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# A Composite Framework for Evaluating NBMFIs: Evidence from a South Asian Economy

Un Marco Compuesto para Evaluar las  
Instituciones de Microfinanzas No Bancarias  
(NBMFIs): Evidencia de una Economía del Sur  
de Asia

## I. INTRODUCTION

Despite decades of experimentation, the promise of microfinance as a sustainable tool for poverty alleviation remains subject to serious scrutiny. The model, once considered important for bypassing traditional credit constraints faced by low-income populations, now faces a more important question: Can Non-Banking Microfinance Institutions (NBMFIs) themselves achieve the operational and financial sustainability needed to persist over time, particularly in economies like Bangladesh?

While the poverty-reduction narrative has historically dominated discussions around microfinance, long-term viability demands closer examination of NBMFIs' institutional health. Although sustainability is often conceptualized as the balance between social mandate and commercial viability, the day-to-day realities faced by non-banking microfinance institutions (NBMFIs) are far more complex. Many institutions continue to operate under structural dependency on donor funding, facing inflexible cost structures, and possess limited buffers against financial shocks. These operational constraints raise valid concerns about whether such entities can achieve stable growth objectives while preserving credit quality and upholding client welfare. This issue is most visible in the trade-offs between outreach depth and financial sustainability. Expanding services to underserved segments (like women, rural borrowers, and informal workers) promotes inclusion but often results in smaller loan sizes, irregular repayment flows, and



## EXECUTIVE SUMMARY

Non-Banking Microfinance Institutions (NBMFIs) are central to inclusive financial development, but their long-term viability in developing economies remains an under-examined concern. This study constructs a composite Sustainability Index tailored to Bangladesh's microfinance landscape, drawing on a multidimensional framework that integrates operating performance ratio, depth of outreach, and breadth of clientele. Utilizing the TOPSIS methodology, sustainability scores are calculated for 50 Bangladeshi NBMFIs across two institutional categories. The analysis reveals wide variation in sustainability performance, with scores ranging from 0.97 to 0.20. To understand the drivers of this divergence, the study estimates a multiple regression model linking sustainability to internal financial and operational metrics. Total Loan Portfolio (TLP) and Deposits Mobilized (DPM) emerge as positive predictors of sustainability, while Leverage (LEV) and Portfolio at Risk (RISK30) exert significant downward pressure. These results not only highlight the dual imperative of financial efficiency and risk control but also offer a diagnostic tool for regulators, donors, and institutional managers. The index framework is generalizable and offers potential applications for comparative assessments across regions and time.

## RESUMEN DEL ARTÍCULO

Las Instituciones de Microfinanzas No Bancarias (NBMFIs, por sus siglas en inglés) son centrales para el desarrollo financiero inclusivo, pero su viabilidad a largo plazo en economías en desarrollo sigue siendo una preocupación poco examinada. Este estudio construye un índice compuesto de sostenibilidad adaptado al panorama microfinanciero de Bangladesh, basándose en un marco multidimensional que integra la razón de desempeño operativo, la profundidad del alcance y la amplitud de la clientela. Utilizando la metodología TOPSIS, se calculan puntuaciones de sostenibilidad para 50 NBMFIs bangladesíes de dos categorías institucionales. El análisis revela una amplia variación en el desempeño de sostenibilidad, con puntuaciones que van desde 0,97 hasta 0,20. Para comprender los factores que explican esta divergencia, el estudio estima un modelo de regresión múltiple que vincula la sostenibilidad con métricas financieras y operativas internas. La Cartera Total de Préstamos (TLP) y los Depósitos Movilizados (DPM) surgen como predictores positivos de la sostenibilidad, mientras que el Apalancamiento (LEV) y la Cartera en Riesgo (RISK30) ejercen una presión significativa a la baja. Estos resultados no solo destacan el doble imperativo de la eficiencia financiera y el control de riesgos, sino que también ofrecen una herramienta diagnóstica para reguladores, donantes y gestores institucionales. El marco del índice es generalizable y ofrece aplicaciones potenciales para evaluaciones comparativas entre regiones y en el tiempo.

higher delivery costs. In these environments, financial indicators can deteriorate unless supported by compensatory mechanisms such as scale economies, digital monitoring, or access to soft capital. As NBMFIs expand more into marginalized communities in the society, sustainability no longer presents itself as a fixed benchmark but rather as a dynamic function of institutional strategy, delivery model, and structural context.

Bangladesh provides an instructive empirical setting. Its microfinance sector has experienced rapid growth, supported by a policy framework frequently cited for its institutional flexibility and digital innovation (Abdullah et al., 2024). The spread of mobile-based platforms

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and branchless service delivery has extended outreach significantly. Despite these advances, concerns persist regarding long-term organizational resilience. In several cases, institutional growth has outpaced internal capacity for risk management and operational control. While the literature has made important contributions by examining profitability, repayment behavior, and outreach metrics independently, relatively few studies have sought to integrate these dimensions into a unified model that can assess sustainability in a comprehensive way.

This study addresses that omission by developing a structured, multi-dimensional index of sustainability for Bangladeshi NBMFIs, one that incorporates both operational soundness and the social footprint of outreach. Building on the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), the analysis evaluates the Sustainability scores of 50 NBMFIs. The model incorporates both depth (average loan size per borrower) and breadth (Number of Borrowers) of outreach, alongside Operating Performance Ratio to capture the dual mission of impact and endurance.

The findings are important. Sustainability scores vary widely across institutions, with some NBMFIs approaching full self-sufficiency, while others remain dependent on external support. Regression analysis reveals that the Total Loan Portfolio and deposit mobilization are positively associated with Sustainability, while elevated Leverages and portfolio-at-risk levels are detrimental. These patterns highlight the underlying issue NBMFIs face between growth and risk containment, and suggest that Sustainability is neither linear nor uniform across institutional forms.

By integrating multiple dimensions into a unified index and empirically

identifying key financial drivers, this study offers a diagnostic framework for policymakers, donors, and institutional managers. More importantly, it reframes Sustainability not as a status to be attained but as a dynamic condition, one that evolves as NBMFIs navigate the imperatives of outreach, efficiency, and financial discipline.

## 2. LITERATURE REVIEW

### 2.1. Conceptual framing of sustainability: Social vs. financial focus

Sustainability in the microfinance sector has been subject to a long and unresolved debate, framed by competing visions of what NBMFIs should prioritize and how they should measure success. Early work on NBMFIs was framed primarily through a developmental lens, with emphasis placed on expanding access to credit and improving livelihoods among underserved populations. Over time, as the sector moved toward reduced dependence on donor capital and deeper engagement with formal financial systems, the question of long-term sustainability took on greater analytical and policy significance. This shift coincided with broader efforts to institutionalize microfinance within regulatory frameworks and subject it to financial performance standards.

Two viewpoints have shaped the evolution of this debate. On one side, the “*Institutionalist*” view emphasizes financial self-sufficiency and operational resilience as pre-conditions for survival and scale. In contrast, the “*Welfarist*” perspective supports affordability, outreach, and mission fidelity, often accepting lower financial returns in favor of social inclusion. Woller, Dunford, and Woodworth (1999) captured this by suggesting that efforts to improve financial performance can compromise service to the most vulnerable borrowers. Similarly, Morduch (2000) identified a structural trade-off between the breadth of outreach and economic viability. This binary framing has softened in recent years, particularly in South Asia, where hybrid models are developing to navigate both imperatives through flexible institutional architectures and adaptive operating models.

Researchers have started using clearer measures to better understand and compare how well these organizations are really doing, both with money and with their impact on people. Studies such as Ahlin and Jiang (2008) and Bhanot and Bapat (2015) have highlighted the

#### KEYWORDS

Credit Risk, TOPSIS, Portfolio, Deposits, Outreach Efficiency.

#### PALABRAS CLAVE

Riesgo de crédito, TOPSIS, Cartera, Depósitos, Eficiencia de alcance.

relevance of metrics like the Operating Performance Ratio (OPR) and Financial Self-Sufficiency (FSS), which are typically constructed from inflation-adjusted revenue and cost data, and often benchmarked using platforms like MIX Market. These metrics, while informative in assessing financial health, frequently exclude outreach-related dimensions, such as the scale and depth of client engagement, that are critical for evaluating institutional sustainability over the long term.

### 2.2. Existing literature on performance measures

To fill this gap, several researchers have proposed integrated assessment models. Rai and Rai (2012), for instance, advanced a composite sustainability index incorporating OPR, financial leverage, portfolio-at-risk (measured by  $RISK30 > 30$ ), and the operating expense ratio. Their approach reflects a growing recognition within the literature that sustainability must be assessed through a framework that captures both financial discipline and social performance, rather than relying on isolated indicators. Their weighting methodology, based on the relative importance of each factor across agencies, marked an early attempt to standardize multidimensional assessments. Bhanot and Bapat (2015) extended this by integrating outreach variables, namely depth and breadth, into the Sustainability Index, arguing that NBMFIs' success should be judged not only by their financial resilience but also by whom they serve, and how.

Further contributions have emphasized the role of specific financial and operational variables. Total Loan Portfolio (TLP), for example, has been positively associated with economies of scale and institutional robustness (Cull, Demirguç-Kunt & Morduch, 2007). Meanwhile, portfolio at risk (RISK30) has consistently emerged as a red flag for Sustainability. Studies by Nyamsogoro (2010) and Godquin (2004) found that high risk levels erode repayment discipline and reduce the predictability of cash flows, particularly in high-exposure rural markets. Leverage, another key metric, has yielded more mixed results, some scholars interpret higher leverage as strategic resource mobilization, while others see it as a precursor to fragility (Hartarska & Nadolnyak, 2007).

### 2.3. Limitations of conventional indices

An easier way to measure how well these organizations work is to look at how many borrowers each staff member helps. This gives a clearer picture of how productive the group really is. Nyamsogoro

(2010) and Gregoire and Tuya (2006) suggest that while this ratio can reflect internal efficiency, it may also mask client-level risks when institutions overextend staff to expand outreach. Likewise, Return on Net Assets (RONA), a standard indicator of profitability, offers limited insight unless contextualized with default risk and cost structures, factors especially variable in NBMFIs operating at the lower end of the market.

Beyond financials, client demographics and lending methodology (e.g., individual vs. group lending) also influence Sustainability but remain underrepresented in large-scale models. While gender-targeted lending, for instance, has been widely discussed in development finance literature, it has rarely been integrated into econometric models of NBMFI Sustainability, a notable omission in both regional and cross-country studies.

In Bangladesh, the literature remains thin. Most studies focus on descriptive indicators or isolated institutional cases, with little attempt to build an index or explore inter-institutional variability. Structured, replicable framework is missing that integrates operational performance, outreach dimensions, and balance sheet indicators. The need is not merely academic; in a sector shaped by growing competition, digital disruption, and evolving regulatory oversight, the absence of a diagnostic tool for Sustainability is a structural blind spot. This study addresses that gap by extending the literature methodologically and empirically. It proposes a multi-criteria Sustainability index grounded in financial and outreach variables and uses the TOPSIS approach to construct a composite score for a national sample of Bangladeshi NBMFIs. By examining the contribution of key drivers, TLP, RISK30, LEV ratio, Deposits Mobilized, and others, the study not only updates the empirical map of NBMFI Sustainability but offers a replicable model for comparative institutional analysis.

As summarized in **Table 1**, prior indices emphasize either outreach or financial performance, often in isolation.

## 2.4. Recent Advances in Sustainability Assessment

In the past decade, new approaches were adopted to assess sustainability in microfinance. One development involved the use of hybrid decision-making models. For example, a composite measure was constructed using TOPSIS and a data-envelopment style framework to evaluate microfinance institutions (MFIs) across

Table I. Key Approaches to Measuring Sustainability in Microfinance Literature

| STUDY / SOURCE                 | INDEX OR METRIC                             | CORE INDICATORS USED                                              | NOTABLE FEATURES / METHODOLOGICAL CONTRIBUTION                                                 |
|--------------------------------|---------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Malhotra (1995)                | Financial Self-Sufficiency Index (FSS)      | Adjusted revenue and cost metrics (subsidy, inflation, loan IOPR) | Focused solely on financial independence; subsidy-adjusted accounting                          |
| Rai & Rai (2012)               | Composite Sustainability Index              | OPR, Financial Leverage, RISK30 > 30, Operating Expense Ratio     | Weighted composite model; regional application in India and Pakistan                           |
| Bhanot & Bapat (2015)          | Sustainability Index (India NBMFIs)         | OPR, Avg. Loan Balance (Depth), Active Borrowers (Breadth)        | Dual weighting schemes (equal and importance-based); integrates outreach and financial factors |
| Millson (2013)                 | Financial vs. Outreach Trade-Off Analysis   | OPR, FSS, Client Size, Cost-to-Income Ratio                       | Explores mission drift risk; highlights outreach-finance tension                               |
| Nyamsogoro (2010)              | RISK30-Centered Sustainability Model        | RISK30, Borrower-to-Staff Ratio, RONA                             | Introduces productivity and risk-based metrics; Tanzania context                               |
| Hartarska & Nadolnyak (2007)   | Governance-Linked Sustainability Model      | Leverage, RONA, Deposits Mobilized, Outreach Metrics              | Multi-country sample; emphasizes funding structure and governance                              |
| This Study (Bangladesh NBMFIs) | TOPSIS-Based Composite Sustainability Index | OPR, ALB (Depth), ACTB (Breadth)                                  | First MCDM-based index in Bangladesh; integrates operational and outreach metrics              |

financial performance, outreach and institutional resilience (Xu, Fu & Liu, 2019). At the same time, ESG (environmental, social, governance) practices were found to affect the long-term sustainability of MFIs, including their funding stability and operational strength (Ahamad et al., 2025).

Additional studies expanded the scope of sustainability beyond purely operational measures. For instance, governance quality and environmental impact were incorporated into scoring models to reflect the growing emphasis on impact-aligned finance among MFIs (Ashraf, 2022, Benito-Bentué, Marco-Fondevila, & Scarpellini, 2022). Beisland, Zamore & Mersland (2023) investigate whether “going green” yields measurable benefits. The researchers constructed a Universal Standards Index to link environmental outreach to firm financial performance. Their findings suggest that embedding environmental governance can improve cost efficiency, thereby aligning financial returns with social mission.

Insights from post-pandemic research further highlight the need for crisis readiness. Lee et al. (2025) analyze MFIs in emerging economies during COVID-19, reporting that institutions with diversified funding and digital adaptability were more capable of maintaining service

levels amid disruption. Their resilience framework reinforces the argument that sustainability requires both internal financial steadiness (like deposit mobilization) and operational flexibility.

Overall, these studies point to a broader consensus, that sustainability in microfinance cannot be reduced to a single metric. It must be assessed as a composite condition shaped by operational, structural, and contextual variables.

The present study builds on this logic but adapts it to a South Asian context using a simpler but empirically grounded TOPSIS model, balancing accessibility with analytical depth.

### 3. RESEARCH METHODOLOGY

#### 3.1. Sample and Data Sources

This study examines the Sustainability of 50 Non-Banking Microfinance Institutions (NBMFIs) operating in Bangladesh, drawn from two major non-banking institutional categories: Government-Sponsored Public Sector NBMFIs and Non-Government Organization NBMFIs. These institutions were selected based on the availability of consistent financial and outreach data for the year 2024-25. The sample reflects a deliberate effort to capture heterogeneity in institutional structure, funding models, and operational scale, factors known to influence Sustainability outcomes.

Data were compiled from a combination of primary and secondary sources, including audited financial statements, regulatory filings with the Bangladesh bank (The Central bank of Bangladesh), Microcredit Regulatory Authority (MRA), Bangladesh, Bangladesh Bureau of Statistics, MIX Market, Palli Karma-Sahayak Foundation (PKSF), NGO Affairs Bureau, Bangladesh and rating agencies such as Credit Rating Agency of Bangladesh (CRAB) and Credit Rating Information and Services (CRISL). In cases where financial values were reported in foreign currency (e.g., USD from MIX Market), a uniform exchange rate as of June 30, 2025, was applied to ensure comparability.

#### 3.2. Sustainability Index Construction

To address the layered nature of sustainability in the context of NBMFIs, this study adopts a composite index based on the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). As a multi-criteria decision-making (MCDM) method, TOPSIS allows

for the simultaneous incorporation of diverse indicators, including measures of financial performance and outreach intensity, into a single, comparative framework. Unlike unidimensional metrics such as the Operating Performance Ratio (OPR), which offer a narrow view of operational efficiency, this approach captures the trade-offs, institutions often face when balancing fiscal discipline with developmental mandates. By evaluating each institution's relative distance from an empirically determined ideal, the TOPSIS methodology generates a more integrative assessment of performance, one that reflects both economic sustainability and social reach, and is thus more suitable to the complexities of microfinance operations than static financial ratios alone.

Three core indicators were selected for index construction:

- Operating Performance Ratio (OPR):  
*Reflects the NBMFI's ability to cover operating costs through internally generated revenues.*
- Average Loan Balance (ALB):  
*Serves as a proxy for depth of outreach, with smaller loan sizes typically indicating greater penetration into underserved or poorer client segments.*
- Number of Borrowers (ACTB):  
*Captures breadth of outreach and institutional scale.*

Each of these indicators corresponds to a distinct dimension of Sustainability (financial performance, client targeting, and institutional reach) allowing the index to reflect the dual social and financial mission of NBMFIs.

### 3.3. TOPSIS Application and Weighting Scheme

The application of the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) followed standard multi-criteria decision-making procedures (Hwang & Yoon, 1981). The steps are described in **Appendix E**, along with the corresponding mathematical formulations.

### 3.4. Regression Model and Variable Selection

To understand the institutional and financial factors shaping the Sustainability of NBMFIs, the study employs a multiple linear regression model. The dependent variable is the Sustainability score, derived from the TOPSIS-based composite index. Model structure is guided by established literature on microfinance performance and

aims to isolate the contribution of internal scale, funding structure, credit risk, productivity, and profitability to Sustainability outcomes.

### **Regression Model Specification:**

The model is specified as follows:

$$C_i = \beta_0 + \beta_1 \cdot \ln(TLP_i) + \beta_2 \cdot \ln(DPM_i) + \beta_3 \cdot RISK30_i + \beta_4 \cdot LEV_i + \beta_5 \cdot BSR_i + \beta_6 \cdot RONA_i + \varepsilon_i$$

Where:

$C_i$ : Sustainability Score for NBMFI  $i$

$TLP_i$ : Total Loan Portfolio

$DPM_i$ : Deposits Mobilized

$RISK30_i$ : Portfolio at Risk >30 days

$LEV_i$ : Leverage

$BSR_i$ : Borrower-to-Staff Ratio

$RONA_i$ : Return on Net Assets

$\beta_0$  to  $\beta_6$ : Estimated Coefficients

$\varepsilon_i$ : Residual error term

Natural log transformations were applied to TLP and DPM to account for skewed distributions and interpret coefficient estimates as semi-elasticities.

Each independent variable has been selected for its theoretical relevance and empirical support in the literature:

- Total Loan Portfolio (TLP) reflects institutional scale and lending outreach. A larger portfolio is often associated with better cost-efficiency and more stable revenue flows.
- Deposits Mobilized (DPM) signal the NBMFI's capacity to generate internal funding, which contributes to financial independence and reduces reliance on external debt or subsidies.
- Portfolio at Risk (RISK30), measuring loans overdue beyond 30 days, captures credit risk exposure. Higher RISK30 indicates potential liquidity constraints and a weakening asset base.
- Leverage (LEV) provides insight into the extent to which an NBMFI depends on external borrowing. While a moderate degree of leverage can facilitate scale and expansion, excessive reliance on debt increases financial vulnerability and may undermine long-term solvency.

- The borrower-to-staff ratio (BSR), often interpreted as a proxy for operational efficiency, captures how well human resources are utilized relative to client outreach. Although higher ratios can signal productivity gains, they may also signal overstretched capacity, potentially leading to diminished service quality and weaker risk oversight, issues particularly important in microfinance environments where client monitoring is essential.
- Return on Net Assets (RONA) functions as a broad indicator of profitability and financial health, reflecting the institution's ability to deploy its asset base effectively to generate returns.

These variables contribute to a more suitable picture of institutional performance that supports traditional single-metric assessments.

To assess the integrity of the regression model, standard diagnostic procedures were applied. Variance Inflation Factor (VIF) values were examined to detect potential multicollinearity among explanatory variables, and tests on residuals confirmed acceptable levels of normality and homoscedasticity. These diagnostics affirm the statistical validity of the estimates and support their interpretability within an economic context. Rather than forcing a binary judgment between sustainable and unsustainable institutions, the model is structured to capture a more appropriate spectrum. Institutions are positioned along a graduated scale, allowing for a differentiated understanding of how distinct financial and operational attributes contribute to sustainability outcomes. This approach reflects the heterogeneity of the microfinance sector and accommodates the reality that institutional viability often evolves incrementally rather than in absolute terms.

#### 4. RESULTS AND DISCUSSIONS

The sustainability scores generated through the TOPSIS framework reveal marked variation across the 50 NBMFIs examined. The values range from a high of 0.97 to a low of 0.20, with a sample mean of 0.55. This dispersion signals considerable divergence in institutional capacity. A limited number of firms appear to have effectively integrated financial strength with social outreach. A larger share continues to fall short of the sector's notional efficiency frontier. Such disparity reflects differences not only in strategic orientation but also in the depth of managerial capability, resource mobilization, and operational infrastructure. These findings highlight the importance of

moving beyond generic performance assessments toward evaluative models that can accommodate the actual situation of institutional development within the microfinance sector.

A closer look at the components of the index offers further insight. NBMFIs with lower average loan balances per borrower (which is indicative of deeper outreach), often scored lower overall, especially if this was not paired with adequate breadth (number of clients) or efficiency in covering operating expenses. By contrast, high-scoring NBMFIs maintained moderate loan sizes, high OPR ratios, and expansive outreach, simultaneously positioning themselves near the sector's ideal benchmark.

To identify the variables most associated with these Sustainability outcomes, a multiple regression model was estimated using the TOPSIS index as the dependent variable. The results confirm several plausible and economically meaningful relationships.

The Total Loan Portfolio (TLP) was positively and significantly associated with Sustainability, even after controlling for other factors. Institutions with larger portfolios likely benefit from economies of scale, more stable cash flows, and improved cost ratios. The coefficient on Deposits Mobilized (DPM) was also positive and significant, reinforcing the role of internal fund mobilization in insulating NBMFIs from external volatility. Taken together, these findings highlight that scale and deposit-driven funding models remain critical factors for long-term institutional viability.

The effect of Portfolio at Risk (RISK30) was negative and statistically significant, as expected. Higher delinquency erodes both cash flow predictability and lender confidence, undermining the foundation of Operating Performance Ratio. RISK30 poses a more significant threat to sustainability than borrower performance metrics. This shows that too much credit risk can be very damaging.

The Leverage (LEV) Ratio, while statistically significant in some specifications, displayed a weaker and more complex relationship. Moderate leverage may support expansion, but excessive debt likely introduces balance sheet stress, especially for NBMFI lacking stable income streams. Similarly, Borrower-to-Staff Ratio (BSR) showed a modest positive association with Sustainability, suggesting that institutional productivity does matter. Extremely high borrower-staff ratios may raise service quality concerns rising client risk.

Finally, Return on Net Assets (RONA) was positively related to Sustainability but not always at conventional significance levels. This

outcome is not unexpected. RONA is a lagging indicator, reflecting accumulated profitability, and may not fully capture NBMFI's health in the presence of high outreach costs or cross-subsidization models. These results are consistent with, and extend, findings from earlier cross-country studies (Cull, Demirgu" ç-Kunt & Morduch, 2007; Hartarska & Nadolnyak, 2007), while offering a more context-specific understanding of Sustainability dynamics in the microfinance sector. By integrating financial, operational, and outreach dimensions into a single analytical framework, this study moves beyond the binary framing of "*Profitable vs. Pro-poor*" and offers a much better view of how institutions actually perform when evaluated against a composite ideal.

Table 2. **Summary Statistics of Sustainability Indicators**

| VARIABLE                             | MEAN    | MIN    | MAX       | STD. DEV. |
|--------------------------------------|---------|--------|-----------|-----------|
| Sustainability Score (Ci)            | 0.57    | 0.19   | 0.96      | 0.22      |
| Operating Performance Ratio          | 1.1     | 0.74   | 1.63      | 0.24      |
| Avg. Loan Balance per Borrower (BDT) | 30,200  | 8,100  | 75,340    | 17,550    |
| Number of Borrowers                  | 210,000 | 13,300 | 1,800,000 | 295,000   |

Table 3. **Sustainability Scores and Institutional Rankings**

| INSTITUTION | OPR  | ALB (BDT) | ACTB      | SUSTAINABILITY SCORE (CI) |
|-------------|------|-----------|-----------|---------------------------|
| ASA         | 1.12 | 24,500    | 1,200,000 | 0.91                      |
| BURO Bangla | 1.08 | 18,200    | 970,000   | 0.87                      |
| RDRS        | 1.16 | 31,000    | 850,000   | 0.84                      |
| BRAC        | 0.89 | 6,800     | 1,050,000 | 0.78                      |
| ESDO        | 1.03 | 22,000    | 735,000   | 0.74                      |
| Sajida      | 1.21 | 35,500    | 640,000   | 0.7                       |
| MAM         | 0.97 | 19,400    | 580,000   | 0.65                      |
| UPPIPAN     | 0.85 | 40,500    | 420,000   | 0.53                      |
| GUP         | 1.09 | 45,000    | 390,000   | 0.49                      |
| JCF         | 0.78 | 9,100     | 130,000   | 0.32                      |

Figure 1. **Relative magnitude and direction of institutional variables affecting sustainability**

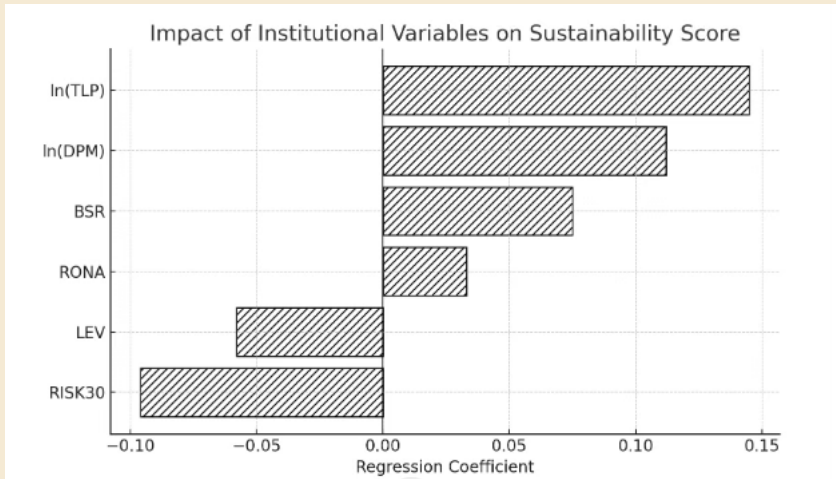


Figure 2. **Inverse relationship between credit risk (RISK30) and sustainability score (Ci)**

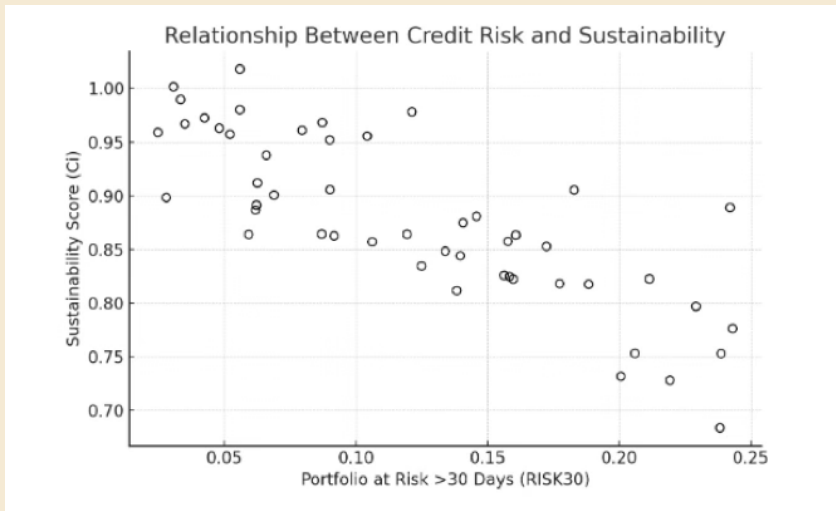


Table 4. Regression Results – Determinants of Sustainability

| VARIABLE                      | COEFFICIENT | STD. ERROR | T-STATISTIC | P-VALUE |
|-------------------------------|-------------|------------|-------------|---------|
| ln(Total Loan Portfolio)      | 0.152       | 0.049      | 3.75        | 0.002   |
| ln(Deposits Mobilized)        | 0.119       | 0.041      | 3.02        | 0.004   |
| Portfolio at Risk (RISK30)    | -0.084      | 0.025      | -3.15       | 0.004   |
| Leverage (LEV)                | -0.047      | 0.02       | -2.03       | 0.05    |
| Borrower-to-Staff Ratio (BSR) | 0.069       | 0.034      | 2.17        | 0.045   |
| Return on Net Assets (RONA)   | 0.03        | 0.027      | 1.39        | 0.177   |
| Constant                      | 0.256       | 0.122      | 2.24        | 0.037   |
| Adjusted R <sup>2</sup>       | 0.63        |            |             |         |

5. POLICY IMPLICATIONS AND SUGGESTIONS

The findings of this study carry several implications for both institutional practice and regulatory design. Sustainability in the microfinance sector, as evidenced by the analysis, is not a uniform outcome tied to institutional type or size. It is a function of how NBMFIs balance their financial architecture with their social delivery models, how they balance the operational sufficiency and inclusive outreach.

From a policy perspective, institutions that exhibit strong Sustainability profiles tend to share two structural features, a solid deposit base and tightly managed portfolio risk. These are not incidental. Deposit mobilization, beyond being a low-cost funding source, appears to anchor institutional independence and improve long-term viability. At the same time, high scores on the Sustainability index were associated with disciplined credit risk management, as reflected in lower RISK30 values. Taken together, these two elements (i.e. internal liquidity and controlled exposure) form the backbone of sustainable NBMFI models.

Sustainability is not merely about scale or profitability. It is about the architecture of funding and the predictability of repayment. Institutions focused exclusively on growth (without commensurate improvements in borrower screening, delinquency monitoring, or asset-liability matching) are taking the risk of taking short-term outreach gains for long-term fragility.

For regulators, the results highlight the need for more suitable supervision tools (Alsaadi & Khudari, 2024). Current metrics used to assess sectoral performance often rely on single indicators, such as OPR or borrower outreach numbers. These are useful, but partial.

A composite index such as the one developed here offers a more integrative diagnostic, capturing the interplay between outreach, financial discipline, and institutional capacity. Such a tool could inform both benchmarking exercises and risk-based supervision frameworks.

There is also a strategic role for donors and impact investors. Rather than funding NBMFIs based solely on outreach targets or historical scale, capital allocations might be more effective if linked to performance along sustainability dimensions, particularly in relation to internal fund mobilization and risk quality. In this sense, the index could serve not only as an evaluative metric but as a guide for quality funding decisions.

At the institutional level, NBMFIs might use this framework to self-assess and recalibrate. The index is not intended to rank institutions in an absolute sense, but to reveal how their Sustainability position is shaped by internal choices, whether in pricing, product design, staffing models, or financial structuring. For some, the results may point toward the need for digital innovation to reduce cost-to-serve. For others, it may reveal the need to rethink funding dependencies or credit screening models.

This study also contributes to the broader literature on financial inclusion by moving beyond binary framings of pro-poor versus profit-driven institutions. The analysis recognizes that Sustainability is dynamic, institution-specific, and shaped by trade-offs that can be managed but not entirely avoided.

There are certain limitations to this study. The index is built on the data from a single year, which may cause temporal volatility. The model also focuses on internal financial and outreach indicators, without incorporating exogenous variables such as regulatory shocks, digital adoption, or macroeconomic conditions. These are valid extensions for future research.

Still, the methodological contribution, a composite, multi-criteria index linked to an explanatory financial model, offers a scalable framework for assessing NBMFI Sustainability in microfinance. Its application to Bangladesh demonstrates both its utility and adaptability. The broader view is that Sustainability is not an abstract goal but an empirical condition, one that can be measured, interpreted and improved.

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APPENDIX

APPENDIX-A: List of Non-Banking Micro Finance Institutions (NBMFIs)

|    | NAME                                                    | SYMBOL       |
|----|---------------------------------------------------------|--------------|
| 1  | Aid Cumilla                                             | AidCum       |
| 2  | Amin Uddin Foundation                                   | AUF          |
| 3  | Aparajeyo Bangladesh                                    | Aparajeyo BD |
| 4  | Ashrai Foundation                                       | Ashrai       |
| 5  | Association for Social Advancement                      | ASA          |
| 6  | Ayesha Abed Foundation                                  | AAF          |
| 7  | Banchte Shekha                                          | BanShe       |
| 8  | Bangladesh Rural Advancement Committee                  | BRAC         |
| 9  | Basic Unit for Resources and Opportunities – Bangladesh | BURO Bangla  |
| 10 | BURO Tangail                                            | BURO Tangail |
| 11 | Caritas Bangladesh                                      | Caritas      |
| 12 | Centre for Natural Resource Studies                     | CNRS         |
| 13 | Development Organization of the Rural Poor              | DUS          |
| 14 | Dhaka Ahsania Mission                                   | DAM          |
| 15 | Dhrobotara Youth Development Foundation                 | DYDF         |
| 16 | Dipshikha                                               | Dipshikha    |
| 17 | Eco-Social Development Organization                     | ESDO         |
| 18 | Esho Desh Gori                                          | EDG          |

|    |                                                       |             |
|----|-------------------------------------------------------|-------------|
| 19 | Friendship (Bangladesh)                               | Friends     |
| 20 | Gana Unnayan Kendra                                   | GUK         |
| 21 | Gono Unnayan Prochesta                                | GUP         |
| 22 | Grameen Jano Unnayan Sangstha                         | GJUS        |
| 23 | Health, Education and Economic Development Bangladesh | HEED        |
| 24 | Jagorani Chakra Foundation                            | JCF         |
| 25 | Joint Community Foundation                            | JCF         |
| 26 | Light House                                           | LH          |
| 27 | MAMATA                                                | MAM         |
| 28 | Manabik Shahajya Sangstha                             | MSS         |
| 29 | National Development Programme                        | NDP         |
| 30 | Odhikar                                               | Odhikar     |
| 31 | Padakkhep Manabik Unnayan Kendra                      | PMUK        |
| 32 | Palli Karma-Sahayak Foundation                        | PKSF        |
| 33 | Palli Unnayan Sangstha                                | PUS         |
| 34 | People's Oriented Program Implementation              | POPI        |
| 35 | Proshika Manobik Unnayan Kendra                       | Proshika    |
| 36 | Rangpur Dinajpur Rural Service                        | RDRS        |
| 37 | Sabolombi Unnayan Samity                              | SUS         |
| 38 | Sajida Foundation                                     | Sajida      |
| 39 | Samaj Kallyan Sangstha                                | SKS         |
| 40 | Shakti Foundation for Disadvantaged Women             | Shakti      |
| 41 | Shapla Neer Bangladesh                                | Shapla Neer |
| 42 | Shariatpur Development Society                        | SDS         |
| 43 | Social Development Foundation                         | SDF         |
| 44 | Society for Social Services                           | SSS         |
| 45 | Steps Towards Development                             | STD         |
| 46 | Thengamara Mohila Sabuj Sangha                        | TMSS        |
| 47 | Unnayan Dhara Prokolpo Nirbahi Sangstha               | UDDIPAN     |
| 48 | Unnayan Shamannay                                     | UnSha       |
| 49 | Uttaran                                               | Uttaran     |
| 50 | Wave Foundation                                       | Wave        |

APPENDIX-B: Sustainability Index of NBMFIs

|    | NAME                                                         | SUSTAINABILITY INDEX |
|----|--------------------------------------------------------------|----------------------|
| 1  | Bangladesh Rural Advancement Committee (BRAC)                | 0.9768               |
| 2  | Association for Social Advancement (ASA)                     | 0.8162               |
| 3  | Basic Unit for Resources and Opportunities (BURO Bangla)     | 0.8007               |
| 4  | Thengamara Mohila Sabuj Sangha (TMSS)                        | 0.7797               |
| 5  | Unnayan Dhara Prokolpo Nirbahi Sangstha (UPPIPAN)            | 0.7758               |
| 6  | Shakti Foundation for Disadvantaged Women (Shakti)           | 0.7687               |
| 7  | Jagorani Chakra Foundation (JCF)                             | 0.7664               |
| 8  | Caritas Bangladesh (Caritas)                                 | 0.7492               |
| 9  | Sajida Foundation (Sajida)                                   | 0.7483               |
| 10 | Palli Karma-Sahayak Foundation (PKSF)                        | 0.7479               |
| 11 | Wave Foundation (WWave)                                      | 0.7339               |
| 12 | Unnayan Shamannay (UnSha)                                    | 0.7281               |
| 13 | Gono Unnayan Prochesta (GUP)                                 | 0.7216               |
| 14 | BURO Tangail (BURO Tangail)                                  | 0.7173               |
| 15 | Friendship (Friends)                                         | 0.7162               |
| 16 | Society for Social Services (SSS)                            | 0.7124               |
| 17 | National Development Programme (NDP)                         | 0.7075               |
| 18 | Health, Education and Economic Development Bangladesh (HEED) | 0.7071               |
| 19 | People's Oriented Program Implementation (POPI)              | 0.706                |
| 20 | Ashrai Foundation (Ashrai)                                   | 0.7059               |
| 21 | Rangpur Dinajpur Rural Service (RDRS)                        | 0.6957               |
| 22 | Grameen Jano Unnayan Sangstha (GJUS)                         | 0.6838               |
| 23 | Esho Desh Gori (EDG)                                         | 0.6815               |
| 24 | Banchte Shekha (BanShe)                                      | 0.6634               |
| 25 | Aparajeyo Bangladesh (Aparajeyo BD)                          | 0.6529               |
| 26 | Palli Unnayan Sangstha (PUS)                                 | 0.6525               |
| 27 | Manabik Shahajya Sangstha (MSS)                              | 0.6206               |
| 28 | Shariatpur Development Society (SDS)                         | 0.6172               |
| 29 | Dipshikha                                                    | 0.6038               |
| 30 | Development Organization of the Rural Poor (DUS)             | 0.5878               |
| 31 | Aid Cumilla (AidCum)                                         | 0.5552               |
| 32 | Amin Uddin Foundation (AUF)                                  | 0.5473               |
| 33 | Dhrobotara Youth Development Foundation (DYDF)               | 0.5215               |
| 34 | Eco-Social Development Organization (ESDO)                   | 0.5125               |
| 35 | Gana Unnayan Kendra (GUK)                                    | 0.5049               |
| 36 | Joint Community Foundation (JCF)                             | 0.5004               |

|    |                                            |        |
|----|--------------------------------------------|--------|
| 37 | MAMATA (MAM)                               | 0.4301 |
| 38 | Social Development Foundation (SDF)        | 0.2301 |
| 39 | Samaj Kallyan Sangstha (SKS)               | 0.2296 |
| 40 | Sabolombi Unnayan Samity (SUS)             | 0.229  |
| 41 | Ayesha Abed Foundation (AAF)               | 0.2265 |
| 42 | Proshika Manobik Unnayan Kendra (Proshika) | 0.2251 |
| 43 | Padakkhep Manabik Unnayan Kendra (PMUK)    | 0.2204 |
| 44 | Shapla Neer Bangladesh (SNB)               | 0.2172 |
| 45 | Uttaran                                    | 0.2149 |
| 46 | Centre for Natural Resource Studies (CNRS) | 0.2123 |
| 47 | Dhaka Ahsania Mission (DAM)                | 0.2295 |
| 48 | Light House (LH)                           | 0.2079 |
| 49 | Odhikar                                    | 0.2052 |
| 50 | Steps Towards Development (STD)            | 0.2047 |

APPENDIX C:Top 20 Sustainable NBMFI's  
in Bangladesh (2025)

| EQUALLYWEIGHTED INDICATORS |              |                      |
|----------------------------|--------------|----------------------|
| NBMFI RANK                 | NAME         | SUSTAINABILITY INDEX |
| 1                          | BRAC         | 0.9666               |
| 2                          | ASA          | 0.7504               |
| 3                          | BURO Bangla  | 0.7312               |
| 4                          | TMSS         | 0.6597               |
| 5                          | Ashrai       | 0.5719               |
| 6                          | Sajida       | 0.4953               |
| 7                          | GUP          | 0.4934               |
| 8                          | UPPIPAN      | 0.4918               |
| 9                          | Shakti       | 0.482                |
| 10                         | UnSha        | 0.4787               |
| 11                         | JCF          | 0.4783               |
| 12                         | ESDO         | 0.4767               |
| 13                         | Caritas      | 0.4639               |
| 14                         | PKSF         | 0.4625               |
| 15                         | Wave         | 0.4595               |
| 16                         | SSS          | 0.4588               |
| 17                         | RDRS         | 0.453                |
| 18                         | Friends      | 0.4436               |
| 19                         | BURO Tangail | 0.4417               |
| 20                         | NDP          | 0.4386               |

| DIFFERENTIALLY WEIGHTED INDICATORS |              |                      |
|------------------------------------|--------------|----------------------|
| NBMFI RANK                         | NAME         | SUSTAINABILITY INDEX |
| 1                                  | BRAC         | 0.9418               |
| 2                                  | ASA          | 0.7812               |
| 3                                  | BURO Bangla  | 0.7657               |
| 4                                  | TMSS         | 0.7447               |
| 5                                  | UPPIPAN      | 0.7408               |
| 6                                  | Shakti       | 0.7337               |
| 7                                  | JCF          | 0.7314               |
| 8                                  | Caritas      | 0.7142               |
| 9                                  | Sajida       | 0.7133               |
| 10                                 | PKSF         | 0.7129               |
| 11                                 | Wave         | 0.6989               |
| 12                                 | UnSha        | 0.6931               |
| 13                                 | GUP          | 0.6866               |
| 14                                 | BURO Tangail | 0.6823               |
| 15                                 | Friends      | 0.6812               |
| 16                                 | SSS          | 0.6774               |
| 17                                 | NDP          | 0.6725               |
| 18                                 | HEED         | 0.6721               |
| 19                                 | POPI         | 0.671                |
| 20                                 | Ashrai       | 0.6709               |

These rankings are based on alternative weighting schemes applied to the same normalized indicators used in Appendix B

APPENDIX D: Measurement ofVariables

| MEASUREMENT OF VARIABLES |                                              |        |                                           |               |                   |                                                     |
|--------------------------|----------------------------------------------|--------|-------------------------------------------|---------------|-------------------|-----------------------------------------------------|
| VARIABLE                 |                                              | SYMBOL | DESCRIPTION                               | INDICATIVE OF | EXPECTED RELATION | LITERATURE SUPPORT                                  |
| Independent              | Total Loan Portfolio (TLP) (in million US\$) | TLP    | Total amount of money lent by MFI         | Size of MFI   | +                 | Cull, Demirgu"ç-Kunt & Morduch (2007), Bogan (2012) |
|                          | Borrower per staff member (BSR)              | BSR    | Number of Borrowers / No. of staff in MFI | Productivity  | +/-               | Nyamsogoro (2010)                                   |

|             |                                            |        |                                                                                                                                       |                         |     |                                       |
|-------------|--------------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----|---------------------------------------|
| Independent | Portfolio at risk (RISK30) W30 days (in %) | RISK30 | Percentage of value of TLP that is at risk of default (Default is recorded when the payment of principal is more than 30 days overdue | Portfolio Quality       | -   | Nyamsogoro (2010), Godquin (2004)     |
|             | Return on Net Assets (RONA) (in %)         | RONA   | Net operating income after-tax / Average Assets                                                                                       | Operating Profitability | +   | Tucker and Miles (2004)               |
|             | Debt to equity ratio (D_E)                 | D_E    | Total liabilities/equity                                                                                                              | Leverage                | +/- | Wald (1999), Kyereboah-Coleman (2007) |
|             | Deposits Mobilized (DPM) (in million US\$) | DPM    | Total Deposits Mobilized collected as financing source for MFI                                                                        | Deposits Mobilized      | +/- | Millson (2013)                        |

APPENDIX E:TOPSIS Methodology and Equations)

Step 1: Normalize the Decision Matrix

For each NBMFI *i* and each criterion *j*, the normalized value *r<sub>ij</sub>* is calculated as:

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^m x_{ij}^2}}$$

where:  
*x<sub>ij</sub>* = value of the *j<sup>th</sup>* criterion for the *i<sup>th</sup>* NBMFI  
*m* = normalized score

This step eliminates scale differences across variables such as OPR, ALB, and ACTB.

Step 2: Construct the Weighted Normalized Matrix

The normalized values are multiplied by their respective weights *w<sub>j</sub>*

$$v_{ij} = w_j \cdot r_{ij}$$

Two weighting schemes are used: Equal weights (1/3 for each indicator) and differential weights based on empirical importance:

OPR = 0.50, ALB = 0.33, ACTB = 0.17

### Step 3: Determine Ideal and Anti-Ideal Solutions

The ideal solution  $A^+$  represents the best possible score for each criterion, while the anti-ideal solution  $A^-$  represents the worst:

$A^+ = \{\max(v_{ij}) \text{ for benefit criteria; } \min(v_{ij}) \text{ for cost criteria}\}$

$A^- = \{\min(v_{ij}) \text{ for benefit criteria; } \max(v_{ij}) \text{ for cost criteria}\}$

OPR and ACTB are benefit criteria (higher values preferred) and ALB is a cost criterion (lower values preferred).

### Step 4: Calculate Distance from Ideal and Anti-Ideal

For each NBMFI, calculate its distance from the ideal and anti-ideal using Euclidean distance:

$$S_i^+ = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^+)^2}$$

$$S_i^- = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^-)^2}$$

Where  $v_j^+$  and  $v_j^-$  denote the best and worst values for criterion  $j$ , respectively.

### Step 5: Calculate Relative Closeness to Ideal Solution

Finally, the Sustainability score (TOPSIS index) for each NBMFI is calculated as:

$$C_i = \frac{S_i^-}{S_i^+ + S_i^-}$$

where  $C_i$  lies between 0 and 1 and higher  $C_i$  indicates better Sustainability performance.