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Assessing the Sustainable Viability by Financial Metrics: based on Evaluation of Cooperative Society Performance on the basis of Pearls

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In India, the cooperative organizations have been very important for the advancing economic development, Financial Inclusion, as well as for the empowerment of the community. However, the cooperatives' financial performance, governance frameworks, as well as the capacity to adjust to the changing markets and the economic condition are critical for their long-term viability. Using the PEARLS as a base this study examines the relationship between the cooperative societies' sustainability in the long term as well as their financial success for their survival. The study has used a mixed-method approach and have gathered primary data from the 149 cooperative organizations in the credit, as well as the agricultural sectors of the economy. This study has used Regression analysis, correlation, to assess the relationship between sustainability indicators and the financial stability, growth, as well as the expansion. The findings of our study indicated the strong and the positive relationship between the overall sustainability and financial success as determined by the PEARLS framework. Cooperatives who have the strong asset quality, good and ample liquidity, and high growth metrics are often seen as the more economically viable, the more socially significant, and the more sustainable as well as viable. The results of this study have proved that how crucial it is to establish very strict financial management procedures and also put in place the monitoring systems that is efficient and encourage the involvement of members. These findings may help the cooperative managers as well as the policymakers, to improve the long-term viability, effectiveness of the operations, as well as the governance.

Keywords: Cooperative Societies, PEARLS Framework, Financial Stability, Growth, Expansion, Sustainability, Financial Performance.

1. Introduction

Cooperative societies have historically served as an essential instrument for socio-economic development, particularly in developing countries like India (Choudhary& Singh, 2016). They provide financial services, promote local entrepreneurship, and facilitate community welfare programs. Despite their benefits, cooperatives face challenges related to financial mismanagement, lack of professional expertise, and inconsistent growth patterns (Dawadi &Prasad, 2025). The sustainability of cooperatives defined as "the ability to maintain financial, social, and operational viability over the long term is closely tied to their financial performance".

The Indian cooperative sector has expanded rapidly, supported by government policies, banking reforms, and digital innovations (Priyadarshiet al., 2024). Yet, many cooperatives struggle with liquidity issues, non-performing assets, and governance challenges. The PEARLS framework (Patel & Desai, 2019), a system that assesses cooperatives across six crucial parameters first is Protection, second is Effective Financial Structure, third one is Asset Quality, fourth is Rates of Return and Costs, fifth is Liquidity, and the last is Signs of Growth provides a thorough measure of financial health and operational efficiency. As a result, financial analysts and policymakers are increasingly promoting its use.

- Protection: Adequate capital and asset safety
- Effective: Financial Structure Asset liability management in an efficient structure

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- Asset Quality: Portfolio health and loan recoveries
- Costs and Rates of Return: Efficiency of profitability
- Liquidity: The capacity to fulfil commitments
- Growth: This Signs include services, membership growth, and expansion.

This paradigm of PEARLS as explained above makes it possible to evaluate performance of the cooperative societies in an organized manner, directly connecting sustainability results with the financial well-being of the cooperative societies.

Research Problem

There is very few research in India that have used the PEARLS framework in order to examine the relationship between the financial success of them as well as the cooperative sustainability, despite of the given fact that this relationship is widely known and acknowledged. By reviewing the relationship between the financial metrics of them and the long-term sustainability of them, this study tries to fill this gap.

2.Literature Review and Theoretical Background

Global Perspective

Cooperative societies provide inclusive financing facilities on the global scale. According to the World Council of Credit Unions reports (WOCCU, 2018), cooperatives are the more sustainable in the long run when the engagement of the member is strong and when the financial management is very strict at the level. Research literature as we have reviewed from Latin America and also the Africa shows that cooperative societies with the strong liquidity parameter and level and very low non-performing asset at that levels are more resilient to many of the economic shocks.

Many of the studies have put forwarded the fact that the potential and difficulties cooperatives face. According to the research study done by Choudhary and Singh's (2016), "cooperative society with a great robust financial reporting and the strictest if the audit mechanisms were seen as the more resilient." Patel& Desai (2019) showed that "cooperatives emphasizing member education and participation achieved higher financial stability." Singh & Kaushik (2020) observed that "liquidity and asset quality were the most critical determinants of long-term sustainability in rural credit cooperatives".

Singh and Shukla (2024) Since 1991, India's liberalization policies have had a major impact on Nepal's economy through cross-border economic spillovers. Important sustainability metrics like first Protection, second Earnings, and third the Asset quality are directly impacted by the policy-induced market volatility and integration challenges.

2.3 Theoretical Foundations

Organizations must prioritize the social, also the environmental, and the financial objectives, according to the theory of the Triple Bottom Line (TBL). Because they not only combine the social impact and financial benefits as well, but cooperatives

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also closely adhere to the ideals of the TBL theory.

Resource Based View theory (RBV): Cooperative societies that have managed successfully their employees and of the financial resources of it, acquire for sure a long-term competitive advantage.

Dynamic Capabilities Theory: as per this theory the need for cooperative societies to strengthen their governance, to innovate, as well as to manage the finances properly in order to adjust to the changing surrounding environment.

Research Objectives:

1. The evaluation of the sustainability from an operational, social, and the economic perspective.
2. The investigation of the connection between sustainability and PEARLS indicators.
3. Making various suggestions for policy interventions by the government and the cooperative management.

3.1 Hypotheses:

1: There is an essential relationship between deposit growth and profitability.

2: There are significant positive relationships between PEARL S & financial stability, growth, and expansion.

4. Research Methodology

4.1 Research Design

A descriptive and correlation research approach is used to investigate the connection between sustainability and financial performance. The research employs a mixed-method approach, integrating qualitative findings with quantitative analysis.

4.2 Sample and Participants

149 cooperative societies from the credit, multipurpose, and agricultural sectors are included in the research. Active financial activities, participation readiness, and the availability of audited reports are among the selection criteria.

4.3 Data Collection

Primary Data: Questionnaires and interviews with cooperative managers and members.

Secondary Data: Annual reports, audited statements, SEBI and NABARD reports.

4.4 Measurement of Variables

Financial Performance: Measured using PEARLS indicators.

Sustainability: Assessed via a composite index incorporating economic, social, and operational metrics.

Table 1: PEARLS Indicators and Measurement

PEARLS Component	Measurement Criteria	Data Source
Protection	Capital adequacy ratio	Audited statements
Effective Financial Structure	Debt-equity ratio	Cooperative records
Asset Quality	Loan recovery ratio, NPA	Financial statements
Rates of Return & Costs	ROA, ROE, cost-income ratio	Annual reports
Liquidity	Cash ratio, current ratio	Balance sheets
Signs of Growth	Membership growth, new services	Cooperative records

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5. Data Analysis& Interpretation

5.1 Descriptive Statistics

Table 2: Demographics of Cooperatives Sampled

Cooperative Type	Frequency	Percentage
Credit	35	36%
Multipurpose	40	41%
Agricultural	22	23%

Table 3: Summary of PEARLS Scores

Component	Mean	Std. Dev
Protection	78.5	6.2
Effective Financial Structure	74.3	5.8
Asset Quality	80.1	7.0
Rates of Return & Costs	69.5	6.9
Liquidity	76.8	5.6
Signs of Growth	71.4	6.1

5.2 Correlation Analysis

Table 4: Pearson Correlation between PEARLS and Sustainability

Component	Correlation (r)	Significance (p)
Protection	0.68	0.001
Effective Financial Structure	0.55	0.003
Asset Quality	0.72	0.001
Rates of Return & Costs	0.49	0.005
Liquidity	0.63	0.002
Signs of Growth	0.59	0.004

Interpretation: High correlation values indicate that cooperatives with strong PEARLS indicators also exhibit higher sustainability.

5.3 Regression Analysis

A multiple regression analysis was performed using the sustainability score as the dependent variable and the six PEARLS components as independent variables to better understand the influence of PEARLS indicators on cooperative sustainability. The regression model looks like this:

$$Sustainability = \beta_0 + \beta_1(Protection) + \beta_2(FinancialStructure) + \beta_3(AssetQuality) + \beta_4(RatesofReturn) + \beta_5(Liquidity) + \beta_6(SignsofGrowth) + \epsilon$$

Table 5: Regression Coefficients

Variable	Coefficient (β)	Std. Error	t-value	p-valu
Intercept	12.45	3.12	3.99	0.001
Protection	0.42	0.08	5.25	0.000
Effective Financial Structure	0.27	0.09	3.00	0.003
Asset Quality	0.51	0.10	5.10	0.000
Rates of Return & Costs	0.19	0.08	2.38	0.019
Liquidity	0.33	0.09	3.67	0.001
Signs of Growth	0.29	0.11	2.64	0.010

Interpretation:

- Asset Quality ($\beta = 0.51$, $p < 0.001$) and Protection ($\beta = 0.42$, $p < 0.001$) had the biggest effects on sustainability, suggesting that long-term survival is more likely for cooperatives with minimal non-performing assets (NPAs), adequate capital, and solid financial management.
- Operational effectiveness and crisis resilience are strongly impacted by liquidity ($\beta = 0.33$, $p = 0.001$).
- Moderate but statistically significant contributions are shown by Rates of Return & Costs and Signs of Growth.

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• The model demonstrates that PEARLS indicators are a reliable predictor of long-term cooperative success by explaining 62% of the variation in sustainability ratings (Adjusted R2 = 0.62).The regression results confirm the interdependency of financial health components and sustainability outcomes (Priyadarshi, 2025). Cooperatives that fail to maintain proper asset quality or protection levels risk reduced member confidence and operational collapse, even if other areas perform well. Regression results show that asset quality and protection have the strongest impact on sustainability, explaining 58% of the variance (Adjusted $R^2 = 0.58$).

Table 6: Regression Coefficients and Interpretation

Variable	Coefficient (β)	Std. Error	t-value	p-value	Interpretation
Intercept	12.45	3.12	3.99	0.001	Base sustainability without PEARLS factors
Protection	0.42	0.08	5.25	0.000	Strong positive impact; safety nets enhance sustainability
Financial Structure	0.27	0.09	3.00	0.003	Better structure improves stability
Asset Quality	0.51	0.10	5.10	0.000	Key driver; low NPAs and sound lending critical
Rates of Return & Costs	0.19	0.08	2.38	0.019	Positive, moderate influence on sustainability
Liquidity	0.33	0.09	3.67	0.001	Ensures operational flexibility and crisis management
Signs of Growth	0.29	0.11	2.64	0.010	Encourages long-term viability

Discussion

The study highlights the critical role of financial performance in determining cooperative sustainability. The findings are consistent with global research emphasizing the importance of capital adequacy, asset quality, and liquidity in organizational resilience.

Key Points:

Human and Structural Factors: The study confirms that financial indicators alone do not guarantee sustainability. Cooperative societies that invest in member training, governance, and internal controls show higher financial stability.

Interconnectedness of PEARLS Components: For example, liquidity factor itself cannot sustain the cooperative when the asset quality is very poor. At the same time growth as well as the expansion efforts must be supported by strong financial management.

Practical Implications: while considering of the long-term growth objectives for e.g. service diversification, managers should use risk evaluation and the assessment techniques and keeping an eye on NPA levels of the firm and also keeping sufficient reserves.

Policy Implications: The results of this study can be used by policymakers to create various incentive programs for the cooperatives that satisfy the PEARLS standard framework, Weak areas, such as cost effectiveness or the debt management, should be given the priority in the various of the training programs as well as the audits.

Digital and Technological Integration: cooperative societies need to use the digital platforms for communication with its member, many of the automatic risk warnings, and also for the financial tracking.

Sustainability Beyond Finance: though the financial performance is very crucial for its health, sustainability for the long term also depends on the social and the operational factors.

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The study verifies that one of the various important factors influencing the cooperative sustainability is the financial success as measured by PEARLS framework. Important observations consist of:

Protection and Asset Quality: During various economic depression, cooperatives with sufficient amount of the capital reserves and the minimal non-performing assets (NPAs) are more strong

Liquidity: Stable operations of the firm are mostly guaranteed by the efficient cash management by the firm.

Rates of Return & Costs: Cost reduction and the control is just very important for the sustainability as also for the profitability.

Indications of Growth: the Social and the economic sustainability of the firm in the long run is strengthened by the member involvement, service growth, and additional branches.

Table 7: PEARLS Components Average Score by Cooperative Type

Cooperative Type	Protection		Asset Quality	Rates of Return	Liquidity	Signs of Growth
Credit	8.4	7.9	9.0	6.8	7.5	7.2
Multipurpose	7.8	7.2	7.5	7.0	7.0	8.0
Agricultural	7.0	6.8	6.9	6.5	6.5	7.0

Findings

Most of the responders were male, and have had more than 5 of cooperative experience, and were mostly educated. The cooperatives' have the primary sources of revenue were mostly loans given to the members and activities of the member indicating their more reliance on the credit operations.

Financial health is good as is indicated by all variables scoring above the middle (4.0)

Stability = 4.26

Growth = 4.11

Expansion = 4.08

Sustainability = 4.34

PEARLS = 4.18

Correlation and Regression Results

PEARLS and other aspect of the financial performance were significantly positively correlated, as we have seen from the correlation analysis ($r = 0.48–0.64$, $p < 0.05$).

PEARLS is found to be a good predictor of the stability with $\beta = 0.64$ and $p < 0.001$, for growth also it has $\beta = 0.57$, $p < 0.001$ and for the expansion we have $\beta = 0.48$ at $p < 0.001$, according to the regression analysis.

The composite sustainability index was very much higher than the cutoff $p < 0.01$. Growth as well as the profitability were found to be strongly correlated with $\beta = 2.31$, at $p = 0.011$, suggesting that cooperatives that have increased their membership base and have mobilized the deposits saw greater returns on their assets.

These findings by the study have confirmed that the PEARLS framework is a very useful tool for diagnosis of their performance.

Interpretation

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Cooperative society who has balanced asset and liability ratios, good member protection funds, and regular loan recovery mechanism did far better than the cooperatives that have less regulations.

In addition, the findings of the present study also show to us that cooperatives cannot attain financial sustainability without high-quality governance.

Thus, our study offers much empirical support for the use of the PEARLS framework by the policymaker and the governments. The results indicate that:

- Financial expansion of the cooperatives increases the profitability as well as the sustainability through outreach and modernization
- Compliance to PEARLS framework strengthens transparency and governance, thereby increasing stakeholder confidence
- Prudent financial management and liquidity control results in financial stability of the firm
- Financial growth of the enterprise also depends on diversification and innovation.

7. Conclusion and Recommendations

7.1 Conclusion

Strong Asset Quality Promotes Sustainability in the long run

Cooperative societies that have strong loan recovery percentages and very low nonperforming assets (NPAs) have high sustainability capacity.

Liquidity Management is very important, cooperative societies with enough of the current assets as well as the cash reserves were able to satisfy the member needs during periods of higher withdrawal, Cooperative societies who have balanced debt equity ratios have shown greater resistance to market swings.

Cooperative societies that have broadened their products and the services have resulted in the improved member satisfaction

Sustainability of the firm for a long period of time requires a mix of good asset quality, liquidity, protection, and growth rather than just one PEARLS component.

Credit cooperative societies have secured higher rating on protection and asset quality.

Agricultural cooperatives have had a good social sustainability result despite having a minor economic lag.

7.2 Recommendations

Financial Education: Educating managers of the cooperative societies on the financial planning, risk assessment, and asset management is very important.

Governance Practices: Encourage member participation in the operation and the management, audits, and public reporting.

Digital Transformation: Use of the advanced and new technology to communicate with the members of the society and firm and manage finances.

Monitoring Mechanisms: Regularly evaluation of the performance of these societies using PEARLS indicators.

Diversification: To reduce the reliance on a single source of the income, and to promote the multi-service models in the functioning of the enterprise.

8. Limitations

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Every study has some limitations so does this, firstly: -

The study is cross-sectional in terms of the time, gathering information at one particular point in time.

Other studies may be undertaken which can examine long-term patterns, may also test the effects of digital change,

We have not covered all geographies so geographical comparisons; self-reported data may be biased.

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