Total	264	100
Mean : 41.832. SD : 2.338, Minimum 18, Maximum 46			

Source: Computed data

Likert five point scale used to find the level of marketing constrains, calculated the mean, SD, total score converted into 3 levels, i.e. low, medium and high. Out of 264 sample respondents, 37 (14.02%) respondents felt low level of marketing constrains, 73 (27.65%) respondents felt medium level of marketing constrains and remaining 154 (58.33%) respondents are felt high level of marketing constrains. Majority (58.33%) of the respondents are felt high level of marketing constrains.

Chi Square

Table 8
Chi square test – Factors influencing the marketing of Banana

Sl. No.	Socio economic factors	Chi Square value	DF	P - value	Result
1	Nature of the family	18.739	2	0.001	Significant
2	Number of members and size of family	24.378	4	0.001	Significant
3	Age-wise classification	20.781	4	0.001	Significant
4	Educational level	17.653	6	0.001	Significant
5	Annual Family Income	15.378	2	0.001	Significant
6	Family members involved in Agriculture	14.306	3	0.001	Significant

Source: Computed data

The above table presented the chi square test output, nature of family (0.001), number of members and size of family (0.001), age wise classification (0.001), educational level (0.001), annual family income (0.001) and family members involved in agriculture (0.001) are significantly influence the level of factors influencing the marketing of banana at 5% significant level.

Correlation

Table 9
Relationship between impact of marketing constrains and income of banana growers

		Marketing constrains	Income of banana growers
Marketing constrains	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	264	
Income of banana growers	Pearson Correlation	-0.873**	1
	Sig. (2-tailed)	.001	
	N	264	264

** . Correlation is significant at the 0.01 level (2-tailed).

There is negative relationship between the marketing constrains of banana growers and income of banana growers. If the marketing constrains reduce their income will increase, the same time, if the marketing constrains increase their income automatically reduce. There is negative and significant relationship between marketing constrains (-0.873) and income of banana growers at 1% significant level. Hence, the null hypothesis has been accepted.

FINDINGS

The following are the findings of the study.

1. Majority (64.77%) of the respondents are nuclear families.
2. Majority (43.94%) of the respondents are belongs to medium size family.
3. Majority (43.94%) of the respondents are belongs to 41 years to 60 years.
4. Majority (29.17%) of the respondents are studied high school level.
5. Majority (48.86%) of the respondents annual family income from agriculture is Rs. 2,50,001 to Rs. 5,00,000.
6. Majority (50.38%) of the respondents family members are involving in agriculture are two members.

7. Majority (58.33%) of the respondents are felt high level of marketing constrains.
8. There is negative and significant relationship between marketing constrains (-0.873) and income of banana growers at 1% significant level.

SUGGESTIONS

The following are the suggestions of the study.

1. The government and agricultural marketing authorities should strengthen regulated markets in Erode District to ensure transparent pricing mechanisms and enable banana growers to receive fair prices for their produce. Improved market regulation can reduce exploitation by intermediaries and increase farmers' income.
2. Farmer Producer Organizations (FPOs) and cooperative marketing societies should be encouraged and strengthened to facilitate collective marketing. This will enhance the bargaining power of banana growers and help them negotiate better prices with traders and wholesalers.
3. Adequate cold storage and warehousing facilities should be established in major banana-producing areas to reduce post-harvest losses and allow farmers to store their produce during periods of low market prices.
4. The government should improve transportation infrastructure, including rural roads and logistics facilities, to ensure the quick and efficient movement of bananas from farms to markets, thereby reducing transportation costs and spoilage.
5. Timely and accurate market information regarding prices, demand trends and market opportunities should be provided through mobile applications, agricultural extension services and digital platforms to help farmers make informed marketing decisions.
6. Training programs on scientific post-harvest management, grading, packaging and value addition should be organized regularly to improve the quality and marketability of bananas and increase farmers' returns.
7. Direct marketing channels such as farmers' markets, retail outlets and online marketing platforms should be promoted to reduce the dependence of growers on middlemen and increase their share of the consumer price.
8. Financial assistance and easy access to institutional credit should be provided to banana growers for marketing-related activities such as storage, transportation, packaging and value-addition initiatives.
9. Government agencies should encourage the establishment of banana processing units in Erode District to create value-added products such as banana chips, banana powder and banana puree, thereby increasing market opportunities and reducing wastage.
10. Regular awareness programs should be conducted to educate banana growers about modern marketing practices, government support schemes, crop insurance, and digital marketing tools, enabling them to improve their marketing efficiency and overall profitability.

CONCLUSION

Banana cultivation plays a vital role in the agricultural economy of Erode District, providing income and employment opportunities to a large number of farmers. The study reveals that banana growers face several marketing constraints that adversely affect their profitability and overall economic well-being. Major challenges such as price fluctuations, high transportation costs, inadequate storage facilities, post-harvest losses, lack of timely market information and dependence on intermediaries continue to hinder the efficient marketing of banana produce. The findings indicate that these constraints significantly reduce the income of banana growers by increasing marketing costs and limiting their access to profitable markets. Strengthening Farmer Producer Organizations (FPOs), promoting direct marketing channels, improving storage and transportation facilities and providing timely market information can help farmers obtain better returns for their produce. The government support in the form of financial assistance, marketing infrastructure development, training programs and digital marketing initiatives can contribute significantly to overcoming

existing marketing challenges. Addressing these constraints will not only enhance the income and livelihood of banana growers but also contribute to the sustainable development of the banana sector in Erode District.

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SUSTAINABLE DEVELOPMENT OF ARTS AND SCIENCE COLLEGE LIBRARIES: WITH REFERENCE TO NAAC A++ ACCREDITED COLLEGES OF TAMIL NADU

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ABSTRACT

Sustainable development is the goal of all institutions. Quality and Quantity are two aspects of institutional growth. This study analyzed the maintenance of quality and quantity as well as the contributions of Libraries for A accredited arts and science colleges of Tamil Nadu. The objective of this study is to find out the speciality services of the A++ colleges and to create awareness among library professionals, Identify the unique features and services provided in the library and information centres' also. Research Methodology the researcher randomly selected A++ accredited arts and science colleges in all Tamil Nadu, and data were collected from the selected colleges. Data Analysis from the colleges collected and put into MS Excel for sorting out and analysis. Findings of the study reveal that every college library provides unique services, infrastructure, best practices, user strength, and working hours. The originality of the study was determined by the concerned college Library Professionals and website up to the year of 2024. Suggestions were given to library professionals to adopt the unique features of these libraries for institutional growth and accreditation.

KEYWORDS: NAAC, A++, Arts, Science, higher education

INTRODUCTION

Ranking and accreditations are healthy environment for Higher educational institutions growth and development. Ranking and accreditation is the tool that every student to choose good and quality institution for higher education. National Assessment and Accreditation Council (NAAC) is playing behind the role of deciding authority for providing better and good quality education. Every institution have unique features in their campus. As per the SSR of NAAC criterion 4.2.1 to 4.2.4 (4 criterions) are essential components of the library. These four criterion analysed in each college library. Cent percent of the A++ accredited college libraries are fulfilling these 4th criterion and score cent percent results. Some of the institutions providing more than that services. Best practices are usually differing from one college to another. The NAAC is an organisation that aims to improve the educational quality and its value. Its implementation has resulted in a more positive work culture instinct and a desire among college and university teachers to gain more knowledge and information (Kaur & Gupta, 2021). Its mission is to evaluate and accredit India's Higher education Institutions. It arose from references in the National Policy on Education (1986) and the Programme of Action (POA-1992) that emphasised the enhancement and improvement of the country's Higher Education Quality. An institution has to prepare the SSR (self study report) in seven criteria before the NAAC Peer team visit. Generally, the process of NAAC accreditation takes place once in a 5 years. After examining the intent institution's Institutional

Assessment and Accreditation application, the NAAC grants the institution Institutional Eligibility for Quality Assessment status.

REVIEW OF LITERATURE

Ghante, P B & Chikate, A N (2018) highlighted in their study regarding accreditation activity is gaining force in our country as people and educational institutions have come to realize that quality enhancement is essential for the institution and the country. In the process of institutional accreditation, libraries have a crucial role. Further they discussed the services of the libraries have been expanding as they contribute significantly to the learning process. It also focused on impact of NAAC on library services, researcher find out the impact of assessment & accreditation of NAAC on library services. **Rajeev Singh & Vaishali S. Kshirsagar (2023)** discussed in their study the role of the NAAC accreditation in the Quality Improvement of Higher Education Institutions. NAAC gives direction and motivates the Institutions to address many of its issues through its criteria and critical indicators related to Quality Assessment and Accreditation processes, such as Evaluation Process and Reforms; Student Performance and Learning Outcomes; Promotion of Research and Facilities; Resource Mobilisation for Research, Innovation Ecosystem, Research Publications and Awards, Extension Activities, Collaboration; Library as a Learning Resource, Institutional Values and Social Responsibilities; Best Practices and Institutional Distinctiveness etc., **Dominic, Julie A(2022)** pointed out in their study Quality sustenance and enhancement of Education in the Higher education sector is the key mode of creating a knowledgeable community. The proper assessment and validation of the Higher Education Institutions mould a Nation of students with global competency keeping pace with global educational expectancy in both scholarly and professional levels of grading. Further they analyse the role and contributions of NAAC towards the effective assessment process practiced in the higher education Institutions all over India and for preserving a strong rooted educational hub throughout the Nation.

OBJECTIVES

The researcher have framed the following main objectives to fulfil the study.

1. To identify the strength of every institution
2. To find out the unique services provided in their libraries
3. To observe the technological implements in their libraries
4. To know the different type of Library Automation software
5. To inspect the usage ratio and improvement technique
6. To trace out the seating capacity and carpet area of the library
7. To mark out the innovations in these institutions
8. To create awareness among the library professionals

METHODOLOGY

There are many colleges accredited by NAAC with A++ grade in Tamil Nadu, among these the investigator have selected randomly 10 colleges for the study. Geographical Area covers major cities of the Tamil Nadu. The data have taken from the concerned college website and SSR. After collecting the data, it has put into the computer excel for analysis. The data collected from the colleges up to the year of 2024.

DATA ANALYSIS AND INTERPRETATION

Table 1
Demographic Data

S.No	Name of the Institution	Established	NAAC Score	Cycle
1	Loyola College, Chennai	1930	3.55	4 th Cycle
2	D.G.Vaishnav College, Chennai	1964	3.54	3 rd „
3	G.T.N.Arts & Science College, Dindigul	1964	3.56	2 nd „
4	Islamiah College (A), Tirupattur	1919	3.55	3 rd „
5	Jamal Mohamed College, Trichirappalli	1951	3.69	4 th „
6	PSG College of Arts & Science, Coimbatore	1947	3.51	4 th „

7	Sadakathullah Appa College, Tirunelveli	1971	3.56	4 th „
8	ST.Xavier's College, Palayamkottai	1923	3.66	4 th „
9	Thiagarajar College, Madurai	1949	3.63	4 th „
10	Hajee Karutha Rowther Howdia College, Theni	1956	3.52	3 rd „

According to table.1 depicts that 60% of the colleges have got A++ in the 4th cycle of accreditation. Among these colleges Islamiah College (Autonomous) is oldest institution established in 1919. On the other hand Sadakathullah Appa College have established during the year 1971. In case of NAAC assessment Score Jamal Mohamed College got 3.69 highest score during the 4th cycle and second place St.Xaviers College got 3.66 Score, on the similarly PSG College of Arts & Science got 3.51 score during the 4th cycle. Overall observations from the table reveals that among these colleges G.T.N.Arts & Science college that 2nd cycle itself got A++ grade and further it is observed from the table establishment of all the institutions are more than 50 years crossed.

As per the table 2 reveals that Jamal Mohamed college is having highest volumes among these colleges (2,32,995), on the other hand G.T.N. Arts & Science college have 40,795 volumes. Incase of online database D.G.Vaishnav College is subscribing 4 database, it is observed from the table Thiagarajar College having 3101 rare collection of books in their library. For subscription of Journals P.S.G.College of Arts & Science subscribing 313 hard copies of Journals and Magazines.

Table 2
Available Resources

S.No	Name of the Institution	Books	Journals & Magazines	Back Volumes	Online Database E-Books	Theses Dissertations	Rare Books	News Papers
1	Loyola College, Chennai	1,20,000	82	3443	3	149	395	13
2	D.G.Vaishnav College, Chennai	105810	120	1872	4	1115	395	19
3	G.T.N.Arts & Science College, Dindigul	40795	69	600	1	70	800	7
4	Islamiah College (A), Tirupattur	86,129	115	3117	2	1069	523	10
5	Jamal Mohamed College, Trichirappalli	2,32,995	142	16444	3	4764	60	11
6	PSG College of Arts & Science, Coimbatore	1,44,874	313	11011	3	554	-	
7	Sadakathullah Appa College, Tirunelveli	48476	58	2082	3	3172	-	9
8	ST.Xavier's College, Palayamkottai	1,30,658	77	3915	2	4535	235	7
9	Thiagarajar College, Madurai	1,11,494	106	1594	2	131	3101	10
10	Hajee Karutha Rowther Howdia College, Theni	56,743	87	700	1	170	148	8

Table.3
Infrastructure of the Library

S.No	Name of the Institution	Carpet Area (Square)	Computers	Seating capacity	Projector	Web OPAC	Head phones	Automation software
1	Loyola College, Chennai	19,000	90		N	Y	Y	ERP
2	D.G.Vaishnav College, Chennai	16,150		235	Y	Y	N	AUTOLIB
3	G.T.N.Arts & Science College, Dindigul	3,526	8	60	N	N	N	ERP
4	Islamiah College (A), Tirupattur	10,460	45	150	Y	N	Y	SOUL
5	Jamal Mohamed College, Trichirappalli	6,296	40	200	N	N	Y	KOHA
6	PSG College of Arts & Science, Coimbatore	22,400	42	400	Y	Y	Y	NIRMALS
7	Sadakathullah Appa College, Tirunelveli	12,600	35		Y	Y	N	AUTOLIB
8	ST.Xavier's College, Palayamkottai	25,215		280	y	Y	N	AUTOLIB
9	Thiagarajar College, Madurai		29	250	N	Y	Y	AUTOLIB
10	Hajee Karutha Rowther Howdia College, Theni	4,490	25	110	N	Y	N	FLAIR

The table 3 expose that among the ten colleges St.Xavier's College is having highest carpet area of the library (25,215 Sq.ft.). Incase of computer systems Loyola college is having 90 computer systems in their library. P.S.G.College of Arts & Science providing highest seating facility (400) for their readers. Among these 50% of colleges have projector & Headphone facility, on the other hand 70% of the colleges providing Web OPAC service to their readers. AUTOLIB software utilized in D.G.Vaishnav college, Sadakathullah Appa College and St.Xaviers college. UGC recommended library automation software SOUL installed in Islamiah College (Autonomous)

Table 4
Best Practices

S.No	Name of the Institution	No of BP
1	Loyola College, Chennai	12
2	D.G.Vaishnav College, Chennai	10
3	G.T.N.Arts & Science College, Dindigul	11
4	Islamiah College (A), Tirupattur	15
5	Jamal Mohamed College, Trichirappalli	12
6	PSG College of Arts & Science, Coimbatore	17
7	Sadakathullah Appa College, Tirunelveli	11
8	ST.Xavier's College, Palayamkottai	14
9	Thiagarajar College, Madurai	14
10	Hajee Karutha Rowther Howdia College, Theni	10

(BP-Best Practices)

The table 4 depicts the best practices of the colleges among the ten colleges, PSG Arts and science college provides highest (17) best practices services to their users. Next to this Islamiah

College and Sadakathullah Appa college observing (15) best practices. On the other hand D.G.Vaishnav college and Hajee Krutha Rowther college providing (10) best practices. Further it is identified that among the ten college seven common best practices are observed.

As per table 5 purchase of books & Journals PSG College of Arts & Science spending 27.51 lakhs per annum . Next to this Jamal Mohamed college purchasing 20.69 lakhs per year for books & periodicals., St.Xavier's College placed third for purchasing books & journals that is 16.75 lakhs On the other hand Sadakathullah Appa college, Loyola college and D.G.Vaishnav College to be spent more amount for adding books & periodicals every academic year.

Table 5
Purchase of Books & Periodicals (One Year)

S.No	Name of the Institutions	Purchase of Books and Journals average Per year	Strength of the College
1	Loyola College, Chennai	12.89 lakhs	10,745
2	D.G.Vaishnav College, Chennai	13.28 „	9859
3	G.T.N.Arts & Science College, Dindigul	25.00 „	5028
4	Islamiah College (A), Tirupattur	9.40 „	3200
5	Jamal Mohamed College, Trichirappalli	20.69 „	11,604
6	PSG College of Arts & Science, Coimbatore	27.51 „	13,090
7	Sadakathullah Appa College, Tirunelveli	3.11 „	3910
8	ST.Xavier's College, Palayamkottai	16.75 „	3527
9	Thiagarajar College, Madurai	9.18 „	5518
10	Hajee Karutha Rowther Howdia College, Theni	9.31 „	2825

Table 5 presents the annual expenditure on books and periodicals and the student strength of ten selected autonomous colleges in Tamil Nadu. Among the institutions, PSG College of Arts & Science, Coimbatore records the highest annual expenditure on books and periodicals with ₹27.51 lakhs and also has the highest student strength of 13,090. G.T.N. Arts & Science College, Dindigul spends ₹25.00 lakhs despite having a comparatively lower student strength of 5,028, indicating a strong commitment to library resource development. Jamal Mohamed College, Tiruchirappalli allocates ₹20.69 lakhs for library resources with a student population of 11,604. In contrast, Sadakathullah Appa College, Tirunelveli spends the least amount, ₹3.11 lakhs, with a student strength of 3,910. The data reveal considerable variation in library expenditure among the colleges, suggesting differences in institutional priorities, financial capacity, and emphasis on academic resource enhancement.

Table 6
User Statistics

S.No	Name of the Institution	No of Users Perday	Total strength of the college	Percentage %
1	Loyola College, Chennai	825	10,745	7.67
2	D.G.Vaishnav College, Chennai	2023	9859	20.52
3	G.T.N.Arts & Science College, Dindigul	1262	5028	25
4	Islamiah College (A), Tirupattur	1100	3200	34.37
5	Jamal Mohamed College, Trichirappalli	1303	11,604	11.22
6	PSG College of Arts & Science, Coimbatore	400	13,090	3.05
7	Sadakathullah Appa College, Tirunelveli	291	3910	7.44
8	ST.Xavier's College, Palayamkottai	577	3527	16.36
9	Thiagarajar College, Madurai	277	5518	5.02

10	Hajee Karutha Rowther Howdia College, Theni	280	2825	9.91
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It is observed from the table 6 User statistics of the college libraries, Islamiah College (Autonomous) library is utilized highest among the ten colleges that is 34.37%, next to this G.T.N Arts & Science College library 25 % utilized by the readers. D.G.Vaishnav College placing third stage that 20% of readers utilizing their library perday. On the other hand based on the strength of the colleges Loyola College, P.S.G.College of Arts and Science, Thiagarajar College and Jamal Mohamed College library users should be increased.

OVERALL OBSERVATIONS FROM THE STUDY

- ❖ All the Institutions are accredited during the period 2021-2024 (last 3 years)
- ❖ Establishment of all the colleges morethan 50 years crossed
- ❖ Among them oldest college is Islamiah College (Autonomous), established on 1919
- ❖ Availability of Computer systems in Loyola college is 90 systems compared with other colleges
- ❖ Highest Number of seating capacity in the Library is400 in P.S.G.College of Arts and Science
- ❖ G.T.N.Arts & Scince college got A++ grade in 2nd Cycle of Accreditation
- ❖ It is found that highest strength of among college is P.S.G.College of Arts & Science (13,090)
- ❖ Incase of library users Islamiah College is top in the usage percentage (34%), it is compared with the strength of the other colleges
- ❖ It is observed from the study purchase of books and Periodicals P.S.G.College of Arts and Science spending highest amount Rs.27.51 lakhs
- ❖ It is found from the study some of the colleges having unique Best Practices
- ❖ Further it is noticed from the study that Thiagarajar College having highest rare collection of books (3101)
- ❖ Incase of News papers subscription D.G.Vaishnav College subscribing 19 Daily News papers every month

COMMON BEST PRACTICES IN THE COLLEGES

- ❖ User education/ Orientation to every academic year
- ❖ Reprography Service
- ❖ Conducting competition programme/Seminars/workshops
- ❖ Online Public Access Catalogue (OPAC)
- ❖ Book Bank
- ❖ Question Bank
- ❖ Maintenance of Rare books

UNIQUE BEST PRACTICES OF THE COLLEGES

Islamiah College (Autonomous):

- ❖ Distribution of Library Handbook to First Year UG Students every academic year
- ❖ DSpace College Repository Software
- ❖ Career Guidance books & Magazines Separate Racks & Cupboards
- ❖ Projector with Mic and Speakers
- ❖ Best Library User Award
- ❖ External reader Membership for Research scholars, Faculty and Government officials on free of cost
- ❖ Providing internal marks for each subject towards library usage

PSG College of Arts & Science:

- ❖ Talking Digital library for visually challenged students
- ❖ RFID Equipped Library
- ❖ Organizing Faculty Development Programme
- ❖ Library User guide

- ❖ Inter Library loan
- ❖ External reader Membership for Research scholars on fee based system
- ❖ Plagiarism checking service

G.T.N. Arts & Science College:

- ❖ Plagiarism Checking Service
- ❖ Career Guidance books & Magazines maintain in separately
- ❖ It offering Library Science Course

Jamal Mohamed College:

- ❖ Rarebooks & Archives Section with High quality Scanners
- ❖ Career Guidance books & Magazines maintain in separately
- ❖ RFID Equipped Library
- ❖ LED TV

Loyola College:

- ❖ Projector with Mic and Speakers
- ❖ Plagiarism checking service
- ❖ Competitive Exams- Separate books Section

St.Xavier's College:

- ❖ Best Library User Award
- ❖ Projector with Mic and Speakers
- ❖ User Education Programme
- ❖ Plagiarism checking service
- ❖ Competitive Exams- Separate books Section

Sadakathullah Appa College:

- ❖ Library Science Course
- ❖ Best Library User Award
- ❖ Separate Library web portal
- ❖ Plagiarism checking service
- ❖ Competitive Exam books Section
- ❖ DSpace repository software

SUGGESTIONS

Based on the findings from the study the following suggestions were given;

- To implement the unique best practices in the rest of the colleges and other NAAC accredited institutions
- To improve the library users statistics in rest of the colleges
- To increase the annual allotment for purchase of books and periodicals based on the strength of the Institution
- To increase the computer ratio according to the strength of the college
- To increase the seating capacity based on the usage ratio
- To implement the internal marks 5 for library usage in Autonomous colleges
- To adopt the new methodology for increasing the library users
- To conduct user education programmes, Orientation, Competition programmes and career guidance programmes

CONCLUSION

According to the study each institution provides unique feature/facility in their library services. All the above institutions serving to their users in wonderful manner. Academicians, stakeholders, and library professionals are backbones for delivering higher education to the student community, not only for their development but also for their career growth. The standardization of organizations/institutions is based on regular monitoring, verification, examination, or upgrading. Maintenance of quality and quantity in a standard manner is an essential part of the library and institution. Based on this study, adopting new ideas, innovations, and updates in libraries is an essential duty of librarians. With reference to the above study, many ideas, infrastructure, and

unique best practices were identified among the institutions. This will be very useful for other institutions to implement in their organizations. Institutions that face the NAAC, NBA, ISO, and other ranking purposes have to adopt these unique features of colleges.

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