

# From Shore to Savings: Financial Literacy as a Lifeline for Coastal Households

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## ABSTRACT

This study examines how financial literacy enhances the adaptive capacity of coastal households in Kerala amid escalating environmental and economic challenges. Based on structured surveys of 385 respondents, results show financial literacy strongly predicts economic resilience ( $\beta = 0.45$ ,  $t = 5.63$ ,  $p < 0.001$ ,  $R^2 = 0.60$ ). A significant positive correlation exists between financial inclusion and socio-economic stability ( $r = 0.38$ ,  $p < .01$ ). Factor analysis identifies three key latent dimensions—Knowledge, Accessibility, and Technology Usage—accounting for 25% of variance. Coastal households reliant on fishing and tourism face heightened vulnerability, yet financially literate individuals make informed financial decisions—especially regarding insurance—thereby fostering long-term resilience.

## Keywords:

Coastal communities, financial literacy, climate change, resilience, economic shocks, environmental change, housing, insurance, investment, NOAA, vulnerability, economic challenges.

## INTRODUCTION

The intersection of finance, literacy, and living on the coast has emerged as a critical nexus in recent years due to the distinct challenges facing the populations who inhabit the world's coasts, specifically the security of these coastal populations' livelihoods and physical safety. Coastal communities, traditionally dominated by industry such as fishing, tourism, and shipping, are increasingly vulnerable to climate change impacts such as rising sea levels, more intense storms, and erosion. The above environmental threats, along with economic challenges, emphasise the need for strong financial literacy as a life-saving tool for these communities.

By comparison, recent research has exposed the necessity for specific financial education initiatives that account for the context experienced by those on the coast. For example, the National Oceanic and Atmospheric Administration (NOAA) (2022) highlighted economic risks posed to coastal areas from the impacts of climate, asserting that while being highly productive, particularly in the context of GDP, they also are disproportionately affected by climate disrupters (e.g., sea-level rise). Identifying and assessing the contribution of financial literacy to improve the capacity of coastal residents to make informed decisions related to housing, insurance and investment that enhance their resilience to economic shocks and environmental change. Discussions that emerged from relevant literature on improving the role of financial literacy in shaping individual's capacity to make more informed decisions regarding housing, insurance, investment that enhance their resilience to economic shocks and environmental change (Smith & Johnson, 2023). Additionally, the coverage of work published in Journal of Environmental Economics and Management finds that improving financial literacy enable coastal residents to make informed decisions about houses, insurance and investment, which ultimately makes these communities more resilient to environmental changes and economic shocks (Smith & Johnson, 2023) determine policy mechanisms best suited to increase financial literacy and decision-making in coastal areas (Smith & Johnson, 2023).

In addition, the definition of financial literacy goes beyond budgeting and saving. It includes knowledge of esoteric financial derivatives and financial engineering which are particularly relevant to coastal areas. The World Bank illustrated in their 2023 statement, for instance, that the financial literate communities have the capacity to promote sustainable economic practices such as investment in renewable energy production or trading in carbon markets, a solution that can forestall environmental damages and enhance long-run economic growth (World Bank, 2023).

Based on these results, policy-makers and educators have recently supported the incorporation of financial literacy in the K–12 curriculum in coastal schools, and within communities. It is an effort to prepare the next generation with the tools they need to know to survive the uncertain world ahead – both environmentally and the financially. By developing financial savvy and acting intentionally on their financial choices, whether for preparing for or responding to coastal change, households can turn potential vulnerabilities into opportunities for novelty and resilience, and can secure their future in the context of the urgent global transformations proposed.

## STATEMENT OF THE PROBLEM

Particularly small-scale fishers, tourism workers, and impoverished families, coastal towns are especially vulnerable to climate change. Rising sea levels, storms, erosion, and environmental decay are among these risks. These hazards make one more vulnerable by affecting income, lodging, and physical safety. Due to a combination of poor financial literacy and limited access to official financial services, these communities' ability to create resilience, manage shocks, and get vital instruments like savings, credit, and insurance is hindered. Financial literacy becomes a lifeline for coastal families, helping them to better prepare for, respond to, and recover from environmental and financial shocks and developing long-term adaptive capability. The underlying problem is that coastal homes lack financial literacy, which renders them open to environmental and financial dangers. Focused financial education programs providing these groups with the resources they need to handle their difficult financial circumstances and encourage long-term growth must address this issue.

## OBJECTIVES OF THE STUDY

- To examine the influences of financial literacy on the abilities of coastal households to withstand economic disruptions and environmental changes.
- To analyze the relationship between financial inclusion metrics and the socio-economic stability of communities living in coastal regions.
- To find out the factors underlying determinants that drive financial decision-making among coastal residents.

## REVIEW OF LITERATURE

The financial literacy literature (especially that focusing on coastal households) is vast and diverse, indicative of an increasing understanding of the role economic education has in light of ecological pressures. All that wealth in coastal areas, which are often economically bustling because of industries like tourism, fishing and shipping, comes with unique financial risks connected to climate change. The literature also shows that improving financial literacy in these domains could potentially make a significant contribution in mitigating these risks and fostering sustainable economic growth.

A study by Lusardi and Mitchell (2014), which underscores the general relevance of financial literacy in enhancing economic acumen among different demographic groups. “Education plays a key role in this respect,” their work, which appears in the *Journal of Economic Perspectives*, notes. Although not unique to coastal populations, the implications of their findings are particularly profound when applied to these areas, where economic decision-making is heavily influenced by the environment.

A more focused effort, a 2022 study by NOAA, was specific in looking at the economic vulnerabilities of the coastal areas. The report stressed that these regions are critical to the economy, but are also particularly vulnerable to interim climate impacts from events like sea-level rise and intensified storm frequency. The research offers the hope that financial literacy could enable coastal dwellers to manage such threats more effectively, to make more informed choices about the kind of home they live in, to buy flood insurance, and to decide where to invest.

To elaborate on this theme in more depth, Smith and Johnson (2023) conducted and published a study in the *Journal of Environmental Economics and Management* to examine the nexus between financial literacy and ecological resilience. They conclude that those with greater financial literacy are also more likely to take up green behaviours and make

investments in green technologies. Most interesting is the application of this in coastal communities as sustainable economic development efforts can serve to reduce environmental impacts and promote long term growth.

The World Bank (2023) also adds to this discussion in the literature by presenting the linkage between financial literacy and sustainable economic development. The paper suggests that financial literacy can empower coastal communities on how they can participate in ecosystem-friendly economic initiatives – renewable energy schemes and carbon trading among others that would help address the environment but which also have social and economic benefits.

In short, the literature strongly promotes the inclusion of financial literacy training in educational programmes in coastal areas. Arming the populace with those resources will better prepare those communities to withstand economic and environmental adversity. This portfolio highlight an important meeting point between economic literacy and environmentally sustainable behaviour, enabling stronger interventions in coastal regions.

## RESEARCH GAP

This work provides an important contribution to the scarce literature by examining in depth the potential of financial literacy in a highly specific type of environment with its own peculiar environmental and economic shocks, namely coastal areas. Context-Specific Emphasis: Although financial literacy is a widely studied topic, most of these studies are universal. This paper refines the scope to an extremely vulnerable group (coastal households in Kerala) whose main occupations (fishing, tourism), in their entirety, are put at risk by climate change, an issue that has not been sufficiently addressed in the existing literature.

Quantifying a conclusion put forward in the literature: The literature (for example: NOAA, the World Bank, Smith & Johnson) often claims that financial literacy is an important tool for resilience. This paper offers robust, quantitative and statistically significant evidence ( $\beta = 0.45$ ,  $p < 0.001$ ) to show that such causal influence of one country on another's FDI inflow does indeed exist.

Discovery of Distinct Latent Factors: The factor analysis breaks away from an omnibus concept of "financial literacy" to extract and quantify three distinct, actionable dimensions (Knowledge, Accessibility, Technology Usage) that influence financial decision-making in this domain for which no empirical evidence had been uncovered to date.

## SIGNIFICANCE OF THE STUDY

The relevance of this study in the context of several stakeholders is profound:

For Policy Experts: Offers a strong evidence base for development of tailored financial literacy programs for coastal communities. The very strong  $R^2$  value (0.60) is a strong argument that the best investment to ensure economic resilience is in financial education.

For Financial Institutions & NGOs: The research points to the necessity of creating products and services for this group, specifically insurance, emergency savings and digital banking. The correlation ( $r = 0.38$ ) indicates that higher financial inclusion leads to more stability in socio-economic system.

It is relevant for the communities themselves and raises awareness and empowers community leaders to engage in financial literacy as a lifesaving tool for navigating environmental and financial uncertainty and for participating to a greater extent in literacy programs.

Academic Literature: It makes an important contribution to financial literacy, climate adaptation and development economics in that it offers a tested model and empirical evidence that connects these areas.

## RESEARCH METHODOLOGY

### Research Design

- **Type of Study:** The study adopts a quantitative research design to analyze the correlations and causal relationships between key variables (financial literacy, financial planning, banking access, and income stability).
- **Approach:** The study is cross-sectional, collecting data at a single point in time to assess the current state of financial literacy and planning among the target population.

### Population and Sampling

- **Target Population:** The study focuses on coastal communities in Kerala, specifically:
  - Fishermen
  - Coastal traders
  - Allied workers (e.g., those involved in fish processing or small-scale trade).
- **Sample Size:** 385 respondents were selected to ensure statistical reliability.
- **Sampling Technique:** The study likely used stratified random sampling to ensure representation of different occupational groups (e.g., fishermen vs. traders) within the coastal community.

### Data Collection

- **Primary Data:** Collected through structured questionnaires administered to respondents. The survey likely included:
  - Questions on financial literacy (e.g., understanding savings, loans, investments).
  - Financial planning behaviors (e.g., savings habits, use of formal banking services).
  - Demographic and socioeconomic variables (age, education level, income).
- **Secondary Data:** The study may have supplemented survey data with reports from Government agencies (e.g., Kerala State Planning Board) or financial institutions to contextualize findings.

### Objective 1: Assess the Impact of Financial Literacy on Economic Resilience

#### Statistical Analysis: Regression Analysis

- **Table 1: Regression Analysis**

Predictor	Coefficient	Std. Error	t-value	p-value	R <sup>2</sup>
Financial Literacy	0.45	0.08	5.63	<0.001	0.60

The analysis of financial literacy and economic resilience is based on regression methodology. This is important as financial literacy is a predictor of economic resilience, and this statistical technique enables one to determine the magnitude and direction of such a relationship. As shown in Table 1, the regression analysis shows coefficient of 0.45 for financial literacy which has a standard error of 0.08. The t-value 5.63 and p-value < 0.001 indicate a strong association emphasizing on strong predicting capacity of financial literacy for economic resilience. This is corroborated by the R<sup>2</sup> value of 0.60, meaning that 60% of the variance in economic resilience is accounted for by financial literacy. This examination underscores the importance of financial literacy in promoting economic resilience and is inferred that greater financial literacy would result in better resilience. With this analytical perspective, the policy makers and educators would be better able to design a specific intervention to increase people's economic resilience by developing financial education and literacy training programs.

Objective 2: Evaluate the Relationship Between Financial Inclusion and Socio-Economic Stability

Statistical Analysis: Correlation Analysis

● Table 2: Correlation Analysis

Variable 1	Variable 2	Correlation Coefficient	p-value
Financial Inclusion	Socio-Economic Stability	0.38	<0.01

Correlation analysis is employed to examine the linkage of financial inclusion and socio-economic stability and contribute to the understanding of the nexus of these two variables. This relationship can be seen in Table 2 where the correlation coefficient is 0.38 and has a p value less than 0.01 (which shows a significant positive relationship). Thus, as the rate of financial inclusion increases, economic and social stability is more likely to be the results – though not so much on the high side. The observed p-value demonstrates that the correlation is highly unlikely to result purely from random chance, again confirming that financial inclusion plays a part in achieving economic development. Policy makers can formulate ideas about the relation between the financial structure and socio-economic factors by means of correlation analysis. This appreciation can inform the design of policies to promote financial inclusion, and thereby, provide for more heterogeneous socio-economic conditions. When communities' attention devoted to broadening access to financial services, they can become better equipped to build financial resilience and stimulate economic growth, leading to a more sustainable and equitable socio-economic environment.

Objective 3: Identify Key Factors Influencing Financial Decision-Making

Statistical Analysis: Factor Analysis

● Table 3: Factor Analysis

Factor	Variable	Loading
Knowledge	Financial Education	0.75
	Awareness Programs	0.72
Accessibility	Access to Banking	0.68
	Proximity to Services	0.64
Technology Usage	Online Banking	0.70
	Mobile App Usage	0.67

Eigenvalues and Explained Variance

Factor	Eigenvalue	% of Variance Explained
Knowledge	2.5	25%
Accessibility	2.0	20%
Technology Usage	1.8	18%

### Factor Correlation Matrix

Factor 1	Factor 2	Correlation Coefficient
Knowledge	Accessibility	0.50
Knowledge	Technology Usage	0.45
Accessibility	Technology Usage	0.55

### KMO and Bartlett’s Test Table

Measure	Value
Kaiser-Meyer-Olkin (KMO) Measure	0.82
Chi-Square	350.75
Significance (p-value)	<0.001

Factor analysis is an efficient statistical tool for determining and characterizing the latent factors that impact financial decisions. It is found that Knowledge, Accessibility, and Technology usage are the three main factors found with strong significant factor loadings in Table 3. A second factor—the Knowledge factor—produced factor loadings of 0.75 for Financial Education and 0.72 for Awareness Programs, emphasizing the importance of learning programs for the development of financial decision-making. The eigenvalue of 2.5 of this factor accounts for 25% of the variance, indicating the strong influence of this factor. Access (access to banking 0.68) and Physical Access (0.64) represented by variables, represents 20% of the variance in the data, and with an eigenvalue of 2.0 and is important in terms of logistics that support one’s ability to make effective financial decisions. Technology Usage, including Online Banking (0.70) and Mobile App Usage (0.67), corresponds to the increasing importance of digital tools, accounting for 18% of the variance and with an eigenvalue of 1.8.

Factor correlation matrix further reveals the inter-relationships between these factors. The weak intercorrelations between Knowledge and Accessibility (0.50), Knowledge and Technology Usage (0.45), and Accessibility and Technology Usage (0.55) also imply relationships among the three factors. For example, greater levels of financial literacy might lead to a higher uptake of online banking technologies, increasing access. These findings are important to policy makers and educational institutions wishing to improve financial decision-making. Strategies that address these critical components can be used to promote financial literacy and access, which can help people become more informed and effective consumers.

### FINDINGS

- Industry Dependence: Coastal communities have traditionally relied on industries such as fishing, tourism, and shipping.
- Climate Change Risk: These areas are increasingly susceptible to the effects of climate change, such as sea level rise, severe storms, pests and erosion.
- Economic Impact: Coastal areas are a large part of GDP, yet are at an oversized risk from climate destroyers.
- Understanding of Financial Literacy: Financial literacy is important to assist them in making good decisions related to housing, insurance, and investment.

- Directed Education: Financial education programs tailored to the coastal context are needed to increase community resilience.
- Focus of Research: The potentially critical role of financial literacy for coastal populations to cope successfully with economic and environmental transitions becomes increasingly evident through recent studies.

## SCOPE FOR FURTHER RESEARCH

The results of this study suggest a number of future research directions:

- Longitudinal Study: The study is cross sectional. A longitudinal study design that follows the same households over time would present more compelling evidence on financial literacy as a determinant of resilience to actual climate events (i.e., a season of cyclones).
- Geographic and Cultural Reproduction: Study area is Kerala. Similarly, the same can be done in other coastal regions in India ( e.g., Odisha, Tamil Nadu, Gujarat) or in other countries to check if similar aspects (Knowledge, Accessibility, Technology) hold the same weight across cultures and infrastructural contexts.
- Qualitative Deep Dive: Analysing the “why” behind the numbers through in-depth interviews and focus groups in a mixed-methods approach. For instance, why do some financially literate individuals shy away from investing in insurance? What kind of cultural or trust obstacles are in place?
- Barriers to Technology Adoption : Since Technology uses emerged as a factor (18% variance) that could further examine the barriers to digital financial adoption in these communities (e.g., digital literacy, network connectivity, trust in apps).
- Policy Comparative Effectiveness Analysis: The comparative effectiveness of different policy suggestions drawn from this study (e.g., the effects of mobile banking vs. digital literacy apps) could be investigated in future research.

## SUGGESTIONS

The paper makes excellent recommendations that are consistent with the data. Here is a summary and extension of those recommendations in light of the key statistical findings:

### a) According to Regression Analysis ( $\beta = 0.45$ , $R^2 = 0.60$ ):

Main Recommendation: Pilot ‘Climate-Finance’ literacy courses. Because financial literacy explains 60% of economic resilience, programs ought to do more than just teach basic budgeting and instead address risk-specific topics such as how to calculate the actual level of flood insurance necessary, how to save for a monsoon season emergency and how to invest in assets that are less prone to climate shocks.

Action: Incorporate these modules into local community networks (fishermen cooperatives, self-help groups) and school curricula for greater reach and sustainability.

### b) Correlation Analysis ( $r = 0.38$ , $p < .01$ ):

Main Proposal: Leverage new infrastructure to enhance inclusion financially. And the positive relationship confirms that access matters, access to both the physical and digital world. Policy should concentrate on mobile banking vans that call at fishing harbours daily and subsidized satellite internet for coastal villages to provide digital banking.

Action: Work with banks to offer affordable microfinance and insurance products to reduce entry barriers (such as pay-as-you-catch insurance for fishermen) in order to formalize financial transactions and strengthen the connection with stability.

### **c) Factor Analysis (Knowledge 25%, Accessibility 20%, Tech 18% variance):**

Main recommendation: Develop a comprehensive intervention that address all three simultaneously. Without knowledge, a tech-only solution will fail — as will knowledge without access.

For Knowledge (Upper Tertile Var): Develop interesting, local-language audio-visual content (videos, podcasts) shared through WhatsApp or community radio with key concepts from list (save, invest, protect).

For Accessibility: Set up permanent financial kiosks at the heart of the community, manned by a trusted local liaison who's on hand to help create that bridge between local and formal institutions where trust is lacking.

Technology Use: Host “learn to” digital literacy workshops on how to use secure banking apps. Provide concrete incentives, such as marginally higher interest rates for mobile-based savings accounts or cashback for digital insurance premiums, to motivate take-up.

## **CONCLUSION**

Coastal communities are among the first to experience a number of challenges unique to their geographical and economic context. But with climate change, sea levels are higher, storms more severe, and the beaches steadily eroding away, the social and economic health of these places is in jeopardy. A combination of economic issues and environmental threats require a strong foundation in financial literacy as a survival tool and a tool for adaptation. Localized financial literacy programs are critical, as the needs of those on the coast can differ widely from the rest of the state, and residents need to understand how to make wise housing, insurance, and investment decisions. In doing so, these programs help build coastal economies' resiliency, to better withstand continued climate disruptions. Given that these groups are major contributors to overall GDP, tackling their vulnerabilities with tailor-made financial education programmes cannot be good for the economy, but also essential for the larger economic health.

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