Bodhi International Journal of
Research in Humanities, Arts and Science

Vol. 10 Special Issue 2 December 2025
E-ISSN: 2456-5571

A Study on Sustainable Economic Development in Fintech with Special Reference to Selected Districts of Tamil Nadu

Dr. K. Sowmiya

Assistant Professor, Department of Commerce, Srimad Andavan Arts and Science College (A), Tiruchirappalli Affiliated to Bharathidasan University, Tiruchirappalli, Tamil Nadu

Open Access

Manuscript ID:
BIJ-SPL2-Dec25-ECO-067

Subject: Commerce

Received : 06.10.2025
Accepted : 25.10.2025
Published : 31.12.2025

DOI: 10.64938/bijsi.v10si2.25.Dec067

Abstract

In most of the companies, the financial technology has now become a necessary driver of the infrastructure. The solutions are incorporated and involves the Fintech that become a disruptive instrument for facilitating sustainable growth in different places. The paper tries to examines the prospects of fintech solutions in enhancing sustainable economic growth in Cities of Tamil Nadu namely Trichy and Coimbatore. This area has a strong industrial foundation with the rapid expansion of digital landscape that offers some special opportunities to fintech based programs. With the incorporation of digital financial services that including with mobile banking, digital payments along with blockchain technology. Fintech can be used to become an agent of transitional impact in inclusive growth and serving the local needs of the socioeconomic issues and problems in the study area. The study also looks and analyses about the fintech performance that can enhance the access to the financial services to the lower income groups such as small businesses, women entrepreneurs and rural residents. The Financial accessibility would empower these groups with the result of them being able to attain the economic stability and would contribute more to the local economy. The local industries such as textiles can be supported with the adoption of fintech solution to be more transparent with the supply chain and optimize its efficiency in transactions. The paper will also emphasize that the fintech can be used to facilitate environmental sustainability. Digital channels are lowering the amount of paper used with the minimum required physical infrastructure. This enables the green financing process Esier TO invest in the renewable energy projects and green practices. The study strongly suggests the strategic framework to maximize the benefit of the fintech to sustainable development by suggesting the policy initiatives, partnerships, and community involvement to design an inclusive, resilient and sustainable digital economy.

Keywords: fintech, sustainable economic development

Introduction

Financial Technology (FinTech) is having incredible process that has transformed the way financial services are offered, bringing new opportunities to improve economic development. The emerging countries like India, the fintech solutions are playing a important role in bridging the financial inclusion gap, providing the innovative solutions to access the financial products and services. The technology continuing to progress, where there is a growing recognition of the potential that it holds for thriving the sustainable economic growth and addressing the

critical challenges such as poverty and inequality with environmental sustainability. In the context of Tiruchirappalli (Trichy) and Coimbatore districts in the state of Tamil Nadu, there is much scope for FinTech-based solutions to move towards the development of the region. Both districts, with their diverse economic activities that range from agriculture to manufacturing to services and information technology, are at a point where there is a need to balance economic growth with sustainable practices. Trichy and Coimbatore are important economic centres of Tamil Nadu where Coimbatore one of the most important technological as well as industrial centres and Trichy has a rich agricultural base.

Statement of the Problem

The fintech is providing an innovative pathway in order to address the challenges especially by improving the financial inclusions for the undeserved, empowering SME's and investing in the green technologies and sustainable business practices. Those challenges are like limited access to formal financial services; low levels of financial literacy and underdevelopment digital infrastructure limit the potential of these areas of the study. For e.g. the digital platforms can be used to provide the micro-loans o farmers, artisans and startups while the blockchain technology can be used to provide the transparency in financial transactions. These can help to reduce the corruption and improve the governance. The Fintech solutions such as digital payment systems, mobile wallets as well as shall help o improve the access to services, by reducing the transaction costs and increasing the efficiency of the business operations.

The study aimed to brings out the impact of Fintech based solution on sustainable economic development in the cities of Coimbatore and Trichy. After the through understanding about these technologies that can be used to meet the need specifically to our local communities and industries. This research aims to help and identify the pathways for building the long-term economic obstacles to the widespread use of Fintech including the technological infrastructure, with the regulatory issues and divide digitally while offering the recommendations for policy makers, financial institutions and other stakeholders to foster their development of Fintech in these cities.

Review of Literature and Research Gap

The potential of fintech in facilitating the transformation of sustainable economic development in the point of Global scholarships. Lieu et al(2021) in their paper clearly noted that the financial services who helps to promoted the financial inclusions by increasing to access the banking and credit for low-income group of population. The fintech can help to improve the financial literacy by offering more budgeting applications and mobile banking was highlighted in their research by Zohar and Shmueli (2020). Whereas Muller and Wolter (2022) have showed that the fintech innovations were reduced the access of finance for SMEs and as a result to stimulate the entrepreneurship and economic growth.

In the research paper of Batiz-Lazo et al (2020), digital payments are having an effective tool, since they can increase the transparency of economic transactions and to reduce informality. Yang and Zhao (2020) were also discussed the emergence of green finance with the Fintech and its contribution to sustainable investments and eco-friendly projects. The significance of the regulatory frameworks, blockchain's role in trust building and transparency are also linked with the fintech sustainable development goals were highlighted in the research of Thompson (2019), Narayan and Gupta (2021), where these are demonstrated its contributions to rural economic growth in the emerging markets by Lee et al (2020). Altogether these studies are out of the role of Fintech as a catalyst for financial inclusion, sustainability and entrepreneurship.

There are more studies that have been focused on fintech inclusion in semi-urban and rural areas. The digital payments and mobile wallets were helping in extend the access to financial services in marginal areas were found by Kumar and Sharma (2020). Fintech has its own potential to enhance the financial literacy which was pointed out by Patel

(2021) and also Choudhary et al (2022) supported the constructive role of micro leading and digital payments to assist the small farmers in Tamil Nadu. Reddy and Rao (2021) were found that the mobile banking services are increased the access of SMEs to the capital and inefficiencies were reduced.

At the next level of policy framing, Bhatia (2020) were identified the digital India were initiated to be a major driver of fintech adoption. Singh and Gupta(2021) were stated in their research about the blockchain is used to increase the transparency and decrease the fraud in the financial services. Though the demonstration were identified with the lack of connectivity and infrastructural gaps that are still hampers the adoption of Fintech in the rural regions. Kaur et al. (2020) pointed out the existence of persistent barriers across gender-specific aspects, and Suresh and Reddy (2022) illuminated the role FinTech can play in enabling sustainable entrepreneurship models through eco-friendly models.

While there is strong evidence in the literature showing FinTech's impact on inclusion, entrepreneurship, and transparency, there are still some gaps. Despite, the popularity of the financial inclusion literature, there has been a lack of research into infrastructural and socio-cultural barriers in rural India (Patel & Mehta, 2020). Second, although blockchain and regulatory frameworks are identified as sources of transparency and scalability (Narayan & Gupta, 2021; Singh & Gupta, 2021), there is little empirical support for interoperability and long-term policy support. Third, green finance and sustainable entrepreneurship (Zhao & Yang, 2020; Suresh & Reddy, 2022) studies are quite conceptual, with few quantitative proofs on the relation of FinTech adoption to measurable SDGs progress. The small region is having specific analyses are available for cities such as Tiruchirappalli and Coimbatore where the presence of socio-economic diversity and digital learning challenges that calls for a context with specific investigation.

Objectives of the Study

The primary objective of this study is to explore the role of FinTech-based solutions in promoting sustainable economic development in the districts of Tiruchirappalli (Trichy) and Coimbatore, Tamil Nadu. The specific objectives are as follows:

- To examine the role of FinTech solutions in enhancing financial inclusion and literacy among rural and semi-urban communities in Trichy and Coimbatore.
- To assess the challenges and barriers including the digital literacy, infrastructure, policy that are affecting the adoption of FinTech services among the users in the study regions.
- To examine the perceived benefits of fintech services among the different categories of users.

Proposed Methodology for the Research Work

The research methodology being used in this study will be a mixed-method approach, which will use both quantitative and qualitative methods in this study for studying the role of FinTech-based solutions in sustainable economic development of Trichirappalli (Trichy) and Coimbatore districts. It will be a descriptive and exploratory research design. For this proposal of study on Fintech-based solutions for sustainable economic development in Tiruchirappalli and Coimbatore, the sample size is proposed as 268 respondents. The sample will consist of an equal representation of SME owners, farmers, employees and other important stakeholders from urban and rural areas of the districts. Stratified random sampling will be used to ensure representation of people from different sectors and socio-economic backgrounds. Furthermore, the large sample size will ensure that the findings on fintech adoption, its effects, and the challenges it faces are robust and reliable, thereby increasing the validity and generalizability of the study.

Data Analysis

Independent Sample T-test

Table 1 Showing the Independent Sample T – test between the Gender with the Benefits and Barriers

Particulars	Group 1 Male		Group 2 Female		t(df)	p	Cohen's d
	Mean	SD	Mean	SD			
Benefits	2.98	1.20	2.98	1.22	0.008	.939	1.21
Barriers	2.91	1.19	3.06	1.25	-1.036	.212	1.22

An independent-samples t-test was employed to examine whether participants differed in their perceptions of the benefits and barriers of FinTech adoption based on gender. Prior to analysis, the data were screened for adherence to the assumptions of Normality and Homogeneity of variance, which were found to be satisfactory, thereby validating the use of a parametric test.

The analysis revealed no statistically significant difference in perceived benefits between male (M = 2.98, SD = 1.20) and female (M = 2.98, SD = 1.22) respondents, $t(262) = 0.008$, $p = .939$. The effect size, expressed as Cohen's d, was 1.21; however, given the negligible mean difference, this value does not indicate any meaningful practical difference between groups.

Similarly, gender did not significantly influence perceptions of barriers. Male respondents (M = 2.91, SD = 1.19) and female respondents (M = 3.06, SD = 1.25) reported comparable levels of perceived barriers, $t(262) = -1.036$, $p = .212$, with an effect size of $d = 1.22$.

Taken together, these findings suggest that gender does not serve as a differentiating factor in shaping respondents' perceptions of either the benefits or the barriers associated with FinTech usage. The near-identical mean scores across groups underscore that male and female participants evaluate these dimensions in a largely similar manner.

Table 2 Showing the Independent Sample T – test between the Districts with the Benefits and Barriers

Particulars	Group 1 Trichy		Group 2 Coimbatore		t(df)	p	Cohen's d
	Mean	SD	Mean	SD			
Benefits	2.94	1.25	3.05	1.17	-0.706	0.258	1.21
Barriers	3.05	1.18	2.93	1.26	0.824	.517	1.22

An independent-samples t-test was conducted to assess whether respondents from the districts of Trichy and Coimbatore differed in their perceptions of the benefits and barriers associated with FinTech adoption. Preliminary checks confirmed that the assumptions of Normality and Homogeneity of variance were met, validating the use of a parametric approach for these comparisons.

The analysis revealed no statistically significant difference in perceived benefits between respondents from Trichy (M = 2.94, SD = 1.25) and Coimbatore (M = 3.05, SD = 1.17), $t(266) = -0.706$, $p = .258$. The effect size, as measured by Cohen's d (d = 1.21), indicated that the practical magnitude of this difference was negligible despite the statistical result.

Similarly, no meaningful difference emerged in perceived barriers. Respondents from Trichy (M = 3.05, SD = 1.18) and Coimbatore (M = 2.93, SD = 1.26) reported comparable levels of perceived barriers, $t(266) = 0.824$, $p = .517$, with a small effect size (d = 1.22).

Collectively, these findings suggest that district of residence does not substantially influence individuals' perceptions of either the benefits or the

barriers related to FinTech adoption. This indicates a broadly consistent attitudinal pattern across respondents from both geographical contexts.

One-Way Anova

- **Null Hypothesis:** There is no significant difference in the mean scores of perceived benefits and barriers across the different purposes of investment.
- **Alternate Hypothesis:** There is a significant difference in the mean scores of perceived benefits and barriers across the different purposes of investment.

Table 3 Descriptive Statistics of Benefits and Barriers across Investment Purposes

	Main Purpose of Investments	N	Mean	Std. Deviation
Benefits new	1.00	143	3.0594	1.23011
	2.00	20	2.8750	1.19621
	3.00	41	2.9756	1.26837
	4.00	37	2.7838	1.21644
	5.00	9	3.4722	.64280
	Total	250	3.0050	1.21496
Barriers new	1.00	143	2.9476	1.21132
	2.00	20	2.7375	1.27598
	3.00	41	3.2744	1.30121
	4.00	37	3.0811	1.19177
	5.00	9	2.9444	1.02909
	Total	250	3.0040	1.22187

Table 4 Levene's Test for Equality of Variances

	Levene Statistic	df1	df2	Sig.
Benefits new	1.922	4	245	.107
Barriers new	.576	4	245	.681

Table 5 One-Way ANOVA Results for Benefits and Barriers across Investment Purposes

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Benefits new	Between Groups	4.573	4	1.143	.772	.545
	Within Groups	362.984	245	1.482		
	Total	367.556	249			
Barriers new	Between Groups	5.125	4	1.281	.856	.491
	Within Groups	366.621	245	1.496		
	Total	371.746	249			

Interpretation of One-Way ANOVA Results

Table 1 presents the descriptive statistics for perceived benefits and barriers of investment across different purposes. The mean scores for benefits ranged from 2.78 to 3.47, with respondents citing investment for category 5 reporting relatively higher perceived benefits (M = 3.47, SD = 0.64), whereas those in category 4 reported comparatively lower benefits (M = 2.78, SD = 1.21). For barriers, the mean values ranged between 2.74 and 3.27, with category 3 showing the highest perception of barriers (M = 3.27, SD = 1.30). Although variations are

visible in the mean scores across purposes, the standard deviations suggest considerable overlap, indicating that differences might not be statistically significant.

To assess the suitability of applying ANOVA, Levene's Test for homogeneity of variances was conducted (Table 2). The results were non-significant for both benefits ($p = 0.107$) and barriers ($p = 0.681$), confirming that the assumption of equal variances across groups was not violated. This justified the use of one-way ANOVA for further analysis.

The results of the ANOVA are summarized in Table 3. The analysis revealed no statistically significant differences in perceived benefits among the investment purposes ($F(4,245) = 0.772$, $p = 0.545$). Similarly, no significant differences were observed for perceived barriers ($F(4,245) = 0.856$, $p = 0.491$). These findings indicate that the primary purpose of investment does not exert a significant influence on how investors perceive either the benefits or the barriers associated with their decisions.

Overall, the results indicate that perceptions of benefits and barriers are fairly stable and consistent, regardless of the underlying motivation for investment. While there are mean differences at a descriptive level, they are not strong enough to establish statistically meaningful variations. This result underscores the importance of considering factors other than the stated purpose of investment in shaping perceptions of benefits and barriers by investors.

Findings

The findings on the independent-samples t-test results were indicated that the respondents from Trichy and Coimbatore. The results did not differ significantly in their perceptions of FinTech adoption. Both of the groups are reported comparable evaluations of benefits ($t(266) = -0.706$, $p = .258$) and barriers ($t(266) = 0.824$, $p = .517$). The calculated effect sizes were insignificant, are suggesting that geographical location had little practical impact on respondents' attitudes toward FinTech. This reflects a broad convergence of perceptions across districts, highlighting uniformity in how technology-driven financial services are understood and evaluated.

The one-way ANOVA results further showed that the main purpose of investment did not significantly influence respondents perceived benefits ($F(4,245) = 0.772$, $p = .545$) or barriers ($F(4,245) = 0.856$, $p = .491$). Descriptive means suggested minor differences for instance, investors in category 5 reported relatively higher benefits ($M = 3.47$), while those in category 3 perceived greater barriers ($M = 3.27$) but these variations were statistically insignificant. Overall, both analyses confirm a consistent pattern: perceptions of benefits and barriers remain largely stable across demographic (district) and motivational (investment purpose) divisions.

Suggestions

The study reveals and includes the perception of the benefits and barriers that are associated with the fintech adoption. The outcomes need to have a look beyond the demographic or motivational classifications instead of the considering the systematic and behavioural factors which may influence the adoption and investment behaviour that more meaningful. In the light of findings, several practical suggestions can be proposed to guide the policy makers, financial institutions and researcher in enhancing the effectiveness of Fintech adoption and investment strategies.

Focus on Common Drivers: Since neither location nor investment purpose significantly alters perceptions, interventions to improve FinTech adoption or investment decisions should target shared factors such as trust, ease of use, or regulatory transparency rather than tailoring strategies to specific groups.

Strengthen Awareness Programs: The similarity in insights suggesting that the general campaigns are highlighting the benefits and by addressing barriers may be effective across regions. Financial literacy initiatives and digital awareness workshops can enhance both confidence and participation.

Investigate Additional Variables: Future research should examine other determinants—such as income level, education, digital literacy, and risk tolerance that might more strongly shape perceptions. This could provide richer insights into the drivers of adoption and decision-making.

Policy and Institutional Support: Since the barriers are perceived similarly across groups, systemic interventions—like reducing transaction costs, to enhance cybersecurity and offering grievance redressal mechanisms may yield broader improvements in investor confidence.

Conclusion

The results from the t-test and ANOVA analyses were demonstrated that the perceptions of benefits and barriers are not significantly shaped by either geographical location or investment purpose. Respondents from Trichy and Coimbatore, as well as those with varied investment motivations, expressed relatively consistent attitudes toward both opportunities and challenges. This uniformity underscores the importance of addressing common structural and behavioural factors rather than focusing narrowly on group-specific characteristics. In sum, the findings suggest that building a robust ecosystem for FinTech adoption and investment decisions requires interventions at the systemic level—emphasizing digital trust, regulatory safeguards, and user-centric financial education—rather than differentiated strategies based on geography or purpose.

References

1. Bátiz-Lazo, B., Efthymiou, L., & Klee, K. (2020). Digital payments and the reduction of the informal economy: Evidence from developing countries. Journal of Financial Innovation, 6(2), 115–132. https://doi.org/10.1016/j.jfi.2020.02.004
2. Bhatia, R. (2020). Digital India and the rise of financial technology: Policy implications for inclusive growth. Economic and Political Weekly, 55(12), 45–52.
3. Choudhary, V., Natarajan, P., & Kumar, S. (2022). FinTech solutions and sustainable development: Evidence from small-scale farmers in Tamil Nadu. Journal of Rural Development Studies, 38(4), 221–240. https://doi.org/10.1080/09709274.2022.115
4. Kaur, H., Sharma, M., & Devi, R. (2020). Women's financial inclusion and the role of FinTech: Evidence from rural India. International Journal of Gender and Entrepreneurship, 12(3), 289–305. https://doi.org/10.1108/IJGE-04-2020-0054
5. Kumar, A., & Sharma, S. (2020). Digital payments and financial inclusion: An empirical study in rural India. Indian Journal of Finance, 14(7), 35–48. https://doi.org/10.17010/ijf/2020/v14i7/151002
6. Lee, J., Chen, H., & Lee, S. (2020). Mobile banking and rural development: Evidence from emerging markets. Emerging Markets Review, 45, 100721. https://doi.org/10.1016/j.ememar.2020.100721
7. Liu, Y., Wang, F., & Zhang, L. (2021). Digital financial services, financial inclusion, and sustainable economic growth. Sustainability, 13(15), 8765. https://doi.org/10.3390/su13158765
8. Mohamed, S., Khan, A., & Rahman, T. (2021). FinTech, sustainable development goals, and financial inclusion: Opportunities and challenges. Journal of Sustainable Finance & Investment, 11(4), 395–414. https://doi.org/10.1080/20430795.2020.185
9. Müller, J., & Wolter, H. (2022). FinTech innovation and SME finance: Reducing barriers and promoting entrepreneurship. Small Business Economics, 59(2), 561–579. https://doi.org/10.1007/s11187-021-00521-7
10. Narayan, P., & Gupta, A. (2021). Blockchain and financial inclusion: Enhancing transparency and governance in developing economies. Journal of Economic Development, 46(3), 67–85. https://doi.org/10.1108/JED-03-2021-0047
11. Patel, M. (2021). FinTech platforms and financial literacy in semi-urban India: Bridging

the knowledge gap. International Journal of Economics and Business Research, 21(1), 15–29. https://doi.org/10.1504/IJEBR.2021.112233

12. Patel, R., & Mehta, D. (2020). Challenges of FinTech adoption in rural India: An infrastructural perspective. Journal of Rural and Community Development, 15(2), 83–98.
13. Reddy, V., & Rao, K. (2021). Digital financial services and SME growth: Evidence from India. Asian Journal of Economics and Business, 5(1), 45–60. https://doi.org/10.1080/ajeb.2021.1123
14. Singh, P., & Gupta, R. (2021). Blockchain for financial transparency: Opportunities for sustainable practices in India. Journal of Financial Regulation and Compliance, 29(4), 501–514. https://doi.org/10.1108/JFRC-06-2021-0068
15. Suresh, K., & Reddy, M. (2022). FinTech and sustainable entrepreneurship: Exploring eco-friendly business models in India. Journal of Cleaner Production, 351, 131567. https://doi.org/10.1016/j.jclepro.2022.131567
16. Thompson, G. (2019). Regulatory frameworks and the scaling of FinTech for financial inclusion. Journal of Financial Regulation, 5(2), 221–239. https://doi.org/10.1093/jfr/fjz010
17. Venkatesh, R., & Sivasubramanian, K. (2021). Data privacy and trust in digital financial services: An Indian perspective. Information Systems Frontiers, 23(3), 633–648. https://doi.org/10.1007/s10796-020-10023-y
18. Xie, J., & Yu, H. (2021). Crowdfunding and peer-to-peer lending: FinTech support for sustainable entrepreneurship. Technological Forecasting and Social Change, 165, 120522. https://doi.org/10.1016/j.techfore.2020.120522
19. Zhao, X., & Yang, L. (2020). Green finance and FinTech: Pathways for sustainable development. Journal of Cleaner Production, 268, 122–147. https://doi.org/10.1016/j.jclepro.2020.122147
20. Zohar, Y., & Shmueli, N. (2020). FinTech platforms and financial literacy: Insights from emerging markets. International Review of Economics & Finance, 69, 617–629. https://doi.org/10.1016/j.iref.2020.06.014