

DETERMINANTS OF FINANCIAL INCLUSION IN THE CAUVERY DELTA ZONE: AN EMPIRICAL ASSESSMENT OF FINANCIAL LITERACY, SOCIO-ECONOMIC FACTORS, AND INSTITUTIONAL INTERVENTIONS

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ABSTRACT

Financial inclusion is vital in achieving reasonable access to formal financial systems and enhancing economic engagement of disadvantaged groups. This research empirically evaluates the elements related to financial inclusion in the Cauvery Delta Zone focusing on factors such as financial literacy, government policies and institutional efforts, and socio-economic characteristics. The primary data was obtained from 452 participants using a questionnaire and was subjected to descriptive statistics, reliability analysis, exploratory factor analysis, Pearson correlation and regression methods. The results show good internal consistency for all the measures used in the study while the exploratory factor analysis validates the appropriateness of the measuring instrument. Pearson correlation results provide evidence for a strong positive relationship between financial literacy and financial inclusion ($r = 0.886$, $p < 0.001$). Additionally, regression analysis reveals a significant influence of government policies in financial inclusion accounting for 52.0% of change in the dependent variable. Multiple regression analysis shows that financial literacy has the highest effect, followed by socio-cultural and socio-economic factors.

Keywords: Financial Inclusion; Financial Literacy; Government Policies; Socio-economic Factors; Cauvery Delta Zone.

I INTRODUCTION

The topic of financial inclusion has develop increasingly vital over time as it is one of the strategies through which individuals can access and use formal financial services. Early works on financial inclusion concentrated on the alleviation of scarcity and an expansion of formal credit, while more recent studies identify factors that influence the outcome of the finance-inclusion nexus (Nanez, 2020). However, the concept of financial literacy plays a significant role in shaping whether access to formal banking services will lead to any fruitful outcome as its absence may hinder the expected results.

The topic of financial inclusion has become increasingly important over time as it is one of the strategies through which individuals can access and use formal financial services. Early works on financial inclusion concentrated on the alleviation of poverty and an expansion of formal credit, while more recent studies identify factors that influence the outcome of the finance-inclusion nexus (Nanez, 2020). However, the concept of financial literacy plays a significant role in determining whether access to formal banking services will lead to any fruitful outcome as its absence may hinder the expected results. In view of this context, this study attempts to understand financial inclusion in Cauvery Delta Region through an analysis of financial literacy, socio-economic profile and various intervention programs of the government/institutions. The primary aim is to determine the degree of financial inclusion prevailing in the area and to analyze the determinants of financial inclusion.

1.1 FINANCIAL INCLUSION IN INDIA

Financial inclusion has become an important aspect of the developmental process in India, particularly in the provision of financial inclusion services to the communities that have been excluded. Singh (2018) has found out that in spite of various policies, there were many challenges being faced by the process of financial inclusion due to the lack of financial literacy, behavioral issues, documentary

requirements and physical accessibility of financial institutions. Dangi (2013) in his study on the financial inclusion process in India, found out that policy and institutional aspects had played a significant role in the provision of financial services, but there were still some gaps in terms of the readiness of financial services. The above discussion shows that mere access to banks is not enough to achieve financial inclusion, people need to have financial literacy and socio-economic conditions.

1.2 CAUVERY DELTA ZONE

The Cauvery Delta Zone, consisting of areas such as Thanjavur, Tiruvarur, Nagapattinam, and Mayiladuthurai, is mainly rural and has relied heavily on agriculture for income (C. Paramasivan & Pasupathi, 2016). In addition to being economically active in agriculture, the area has agro-based industries such as rice processing and oil processing that provide jobs and sustain the economy (Sabarisakthi, 2019). Such an environment has implications for the socio-economic context under which individuals take decisions related to finance and access financial institutions. As per Varghese and Viswanathan (2018), the agricultural livelihoods in the area have been found to be strongly linked with the socio-cultural environment of the region.

1.3 THE NEED FOR INNOVATIVE APPROACHES

In addition to being about making more banking facilities available, financial inclusion is also about whether people have the knowledge, the confidence, and the institutional backing that makes them able to make use of the services. According to Sharma (2020), for example, even as India was increasing its banking facilities, it was not able to end financial exclusion, especially for rural areas and poor communities, where awareness became an issue. In their discussion of Pakistan, Dar, Arif, and Ahmed (2020) point out the same thing in relation to the importance of dealing with the conditions of exclusion, as opposed to simply providing more services. This means that there is a need for strategies that can take into consideration the local situations, and so, in the Cauvery Delta Zone, this would mean looking at financial literacy and socio-economic situations, among others.

1.4 PROBLEM STATEMENT

Though substantial progress has been made in making the Indian populace more financially inclusive, yet financial inclusiveness has been found to be rather uneven amongst the rural populace. It is especially true in the case of the Cauvery Delta Zone, as agricultural dependence and differences in the economic standing of the households might affect an individual's ability and desire to make use of formal financial products. Previous studies have shown that socio-economic barriers, lack of financial literacy, and problems in turning the possession of a financial account into financial inclusion continue to remain issues (Pandey, 2022; Malik & Yadav, 2019). Other researchers have also found that the availability of the institutions providing these financial products and physical access to these institutions still mattered when it came to rural financial inclusion (Raman, 2012). Yet, there has been little empirical focus on finding out the association between financial literacy, socio-economic factors, and government intervention in relation to the concept of financial inclusion in the Cauvery Delta Zone.

II REVIEW OF LITERATURE

There has been a lot of literature on financial inclusion in relation to its role in increasing access to financial institutions and improving the financial management capacity of individuals. The relationship between financial inclusion and economic participation and the wide variations within different population and geographical areas has been noted by Demirgüç-Kunt and Klapper (2013). However, recent literature is going beyond simple indicators of account ownership to examine how different socio-economic factors affect the utilization of financial products. For example, Kumar (2024), based on evidence from the Global Findex dataset, found financial inclusion varying by attributes such as gender, age, wealth, and education level of the individual. This means that financial inclusion can no longer be studied without considering the individual's socio-economic and financial management capacity. Therefore, in this research financial literacy, selected socio-economic attributes, and institutional factors have been considered in explaining financial inclusion in the Cauvery Delta Zone. From recent literature, it has been established that financial inclusion is influenced by an interplay between capability and socio-economic factors. According to Niankara (2023), there exists a significant correlation between financial inclusion and use of digital payments due to the fact that the former can be made easier through technology access when individuals have the capability to utilize such technologies. In India, Nandru et al. (2021) observed that accessibility and affordability are stronger

determinants than financial literacy for marginalized street vendors. Income and employment, along with infrastructural issues, were found to be significant dimensions of financial inclusion by Raichoudhury (2020). Pal and Gupta (2022) have also illustrated that literacy and participation of women in the economy can lead to economic inclusion. These researches thus add to the importance of studying financial literacy and certain socio-economic characteristics in the current study.

Financial literacy has increasingly become part and parcel of financial participation. Hersi (2023) in his study on the subject area found that there are different levels of association of financial literacy with financial outcomes depending on the population demographics. This means that financial capability is not necessarily consistent in all populations. According to Ilahiyah et al. (2020), developing financial literacy among individuals complements traditional education in encouraging financial participation. Financial literacy programs along with financial institutions can lead to higher financial participation in rural areas. For example, Sachdeva and Gupta (2014) conducted a study in rural India and found that financial literacy in combination with banking channels can result in more financial participation. Gounasegaran et al. (2013) have noted that unequal access to banking in the past has led to poor rural financial inclusion. This shows that financial literacy and access to financial institutions are crucial aspects of financial inclusion.

Intervention by institutions has also been widely covered within the discussion of financial inclusion, especially in the cases of financial services being supplemented by practices that enhance the economic capacities of people. It was shown by Antoh and Arhin (2018) that microfinance organizations can be involved in human capital development provided that financial services are supplemented with entrepreneurship-related help and non-financial services. Nevertheless, Milana and Ashta (2020) raised several concerns regarding the well-established statements about the benefits of microfinance for poverty alleviation and the need for further analysis of its broader consequences. Likewise, Ozili et al. (2023) indicated that there is a lot of previous literature about financial inclusion leading to economic development due to better financial intermediation, but differences in methods exist.

Research on financial inclusion from around the world has revealed that financial inclusion is not simply a matter of access to financial services. El-Zoghbi (2019) pointed out that an improvement in financial access helped build resilience among economically vulnerable groups, especially when the services were made suitable for their needs. Chinoda and Kapingura (2023) discovered that financial inclusion, facilitated through financial literacy and healthy competition in the banking sector, contributed to financial stability within the industry. Jima and Makoni (2023) further revealed that the connection between economic conditions and financial inclusion is not always straightforward, thus the necessity of relevant institutional and regulatory support. Finally, Mishra et al. (2024) stressed the socio-economic importance of inclusive financial institutions.

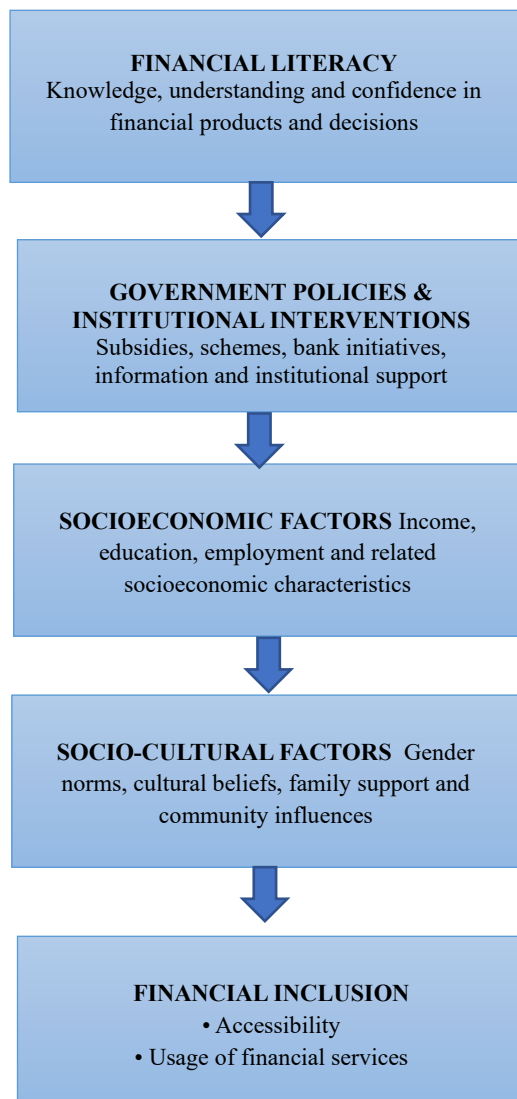
2.1 RESEARCH GAP

It is clear from the existing literature that financial inclusion has been analyzed from different angles, such as financial literacy, socio-economic factors, technological factors, institutional factors, and availability of financial services in general. Previous studies had shown that financial access played an important role in facilitating economic participation (Demirgüç-Kunt & Klapper, 2013). Later researches have shown that financial access was significantly affected by factors like education, income level, employment, and other socio-economic factors (Kumar, 2024; Raichoudhury, 2020). Financial literacy studies have shown that financial literacy and capability of individuals improved their ability to take effective financial decisions (Hersi, 2023; Sachdeva & Gupta, 2014). Some other studies have discussed the role of government policies, institutions, and financial service providers, though the efficacy of all these factors has not been consistent across different contexts.

Nevertheless, despite the huge amount of research work on the topic in question, an interesting issue that needs further investigation is still lacking in literature. The reason is that the evidence at hand was obtained mainly through national datasets, comparisons across countries, and other regional analysis rather than through studies dedicated specifically to the particular circumstances in the Cauvery Delta Zone. Furthermore, while financial literacy, socio-economic factors, and institutional interventions have been considered separately in various studies, they have not been incorporated into one empirical setting yet. In other words, little is known about the connection between financial literacy and financial inclusion and the role played by government and institutional interventions in such process..

This paper seeks to fill this void through an empirical analysis of these interconnected variables in a specific context and thus provide evidence that could help in designing context-sensitive strategies for enhancing financial inclusion in the Cauvery Delta region..

2.2 CONCEPTUAL FRAMEWORK OF THE STUDY



The conceptual model of the present research aims to represent the factors influencing the level of financial inclusion among Cauvery Delta Zone residents. According to the objectives and items included in the questionnaire, Financial Literacy, Government Policies and Institutional Interventions, and Socioeconomic Factors and Socio-Cultural Factors were identified as independent variables, while Financial Inclusion was measured the dependent variable.

Financial literacy means the respondents' knowledge and confidence in financial matters. Government policies and institutional interventions represent the performance of the government and institutions in terms of subsidies, financial inclusion-specific initiatives, informative actions, and accessible financial services. Socioeconomic factors refer to the impact of personal characteristics (e.g., income, education level, employment status) and financial literacy-related aspects (e.g., financial literacy exposure). Similarly, socio-cultural factors refer to the influence of socio-cultural elements on the level of financial inclusion. In this context, the conceptual model below was developed. It represents the connections between the variables involved in the study and serves as a theoretical basis for the subsequent analysis to verify the study's hypotheses. The conceptual model demonstrates how the independent variables impacting financial inclusion can be organized. It also provides a rationale for the objectives and hypotheses stated in the paper and contributes to the overall coherence of the conducted research.

III RESEARCH METHODOLOGY

The study adopts a quantitative, cross-sectional research design to empirically examine the determinants of financial inclusion in the Cauvery Delta Zone. The investigation focuses on three principal dimensions, namely financial literacy, selected socio-economic characteristics, and government and institutional interventions. Secondary information was obtained from academic publications, institutional reports, and other credible sources to provide contextual and conceptual support for the investigation. Primary data were collected from respondents residing within the study area through a structured questionnaire.

The target population comprises residents of the Cauvery Delta Zone who are eligible to access and utilise formal financial services. A stratified random sampling technique was employed to ensure appropriate representation across the selected districts and relevant respondent categories. The population was geographically stratified, following which respondents were randomly selected from the identified strata. The questionnaire was developed in accordance with the research objectives and the principal constructs identified through the relevant literature. It comprised structured statements measured predominantly on a five-point Likert scale, supplemented by demographic and socio-economic variables. Prior to the main survey, a pilot study was undertaken to evaluate the clarity,

appropriateness, and internal consistency of the research instrument. Following the pilot assessment, necessary refinements were incorporated and the questionnaire was finalised for the main investigation. A total of 452 valid responses were obtained and subjected to empirical analysis.

The internal consistency and reliability of the measurement constructs were assessed using Cronbach's alpha, while the suitability of the dataset for factor analysis was examined through the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity. Subsequently, Exploratory Factor Analysis (EFA) was employed to examine the underlying factorial structure of the measured constructs. Descriptive statistics were used to summarise the prevailing patterns and characteristics of financial inclusion among the respondents. Pearson's correlation analysis was employed to ascertain the direction and strength of relationships among the principal constructs, whereas regression analysis was conducted to examine the predictive relationships between the identified explanatory variables and financial inclusion. Collectively, these analytical procedures provide an empirical basis for addressing the research objectives and evaluating the proposed hypotheses.

3.1 RESEARCH QUESTIONS

- What is the relationship between financial literacy and the degree of financial inclusion among residents of the Cauvery Delta Zone?
- To what extent do government policies and institutional interventions influence the penetration and effectiveness of financial inclusion initiatives in the Cauvery Delta Zone?
- To what extent do socio-economic and socio-cultural factors influence the accessibility and adoption of financial services among residents of the Cauvery Delta Zone?

3.2 RESEARCH OBJECTIVES

- To assess the existing level of financial inclusion among residents of the Cauvery Delta Zone in terms of access to and usage of financial services.
- To examine the relationship between financial literacy and the degree of financial inclusion among residents of the Cauvery Delta Zone.
- To evaluate the influence of government policies and institutional interventions on the penetration and effectiveness of financial inclusion initiatives in the Cauvery Delta Zone.
- To examine the influence of selected socio-economic and socio-cultural factors on the accessibility and adoption of financial services in the Cauvery Delta Zone.

3.3 RESEARCH HYPOTHESES

H₀₁: There is no statistically significant relationship between financial literacy and the degree of financial inclusion among residents of the Cauvery Delta Zone.

H₀₂: There is no statistically significant relationship between government policies and institutional interventions and the penetration and effectiveness of financial inclusion initiatives in the Cauvery Delta Zone.

H₀₃: There is no statistically significant relationship between selected socio-economic and socio-cultural factors and financial inclusion among residents of the Cauvery Delta Zone.

IV DATA ANALYSIS AND INFERENCE

Table 1: Respondents Profile

Demographic Variable	Respondents	Percentage
Gender		
Male	238	52.7
Female	214	47.3
Age Group (Years)		
Below 25	62	13.7
25–34	118	26.1
35–44	136	30.1
45–54	92	20.4
55 and above	44	9.7
Educational Qualification		
Primary education	96	21.2

Secondary education	154	34.1
Higher secondary	108	23.9
Graduate & above	94	20.8
Occupation		
Farmer	168	37.2
Agricultural labourer	82	18.1
Self-employed	76	16.8
SHG member	74	16.4
Others	52	11.5
Monthly Income (₹)		
Below 10,000	124	27.4
10,001–20,000	168	37.2
20,001–30,000	96	21.2
Above 30,000	64	14.2
District (Cauvery Delta Zone)		
Thanjavur	132	29.2
Tiruvarur	104	23.0
Nagapattinam	86	19.0
Mayiladuthurai	78	17.3
Others	52	11.5

The distribution of the demographics indicates that the population groups were adequately covered by the survey. In particular, the sample comprises 52.7% of males and 47.3% of females. The age distribution is skewed towards the economically active population, with the largest group comprising people aged 35–44 years (30.1%), followed by those aged 25–34 years (26.1%). Secondary education is the most common level of education (34.1%), while 20.8% of the respondents have graduate or higher education. The survey covers a broad range of occupations, but the largest group consists of farmers (37.2%), which reflects the general trend of the study area being an agricultural region. The majority of the respondents earn between ₹10,001 and ₹20,000 monthly (37.2%), while 27.4% earn below ₹10,000, which illustrates the overall low level of income. Lastly, the largest group of respondents comes from Thanjavur (29.2%), followed by Tiruvarur (23%).

Table 2: Table indicating Socio-Economic Statistics

SE Variable	Respondents	Percentage
Type of Family		
Nuclear	276	61.1
Joint	176	38.9
Marital Status		
Married	332	73.5
Unmarried	120	26.5
Land Ownership		
Landless	118	26.1
Below 2 acres	164	36.3
2–5 acres	108	23.9
Above 5 acres	62	13.7
Primary Source of Income		
Agriculture	194	42.9
Agricultural labour	84	18.6
Business/Self-employment	92	20.4
Salaried employment	82	18.1
Bank Account Ownership		
One account	258	57.1

More than one account	194	42.9
Type of Bank Account		
Public sector bank	296	65.5
Private sector bank	96	21.2
Cooperative bank	60	13.3
Access to Government Benefits (DBT)		
Yes	338	74.8
No	114	25.2

The socio-economic characteristics of this survey indicate that the most of the respondents are family- or agriculture-oriented. 61.1% belong to nuclear families while 73.5% are married and therefore take on considerable workloads at home. Few respondents own considerable agricultural land: 26.1% do not own any and 36.3% own less than two acres. 42.9% of the respondents identify their main source of income as agriculture and 20.4% as either business or self-employment: The area is clearly agrarian. Banking is fairly widespread with 57.1% having a single bank account and 65.5% with public sector banks. 74.8% of the respondents have access to Direct Benefit Transfer facilities. In summary, the profile demonstrates high levels of institutional connectivity but considerable socio-economic constraints.

Table 3: Reliability Analysis of Study Constructs

Construct	No. of Items	Cronbach's Alpha (α)
Financial Inclusion	10	0.85
Government Policies and Institutional Interventions	10	0.83
Socioeconomic Factors	10	0.81

The results of the test for reliability are presented below. It can be seen that all three constructs possess an adequate level of consistency. The scale measuring financial inclusion has the highest Cronbach's alpha coefficient ($\alpha=0.85$) among the 10 variables comprising it implying consistency in measuring the construct in question. The Government Policy and Institutional Interventions have an alpha coefficient of 0.83 while the Socio-Economic factors have a coefficient of 0.81 both showing dependability in measuring the constructs. Since all the alpha coefficients are higher than 0.70 (widely accepted level of alpha) they show adequate reliability to be used in further research.

Table 4: KMO and Bartlett's Test of Sphericity

Test	Value
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy	0.842
Bartlett's Test of Sphericity	
Chi-Square	2316.48
Degrees of Freedom (df)	231
Significance (p-value)	0.000

The results of the Kaiser-Meyer-Olkin test and Bartlett's test prove that this dataset is fit for factor analysis. The Kaiser-Meyer-Olkin value of 0.842 shows good sampling adequacy because of the high amount of common variance in the variables, which allows for the extraction of factors from the dataset. According to the Bartlett's test of sphericity, the result of the chi-square value is 2316.48 with 231 degrees of freedom and is significant ($p < 0.001$). Therefore, it can be concluded that the null hypothesis regarding the identification matrix has been rejected and there is enough correlation among the variables. Overall, it is proved that the correlation matrix is fit for exploratory factor analysis.

Table 5: Table indicating Exploratory Factor Analysis Factor Loadings

Item Code	Factor Loadings	Item Code	Factor Loadings
B-FI 1	0.78	C-GP 6	0.69
B-FI 2	0.82	C-GP 7	0.73

B-FI 3	0.74	C-GP 8	0.81
B-FI 4	0.69	C-GP 9	0.77
B-FI 5	0.71	C-GP 10	0.75
B-FI 6	0.76	E-SF1	0.74
B-FI 7	0.79	E-SF2	0.69
B-FI 8	0.68	E-SF3	0.66
B-FI 9	0.64	E-SF4	0.85
B-FI 10	0.88	E-SF5	0.79
C-GP 1	0.83	E-SF6	0.73
C-GP 2	0.79	E-SF7	0.70
C-GP 3	0.85	E-SF8	0.71
C-GP 4	0.84	E-SF9	0.81
C-GP 5	0.81	E-SF10	0.79

As seen in the exploratory factor analysis, all the 30 selected items have significant loadings with respect to their factors, where the loadings are within the range of 0.64 and 0.88. The Financial Inclusion Access and Usage items have loadings within the range of 0.64 and 0.88, where B-FI10 has the maximum loading of 0.88. The loadings for the Government Policies and Institutional Interventions items have been within the range of 0.69 and 0.85, where C-GP3 has the maximum value. The same is the case with the Socioeconomic Factors items, which have the loadings within the range of 0.66 and 0.85, where E-SF4 has the maximum value.

4.1 Financial Inclusion Accessibility and Usage

The mean-score analysis indicates the significant difference between physical accessibility to and effective use of financial services among age, gender, district, employment, and education groups. With regard to the overall mean, respondents indicated a positive perception of access to banking services ($M = 4.85$) and awareness of financial products ($M = 4.56$), but highlighted the significant difficulty in terms of documentation ($M = 4.86$), while reporting a high level of reliance on informal financial institutions ($M = 4.86$). By comparison, the overall perception of the respondents was low in terms of affordability ($M = 2.10$), confidence to approach formal financial institutions ($M = 2.33$), and level of services to meet daily necessities ($M = 2.35$).

Respondents aged 18-30 years showed a high perception of physical accessibility to financial services and difficulty in terms of documentation ($M = 4.97$), whereas those aged 31-45 years exhibited a high use of financial services ($M = 2.60$). Female respondents reported a significantly higher level of perceived accessibility to financial services than their male counterparts ($M = 4.97$), while men showed a higher use of ($M = 4.560$), confidence to approach ($M = 4.561$), and perception of affordability ($M = 4.562$) of financial services. With regard to the district, Tiruvarur and Nagapattinam recorded a relatively higher level of physical accessibility to financial services, but a high reliance on informal financial institutions.

Self-employed respondents reported the highest perception of physical accessibility to financial services ($M = 4.563$), while unemployed respondents recorded a relatively higher use of financial services ($M = 4.564$). Graduate respondents exhibited a higher level of use of ($M = 4.565$) and confidence in formal financial institutions ($M = 4.566$) than those with lower educational qualifications. In general, the study revealed that the perceived level of financial accessibility was inadequate, which implies the need for enhancing affordability, financial literacy, accessibility, and confidence in using formal financial services.

4.2 Government Policies and Institutional Interventions

The mean-score results suggest that in general respondents appear to view formal government-supported banking mechanisms positively, albeit with significant weaknesses in terms of institutional outreach and reducing dependence on informal credit. Across the groups examined, respondents rate the simplicity and transparency of bank loan procedures under government schemes most highly overall ($M = 4.86$), followed by the accessibility offered through bank initiatives such as no-frills accounts ($M = 4.82$), and PMJDY's encouragement of bank-account opening ($M = 4.81$). These findings suggest that formal access mechanisms are relatively well recognised by respondents.

Age-wise, the 18–30 group reports particularly favourable perceptions of bank initiatives improving accessibility ($M = 4.97$), while those aged 46–60 provide a comparatively positive assessment of policy implementation ($M = 4.54$). Gender differences are modest; however women report higher perceptions of no-frills account accessibility and PMJDY encouragement (both $M = 4.87$) and greater confidence in the transparency of government-scheme loans ($M = 4.91$). Men, however, report somewhat higher perceptions of the contribution of government subsidies to financial access ($M = 4.79$) and policy implementation ($M = 4.47$).

Income, marital status, and occupation also reveal variations in institutional perceptions. Lower-income respondents show favourable views of subsidies and bank accessibility, while higher-income respondents report comparatively greater perceptions of benefits from government credit schemes and local institutional support. Among occupational groups, non-farm labourers record particularly high ratings for accessibility and loan transparency, whereas farmers report weaker perceptions of institutional promotion of government schemes ($M = 1.69$) and reduction in informal-credit dependence ($M = 4.820$).

Overall, the findings reveal a clear distinction between formal financial access and effective institutional outreach, suggesting scope for stronger promotion, information dissemination, and mechanisms to encourage greater transition from informal to formal sources of credit.

4.3 Socioeconomic Factors

The results indicate significant differences in participants' perception of financial literacy and fiscal addition based on gender, employment, education, income, and occupation. Compared to males, females report higher mean scores for their perceptions of financial-management knowledge ($M = 4.48$), education facilitating financial access ($M = 4.70$), and regular use of financial services ($M = 4.14$). Furthermore, women perceive higher levels of socio-cultural restrictions and family support, both of which score $M = 4.71$ on average. Male participants, however, express significantly higher confidence in their financial decision-making abilities, which score $M = 2.61$ on average. Education is generally perceived as a critical facilitator of access to finance, scoring $M = 4.50$ on average, but respondents' confidence in their financial decision-making remains comparatively low, scoring $M = 2.45$ on average.

Unemployed respondents report the highest mean understanding of savings, loans, and insurance products at $M = 4.46$, and recognise the role of education in facilitating financial access more than their employed counterparts ($M = 4.59$). The self-employed, meanwhile, report comparatively higher levels of regular financial-services use ($M = 4.06$). Despite this, confidence in making financial decisions remains low across employment groups, ranging between $M = 4.700$ and 2.50 on average, and respondents report limited participation in financial-literacy programmes.

Respondents with higher levels of education report comparatively higher confidence in their financial decision-making abilities ($M = 4.701$) and wider participation in financial-literacy programmes ($M = 4.702$). Still, they report perceptions of socio-cultural and employment-related constraints. Income differentials do not appear to determine financial capability, as higher-income respondents report slightly higher confidence in their financial decision-making, and lower-income respondents report higher levels of encouragement from family members and perceptions of cultural barriers. Occupational category also influences respondents' perceptions, as non-farm labourers report comparatively greater product knowledge ($M = 4.703$), whereas salaried workers report higher recognition of the role of education in facilitating financial access ($M = 4.704$). Overall, the results suggest that awareness and recognition remain relatively high, but confidence in making financial decisions and participation in financial-literacy programmes remains low.

4.4 H₀₁: There is no statistically significant relationship between financial literacy and the degree of financial inclusion among residents of the Cauvery Delta Zone

The data from the Pearson correlation show that there is a very strong positive relationship between financial literacy and financial inclusion of the respondents. Indeed, the correlation coefficient is $r = 0.886$, significant at the 1% level ($p < 0.001$; two-tailed; $N = 452$). This means that respondents who scored high on the financial literacy test also tend to report high financial inclusion levels. Suffice to say that the strength and significance of the observed relationship allow one to reject H₀₁, claiming that there is no substantial link between the two variables. Nonetheless, the obtained value only proves association, not causation, so one cannot claim that higher financial literacy causes higher financial

inclusion. In general, the result suggests that financial knowledge and willingness to engage in financial services are strongly correlated..

Table 6: Pearson Correlation Analysis of Financial Inclusion and Financial Literacy

Variables	Financial Inclusion	Financial Literacy
Financial Inclusion	1.000	0.886**
Financial Literacy	0.886**	1.000
Sig. (2-tailed)	—	< 0.001
N	452	452

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

4.5 H₀₂: There is no statistically significant relationship between government policies and institutional interventions and the penetration and effectiveness of financial inclusion initiatives in the Cauvery Delta Zone.

The outcomes of the simple linear regression analysis disclose that GPMEAN significantly and positively predicts FIAMEAN. In particular, the model reports $R = 0.721$ and $R^2 = 0.520$, suggesting that government policies and institutional interventions account for approximately 52.0% of the observed variance in financial inclusion. The fit of the model is further supported by the fact that the adjusted R^2 was 0.519, which also suggests that the model has a stable explanatory capacity. The regression model is also statistically significant, $F(1, 459) = 497.173$, $p < 0.001$. Finally, GPMEAN has a significant positive coefficient ($B = 0.997$, $\beta = 0.721$, $t = 22.297$, $p < 0.001$), a 95% confidence interval of which is 0.909–1.085. Thus, the relevant null hypothesis is rejected. Specifically, the estimated equation, $FIAMEAN = -0.334 + 0.997(GPMEAN)$, suggests that a one-unit rise in GPMEAN is related with an estimated 0.997-unit rise in FIAMEAN.

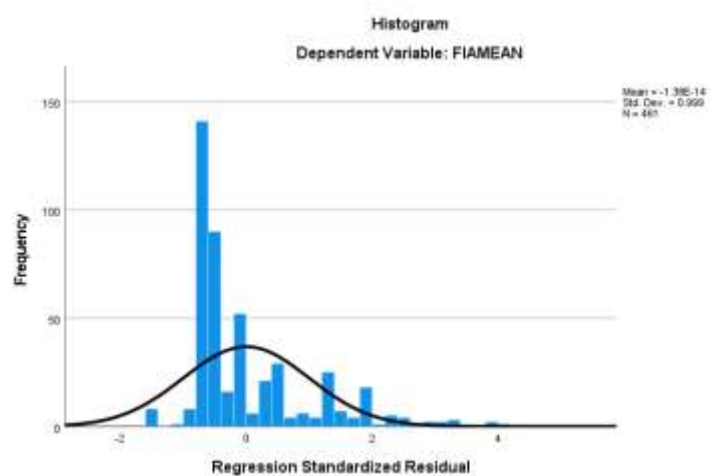


Table 7. Simple Linear Regression Analysis of GPMEAN on FIAMEAN

Predictor	B	Std. Error	β	t	p-value	95% CI for B			
Constant	−0.334	0.164	—	−2.030	0.043	−0.657 to −0.011			
GPMEAN	0.997	0.045	0.721	22.297	<0.001	0.909 to 1.085			
Model				R	R ²	Adjusted R ²	F	df	Sig.
Government Policies → Financial Inclusion				.721	.520	.519	497.173	1, 450	< .001

Dependent Variable: FIAMEAN

Predictor: GPMEAN

Note: B = Unstandardized coefficient; β = Standardized coefficient; CI = Confidence Interval. $p < 0.01$.

RE: $FIAMEAN = -0.334 + 0.997(GPMEAN)$

The regression result provides strong empirical evidence that GPMEAN has a significant positive effect on FIAMEAN ($\beta = 0.721$, $p < 0.001$). Therefore, the hypothesis stating that GPMEAN significantly influences FIAMEAN is supported.

4.6 H₀₃: There is no statistically significant relationship between selected socio-economic and socio-cultural factors and financial inclusion among residents of the Cauvery Delta Zone.

The results of multiple regression analysis show that the factors of financial literacy, socio-cultural influences, and socioeconomic characteristics significantly predict the outcome of financial inclusion. Specifically, the model recorded $R = 0.914$ and $R^2 = 0.835$ which implies that 83.5% of FIAMEAN was explained by the combined influence of the three predictors. The value of the adjusted R^2 was 0.834 which suggested that the model fit the data well. Overall, the regression model was significant, $F(3,457) = 770.529$, $p < 0.001$. Financial literacy emerged as a sturdy predictor of financial inclusion ($\beta = 0.673$, $p < 0.001$), followed by the socio-cultural factors ($\beta = 0.265$, $p < 0.001$), and socioeconomic characteristics ($\beta = 0.079$, $p = 0.010$). Since the three predictors were significant, it can be concluded that each uniquely predicted the outcome variable. Financial literacy uniquely predicted financial inclusion better than the other two factors.

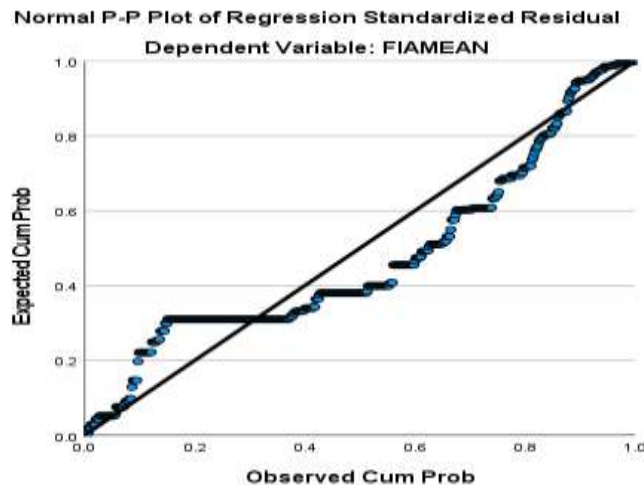


Table 8. Multiple Regression Analysis of Factors Influencing Financial Inclusion

Predictor	B	Std. Error	β	t	p-value	95% CI for B
Constant	0.100	0.091	—	1.104	0.270	-0.078 to 0.279
Socioeconomic Characteristics	0.085	0.033	0.079	2.581	0.010	0.020 to 0.150
Financial Literacy	0.593	0.029	0.673	20.552	<0.001	0.537 to 0.650
Socio-Cultural Factors	0.282	0.025	0.265	11.436	<0.001	0.234 to 0.331

Model Summary

R	R ²	Adjusted R ²	Std. Error of Estimate	F	df	p-value	N
0.914	0.835	0.834	0.35419	770.529	3,448	<0.001	452

Dependent Variable: Financial Inclusion (FIAMEAN)

Predictors: Socioeconomic Characteristics, Financial Literacy, and Socio-Cultural Factors.

Note: B = Unstandardized coefficient; β = Standardized coefficient; CI = Confidence Interval.

RE: FIAMEAN = 0.100 + 0.085(Socioeconomic Characteristics) + 0.593(Financial Literacy) + 0.282(Socio-Cultural Factors)

The standardized beta coefficients indicate that Financial Literacy is the strongest predictor of Financial Inclusion ($\beta = 0.673$), followed by Socio-Cultural Factors ($\beta = 0.265$) and Socioeconomic Characteristics ($\beta = 0.079$). All three predictors are statistically significant at the 5% level. The model's $R^2 = 0.835$ indicates that the predictors collectively account for 83.5% of the variation in financial inclusion, representing a very strong explanatory power.

V DISCUSSION & RESULTS

5.1 Major Findings of the Study

The results demonstrate several key findings related to financial inclusion in the Cauvery Delta Zone. First, the sample is skewed towards economically active and agricultural populations. Farmers

comprised the major part of the respondents (37.2%) monitored by respondents with a lower-middle income group reporting a monthly income of less than INR 5000. Demographically, the sample size covers a considerable portion of the economically active population in the district, which influences the financial inclusion indicators in the Cauvery Delta Zone.

Second, the results indicate high levels of financial accessibility in terms of physical presence of banks/ $M = 4.85$ and awareness of financial products/ $M = 4.56$. However, the data suggests that affordability/ $M = 2.10$, confidence/ $M = 2.45$, and adequacy of financial services are low compared to other indicators. Besides, documentation/ $M = 4.86$ and reliance on informal sources/ $M = 4.86$ were reported as barriers to financial inclusion in the Cauvery Delta Zone. The overall assessment suggests that the mere existence of formal financial institutions does not guarantee their sustainable use in the Cauvery Delta Zone.

Finally, the results indicate a positive perception of government-backed financial inclusion initiatives compared to private institutions. The ease of access to loans under government schemes recorded the highest mean score ($M = 4.86$). Other important initiatives include no-frills accounts offered by banks/ $M = 4.82$ and promotion of PMJDY/ $M = 4.81$. In contrast, institutional promotion of government schemes/ $M = 2.13$ and reduction in reliance on informal credit/ $M = 4.560$ were reported low across all respondents.

Fourth, financial literacy exhibits a highly positive association with financial inclusion ($r = 0.886$, $p < 0.001$). Thus, the null hypothesis about the statistical significance of their relationship is rejected. Moreover, financial literacy proves to be the best predictor among the model's independent variables ($\beta = 0.673$, $p < 0.001$).

Finally, the multiple regression model estimates that 83.5% of the variance in the dependent variable can be explained by the independent variables ($R^2 = 0.835$). Notably, financial literacy, socio-cultural characteristics, and socio-economic indicators all have a significant impact on financial inclusion. Overall, it can be concluded that promoting financial inclusion in the Cauvery Delta Zone should not be limited to the expansion of formal banking services but should also include financial literacy, physical accessibility to banks, and an institutional outreach strategy.

5.2 Theoretical Implications

The study adds value to the financial inclusion literature by linking financial literacy, government and institutional initiatives, and socio-economic determinants within an umbrella conceptual model for the Cauvery Delta Zone. The robust association between financial literacy and financial inclusion ($r = 0.886$, $p < 0.001$) underscores the view that mere accessibility is not enough, as people need the know-how and confidence to benefit from available services. The multiple regression analysis further reveals that financial literacy exerts the highest influence on financial inclusion ($\beta = 0.673$), followed by socio-cultural aspects ($\beta = 0.265$) and socio-economic characteristics ($\beta = 0.079$). Overall, the study builds on existing literature by highlighting the need for complementing individual capability with contextual socio-economic variables.

5.3 Practical Implications

The results have suggestions for banks, representatives, local institutions, and fiscal addition programmes. While respondents reported positive perceptions of formal access to banking services, relatively low scores for institutional promotion of government schemes and reduction of reliance on informal credit suggest a need for greater grassroots outreach. Financial-literacy initiatives should go beyond raising awareness and focus on encouraging decision-making regarding savings, credit, insurance, and other financial products. Banks and government agencies can increase their inclusion by making documentation and loan processes simpler and more communicative of the available schemes and tailoring them to farmers, low-income households, women, and other vulnerable groups. The evidence also suggests that access, awareness, affordability, and effective utilisation should be pursued in tandem rather than as separate policy objectives.

5.4 Suggestions

The results demonstrate that financial inclusion in the Cauvery Delta Zone is associated with more than just formal banking access; financial literacy programs must go beyond simply providing access to bank accounts, credit, and insurance and focus on building an adequate understanding of financial tools and instruments ($r = 0.886$, $p < 0.001$; $\beta = 0.673$). In addition, government agencies and banks must increase awareness and outreach among the population and address the challenges related to the perception of

scheme promotion and reduced informal credit dependence. Farmers, low-income households, and other vulnerable groups with little or no access to financial-literacy programs and those with limited interest in such programs need special attention and support. Lastly, community-level interventions targeting socio-cultural barriers to financial inclusion, particularly among women, may be beneficial in promoting lasting behavioral change and increasing the number of financially included households.

VI CONCLUSION

The study determines that financial inclusion in the Cauvery Delta Zone is partial by financial literacy, government/institutional interventions, and socio-economic characteristics. The results show that there is a very strong optimistic association between financial literacy and financial inclusion ($r = 0.886$, $p < 0.001$), while the regression results further reveal that financial literacy has the strongest predicting power among the variables considered ($\beta = 0.673$, $p < 0.001$). The study further shows that government policies and institutional interventions have a important positive predictive association with financial inclusion, explaining about 52% of its variance. In addition, while the descriptive results report a relatively high formal banking access indicator in the region, the study reveals that institutional outreach, financial-decision confidence, and the reduction of reliance on informal credit are an area of concern. Socio-economic and socio-cultural factors are also reported as significant influencers of financial inclusion. Overall, the outcomes suggest that the situation of sustainable financial inclusion goes beyond just a question of physical banking access and may require emphasis on financial capability, institutional outreach, and socio-economic considerations.

Limitation of the Study

The study has a few limitations. It has a cross-sectional design which means it can only seizure respondent perceptions at a point in time and cannot capture changes over time. The study was also limited to the Cauvery Delta Zone making it difficult to generalize the results. Lastly, the study relied on self-reported information which could have introduced perceptual or response bias.

Future Scope of the Study

Future research can extend the analysis through longitudinal and comparative studies, incorporating digital financial inclusion, technological accessibility, and district-level differences to develop more comprehensive and context-specific financial inclusion strategies.

Author Contributions

Ms. Sajana KP (Research Scholar): Contributed to the conceptualisation and design of the study, primary data collection, statistical analysis, interpretation of findings, and preparation of the manuscript.

Dr. Thiruvankadam T (Guide): Provided academic supervision and methodological guidance and final approval of the manuscript. All authors reviewed and approved the final version of the manuscript.

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