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Article

The Paradox of Micro-Capital Fungibility: Evaluating Credit Utilization and its Impact on Women's Empowerment

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Abstract: Purpose: This study evaluates micro-credit's contribution to women's empowerment in rural West Bengal. It specifically examines the "paradox of micro-capital fungibility" by analyzing how the utilization of accessed impacts economic independence, mobility, decision-making, and social recognition. Design/methodology/approach: Using a quantitative approach, primary data was collected from 450 women beneficiaries in the West Medinipur district. Statistical analyses were employed to identify patterns in credit utilization from both Commercial Banks and Microfinance Institutions (MFIs). Findings: Results indicate that while micro-credit is a transformative tool for financial inclusion, the actual utilization (fungibility) of credit is the critical determinant of the socio-economic empowerment levels achieved by rural women. Research limitations/implications: The geographical focus on rural West Bengal may limit generalizability. Future research should investigate the digital divide's impact on credit utilization among less tech-savvy populations. Practical implications: Financial institutions must move beyond mere credit delivery to monitor and support effective fund utilization, ensuring long-term entrepreneurial success for women. Social implications: This research informs policymakers on designing robust support systems that bridge the gap between credit access and effective utilization, enhancing women's social status and community resilience. Originality/value: This paper addresses the under-explored "fungibility" of micro-capital, bridging the gap between financial access and actual empowerment outcomes.

Keywords: Credit utilization, Consumption smoothing, Fungibility, Micro-credit, Microfinance, Rural Entrepreneurship

1. INTRODUCTION

Microfinance in India is identified as a transformative and evolutionary tool for financial inclusion, marking a shift from basic micro-credit to a comprehensive, digitalized financial ecosystem (Pattnaik et al., 2024; Sharma & Rastogi, 2021). This evolution is characterized by the transition from informal community groups to highly regulated, technologically integrated institutions (Bhat, 2018; Sharma & Rastogi, 2021). The rural society of India adopted this tool extensively, driven by the smooth availability of funds from the organized sector (Ganeshkumar & Suganyapriyadharshini, 2024). Moreover, the microcredit ecosystem catalyzed rural finance by pioneering doorstep banking—facilitated largely by the proliferation of Non-Banking Financial Companies (Joseph & Joseph, 2023). While this ensures the seamless delivery of capital through localized channels (Vardini & Ganeshkumar, 2025), the convenience of this delivery makes capital highly susceptible to the paradox of fungibility, where funds are often diverted for urgent household emergencies before they can be invested (DBS Bank India & Haqdarshak, 2024). Consequently, while the delivery architecture has modernized, this study focuses on the utilization reality for rural women who continue to navigate a significant digital divide (DBS Bank India & Haqdarshak, 2024).

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The seamless integration of doorstep banking has particularly resonated with Indian rural women entrepreneurs, who increasingly leverage the smooth availability of microcredit to transition from subsistence activities to scalable micro-enterprises. By mitigating the high opportunity costs associated with traditional bank visits, this decentralized ecosystem allows women to strategically align their financial management with their domestic and professional responsibilities (DBS Bank India & Haqdarshak, 2024; Pandhare et al., 2024). Parallel to the growth of private MFIs, rural women continue to actively engage with the formal banking system (NABARD, 2024), primarily through the institutional framework of Self-Help Groups (SHGs). Kaur & Singh (2024) and Saravanan & Mohapatra (2023) note that the rural microcredit architecture for Indian female entrepreneurs functions as a bifurcated ecosystem, characterized by the parallel operation of two distinct institutional pathways: the public-sector-led SHG-Bank Linkage Programme (SBLP) and the market-driven Joint Liability Group (JLG) model managed by private Non-Banking Financial Companies (NBFC-MFIs).

Women who have the power to get and use microcredit usually put more money into their families and businesses, which raises household incomes, savings, and spending habits. The OECD (2023) shows that when women have control over the family's money, the whole family benefits more. This is because women are more likely to spend their earnings on important things like their children's education and healthy food. While the delivery of microcredit has become increasingly streamlined, the actual impact on livelihoods depends on how these resources are managed; thus, this study addresses the following critical research questions:

RQ1: To what extent do rural women entrepreneurs divert microcredit from intended business investments to general household expenditures?

RQ2: How do the institutional sources (Bank-linked SHGs vs. Private MFIs) and the total loan quantum influence these fund allocation patterns?

RQ3: To what extent does the fungibility of micro-capital influence the socio-economic empowerment of rural women borrowers?

By investigating these dimensions, this study seeks to bridge the gap between financial access and tangible socio-economic outcomes. Understanding the nuances of fund diversion and the influence of institutional sources is critical, as it reveals whether microcredit is functioning as a temporary safety net for household survival or as a sustainable engine for entrepreneurial growth. Ultimately, this research aims to provide a localized perspective on how the strategic management of micro-capital can be optimized to foster genuine female agency, thereby informing more resilient policy frameworks for the next phase of India's rural financial evolution.

To explore these inquiries, the study was conducted in West Medinipur district of West Bengal - a region characterized by a high density of both SHG-Bank Linkage programs and private NBFC-MFI operations. This locale provides a representative microcosm of the Indian rural landscape, where traditional agrarian lifestyles are increasingly intersecting with modernized micro-financial services. By focusing on this specific demographic, the research captures the real-time challenges and successes of women entrepreneurs navigating the complexities of fund management within a rapidly evolving provincial economy.

2. REVIEW OF LITERATURE

2.1 Microcredit fungibility and patterns of consumption smoothing

The conceptualization of microcredit has evolved from a rigid business investment tool to a recognized instrument for "consumption smoothing" within volatile rural economies. Armendáriz and Morduch (2010) provide the theoretical bedrock for this shift, arguing that for poor households with irregular income streams, utilizing micro-loans for immediate domestic needs is an economically rational survival strategy rather than a failure of entrepreneurial intent. This is further elucidated by Rutherford (2002) through the concept of "saving down," where credit allows the poor to convert future irregular savings into a "lump sum" to meet critical life-cycle needs such as education and health. In this context, the "household-enterprise blur" identified by Collins et al. (2009) suggests that

the boundary between domestic and business finance is practically non-existent, meaning funds labeled for "productive use" are naturally redirected to whichever household risk is most urgent.

This inherent fungibility is deeply influenced by the institutional landscape and the socio-cultural pressures unique to the Indian context. While Kling et al. (2022) highlight how MFIs bridge the gaps left by traditional banks for the economically excluded, the effectiveness of this outreach is often hampered by operational friction. Kadir et al. (2024) note that delays in loan authorization and poor coordination within Self-Help Groups (SHGs) often force borrowers to divert funds to cover urgent household debts or family liabilities, rather than the intended micro-enterprises. Furthermore, Dupas and Robinson (2013) identify "social taxation" as a significant driver of diversion, where rural women are culturally expected to provide financial support to their kin, making it difficult to retain capital within a standalone business venture.

In the Indian rural ecosystem, the utilization of these funds is rarely an isolated financial choice but is instead tied to complex social meanings of debt. Guérin et al. (2013) observe that in South India, borrowers often engage in "debt juggling," using micro-loans to settle high-interest informal debts or fund essential social ceremonies. This aligns with Sooryamoorthy's (2007) findings that the majority of loans are directed toward consumption requirements, which, while appearing non-productive, create a "welfare effect" that stabilizes the household and elevates the woman's status as a primary provider. Thus, as Samineni and Ramesh (2023) emphasize, while the national goal remains the graduation of SHG members into small enterprises, this transition is mediated by the reality of regional penetration and the immediate need for household economic security.

2.2 Sources of fund and utilisation

The utilization of micro-capital is fundamentally shaped by an institutional duality within the financial landscape, where the origin of the loan dictates its ultimate purpose and impact. Kaur and Singh (2024) argue that while the SHG-Bank Linkage model leverages formal banking stability to foster long-term growth, private MFIs excel in providing rapid, flexible capital to the economically excluded. This institutional logic significantly predicts the loan's destination; commercial-bank-led models often impose stricter requirements for productive utilization to ensure safety, whereas MFIs, prioritizing deeper social outreach, may tolerate higher levels of fungibility (Cull, Demirgüç-Kunt, & Morduch, 2007). Consequently, MFIs play a vital role in bridging gaps left by traditional banks (Kling et al., 2022), though the doorstep banking model they employ is a double-edged sword: the convenience of proximity makes capital highly susceptible to being diverted for urgent household emergencies before it can ever be invested in a business (DBS Bank India & Haqdarshak, 2024).

Beyond the source, specific loan characteristics and group dynamics further mediate how funds are allocated. Mengstie (2022) identifies the "loan quantum," or total amount, as a primary determinant of utilization, finding that smaller amounts are systematically diverted to household gaps while larger injections favor income-generating activities. In the context of Self-Help Groups (SHGs), the 'joint liability' structure adds a layer of peer monitoring that often steers members toward conservative, low-risk investments (Ghatak & Guinnane, 1999). However, the success of this model depends on operational efficiency; Kadir et al. (2024) note that authorization delays often cause borrowers to miss specific market opportunities, forcing them to use the credit as a 'consumption safety net'. Conversely, when managed effectively, bank-linked SHGs provide a structured trajectory for members to graduate from subsistence to true entrepreneurship (Samineni & Ramesh, 2023).Finally, the repayment structures imposed by different sources can inadvertently trigger fund leakage. Jain and Mansuri (2003) highlight that strict MFI schedules—which often require repayments to begin almost immediately—frequently force borrowers to use the loan principal itself to meet the first few installments. This immediate diversion shifts the focus from productive investment to managing family liabilities. Ultimately, the synthesis of these views suggests that the institutional framework and the "quantum" of credit are just as critical as the money itself in determining whether microcredit functions as a temporary relief or a transformative instrument for empowerment (Mengstie, 2022).

2.3 Influence of microcredit fungibility on women empowerment

The relationship between microcredit and women's empowerment is frequently mediated by the 'paradox of fungibility', where the transition from credit access to genuine agency is rarely linear. Kabeer (2005) famously challenges the notion of microfinance as a 'magic bullet', arguing that access to credit does not automatically translate into agency. Instead, empowerment depends heavily on intra-household power dynamics and whether the woman retains autonomous control over the fund's utilization. This is echoed by Pitt et al. (2006), who demonstrate that the empowerment effect is significantly stronger when women are the direct controllers of credit; when funds are diverted to male-dominated activities or general household consumption—a common manifestation of fungibility—the woman's decision-making power and credit agency stagnate (Afrin et al., 2017). Consequently, while entrepreneurship may improve economic standing, it often results in a gap where social and political empowerment remains less significant (Khan, Bhat, & Sangmi, 2022).

This gap suggests a phenomenon described by Ganle et al. (2015) as 'Empowerment-lite', wherein women achieve marginal economic mobility but remain constrained by traditional gender roles and social structures. The virtuous spiral of empowerment, which Mayoux (2001) notes must be fueled by independent income, is often broken when loans are diverted to meet family liabilities. This diversion can lead to a burden of debt without a corresponding increase in status or assets. Even in successful cases, Al-Shami et al. (2018) find that while diverting funds to 'Asset Formation' may increase a sense of security, psychological empowerment and self-efficacy are typically only achieved through the successful management of a personal micro-enterprise. This aligns with the 'geographic paradox' observed in regions from Ethiopia to Uttar Pradesh, where improved social conditions are still hindered by deep-seated cultural attitudes and educational barriers (Wondimu et al., 2023; Hasan et al., 2025).

Ultimately, the impact of microcredit is dictated by a complex interplay of individual attributes and institutional strategies. Pal & Gupta (2023) and Mengstie (2022) identify household characteristics and socio-economic status as critical predictors of how credit is utilized and the degree of empowerment achieved. Research by Banerjee et al. (2015) confirms that without a clear focus on transformative change, fungible capital is often spent on immediate household gaps or temptation goods rather than sustainable growth. To bridge this divide, Kharel (2024) suggests that a comprehensive strategy—integrating savings and insurance with credit — is essential to enhance financial autonomy. As Garikipati (2008) warns, the creation of household assets through diverted credit can be a mixed blessing, as these assets often fall under male control, thereby diluting the woman's personal empowerment. Thus, the quantum of credit and the provision of training remain the decisive variables in determining if micro-capital serves as a mere safety net or a true engine for female agency (Mengstie, 2022).

Building upon the established literature, it is evident that while microfinance has transitioned from a basic credit tool to a sophisticated financial ecosystem, a significant "Empowerment Gap" persists due to the inherent fungibility of micro-capital. Current research extensively documents the macro-level success of financial inclusion and the micro-level logic of consumption smoothing; however, there remains a critical research gap in understanding how the specific institutional source—the bifurcated path of Bank-linked SHGs versus Private MFIs—interacts with the actual destination of funds to influence female agency. Most studies treat loan utilization as a binary of productive or non-productive, failing to account for the nuanced socio-economic empowerment derived from strategic asset formation or family debt management in the rural Indian context.

The purpose of this study, therefore, is to bridge this gap by empirically evaluating the paradox of fungibility within the West Medinipur district. By analyzing the relationship between loan quantum, institutional disbursement logic, and the multidimensional empowerment of women, this research seeks to move beyond traditional metrics of repayment and access. Ultimately, the study aims to determine whether the diversion of microcredit into household portfolios acts as a mere survival safety net or if, under specific institutional conditions, it can be optimized as a sustainable engine for genuine socio-economic transformation and female autonomy.

3. METHODOLOGY

To empirically address the research questions regarding micro-capital fungibility and its subsequent impact on female agency, this section outlines the systematic approach employed in the study. The methodology is structured to

provide logical progression from the operationalization of research questions into measurable variables to the establishment of a theoretical framework, followed by a detailed description of the research design, including sampling frame and measurement scales. Finally, the section acknowledges the inherent limitations of the study to ensure a transparent and rigorous interpretation of the findings.

3.1 Theoretical framework

To analyze the paradox of Micro-Capital Fungibility, this study adopts a Multi-Dimensional Fund Allocation Model (See Figure 1). This framework moves beyond the traditional binary view of loan utilization (Productive vs. Non-productive) and instead views microcredit as a fluid resource that borrowers strategically distribute across six distinct socio-economic destinations. The model identifies six specific 'destinations' for micro-capital, which together serve as the empirical baseline for addressing RQ1 (Extent of Diversion):

1. Productive Activity (Business/Agriculture): Represents the primary institutional intent of microcredit, aimed at direct income generation.

2. Household Expenditure (Consumption Smoothing): Funds utilized for daily survival and utilities, acting as a buffer against immediate poverty.

3. Family Liability (Social/Medical Obligations): Diversion toward weddings, funerals, or medical emergencies, where credit functions as a form of informal social insurance.

4. Investment/Deposit (Capital Preservation): The redirection of credit into savings or other financial instruments to secure future liquidity.

5. Asset Formation (Wealth Creation): Investment in tangible long-term assets like land, jewelry, or buildings, which may enhance household status.

6. Misuse (Value Erosion): Diversion into unproductive or harmful activities (e.g., addiction or gambling), representing a breakdown of the credit instrument.

By tracking these six destinations, the model captures the multi-faceted diversification of funds, recognizing that such diversion is often a rational response to household volatility rather than a deficit in entrepreneurial skill. This framework is essential for deconstructing the "Empowerment Paradox," as it allows the study to investigate why intended "Productive" uses might yield lower empowerment scores while "Asset Formation" may generate higher levels of social recognition and long-term security. Furthermore, the model provides a rigorous structure to evaluate institutional influence, testing whether the larger loan quantums typically associated with Commercial Banks gravitate toward productive investment and asset creation, whereas the smaller, high-frequency loans from MFIs are more frequently diverted toward immediate consumption smoothing and family liabilities.

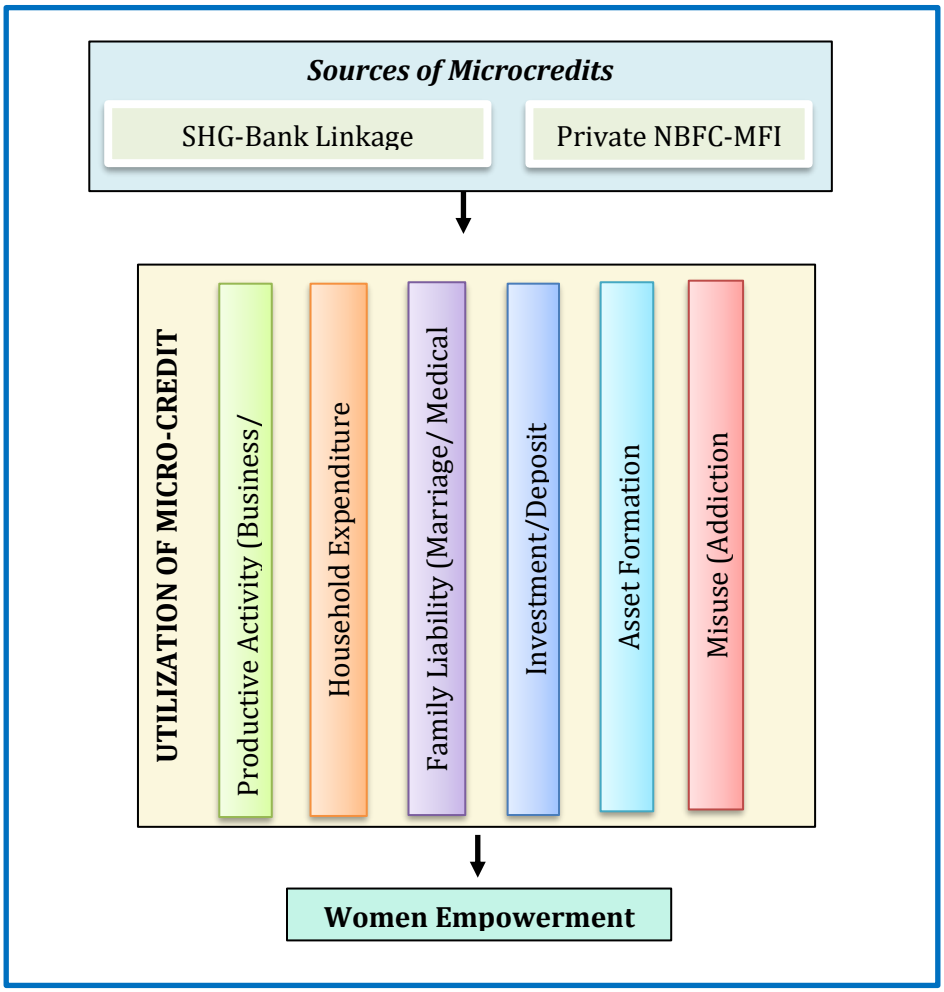


Figure 1. Hypothesized Model of Micro-Capital Fungibility and Empowerment

3.2 Samling Frame

The study adopts an explanatory research design to investigate the relationship between microcredit utilization and empowerment. Primary data were collected through a structured questionnaire administered to 450 women beneficiaries. To ensure a representative sample of the diverse socio-economic landscape of the West Medinipur district, a three-stage cluster sampling technique was employed as follows:

[1] Stage I (Stratification of District): The district was initially divided into three geographical strata: Northern, Central (Middle), and Southern West Medinipur.

[2] Stage II (Block Selection): One block was randomly selected from each stratum to represent regional diversity. Garbeta-III was selected from the North, Kharagpur-II from the Central region, and Sabang from the South.

[3] Stage III (Village and Respondent Selection): From each selected block, five villages were chosen based on accessibility and concentration of beneficiaries. Within each village, 30 respondents were selected using a random sampling technique, resulting in a total sample size of 450 (30respondents ×15 villages).

Table 1. Sampling Frame of Three-Stage Cluster Sampling

Geographical Stratum	Block Name	Selected Villages	Sample Units
Northern West Medinipur	Garbeta–III	1. Ghoshkira, 2. Shirishdanga, 3. Majur Nacha, 4. Borojam, 5. Organja	150
Central West Medinipur	Kharagpur–II	1. Choupena, 2. Meudipur, 3. Ramnagar, 4. Maheshpur, 5. Sultanpur	150
Southern West Medinipur	Sabang	1. Sauta, 2. Sandurmuri, 3. Rasunchak, 4. Nakindi, 5. Nischinta	150
Total Sample Size			450
Source: Authors' own work			

3.3 Measurement Scale and Analytical Framework

To investigate the paradox, this study employs a structured quantitative methodology centered on two primary instruments: the Loan Utilization and Quantum Scale and the Women's Empowerment Measurement Scale (WEMS). The analytical framework is designed to bridge the gap between institutional credit sources and the multidimensional nature of female agency in rural West Bengal.

3.3.1 Loan Utilization and Quantum Categorization

Borrowers were required to identify their primary use of credit among six distinct categories, namely, Productive Activity, Household Expenditure, Family Liability, Investment/Deposit, Asset Formation and Misuse. To measure the intensity of utilization, respondents identified the amount utilized within these categories across nine distinct brackets: NA (Zero), ₹5K–10K, ₹10K–20K, ₹20K–30K, ₹30K–50K, ₹50K–1L, ₹1L–1.5L, ₹1.5L–2L, and Above 2L. This allows for the identification of "threshold effects," where specific loan amounts may trigger a shift from survivalist consumption to transformative asset creation.

3.3.2 The Women's Empowerment Measurement Scale (WEMS)

The core of the measurement framework is a 4-point Likert scale designed to capture the degree of decision-making autonomy across six critical dimensions, namely, (i) Loan-related decision, (ii) Savings/Deposit-related decision, (iii) Family issues-related decision, (iv) Health and hygiene-related decision,(v) Education-related decision and (vi) Business related decision. Higher scores indicate greater individual agency and a shift away from patriarchal or collective dependency. The scale reflects a clear gradation of power -Score 4 (Self-decision): Full autonomy and independent agency; Score 3 (Joint decision with husband): Partial empowerment through consultative participation; Score 2 (Husband's decision): Limited agency; husband holds primary control;Score 1 (Other family member's decision): Negligible agency; decision-making rests with extended kin.

3.3.3 Validity of the Scale

The validity of the WEMS is grounded in its alignment with internationally recognized frameworks, ensuring a holistic assessment of a woman's status. Loan and Savings-related decisions are validated by the standards of Women's World Banking (2024) and Ashraf et al. (2006), focusing on financial agency. Participation in Family Issues is reconciled with the UNDP Gender Empowerment Measure (GEM), while Health and Hygiene decisions—including reproductive health—are coined following the UNDP Gender Inequality Index (GII). Furthermore, the importance of Education-related decisions reflects the ICRW framework regarding informed economic opportunities, and Business-

related decisions are supported by the PubMed Central three-dimensional model (Huis et al., 2017), which identifies economic relational opportunities as a pillar of overall empowerment.

The choice of an ordinal 4-point Likert scale, supported by Biswas & Kabir (2004) and Chakraborty et al. (2024), is justified by its ability to provide a nuanced gradation of power dynamics in rural West Bengal. Unlike binary models, this scale recognizes that joint decision-making represents a distinct stage of empowerment compared to total exclusion. This methodological approach allows for the calculation of composite scores, making the data suitable for rigorous quantitative analysis to identify trends and disparities in how fund fungibility impacts women's autonomy across different institutional groups.

3.3.4 Statistical tools

Data analysis was performed using SPSS Version 25, employing a combination of non-parametric and robust parametric tests to address the research questions. To examine the association between institutional loan amounts and fund utilization (RQ2), the Pearson Chi-Square test was utilized. Given the presence of low expected cell counts in the contingency tables, the Likelihood Ratio was employed to ensure statistical reliability, while the Linear-by-Linear Association was used to detect systematic shifts in utilization patterns as loan quantum increased. The strength of these associations was quantified using Cramer's V (Nominal by Nominal).

Furthermore, to investigate the impact of fungibility on empowerment (RQ3), the study moved beyond standard ANOVA. Due to the violation of the homogeneity of variances and significantly unequal group sizes across utilization categories, the Welch test (Robust Test of Equality of Means) was adopted. This ensured a more accurate and conservative assessment of differences in mean empowerment scores, providing a reliable basis for the "Empowerment-lite" conclusions.

3.4 Limitation

While the methodology ensures a structured inquiry, the following inherent limitations should be considered when interpreting the results:

i.Temporal Constraints: The cross-sectional design captures only a "snapshot" of fund utilization. Since empowerment is a longitudinal process, the study cannot track the long-term evolution of "virtuous spirals" or potential debt traps beyond the current loan cycle.

ii.Geographical Specificity: Localized to West Medinipur, the findings are shaped by regional literacy rates and the high penetration of the SHG-Bank linkage model, which may limit generalizability to areas with different socio-political or patriarchal structures.

iii.Self-Reporting Bias: The study's reliance on primary data introduces the risk of social desirability bias, as noted in the sources. Respondents may over-report "productive" investments to align with perceived institutional expectations, which could obscure the actual frequency of fund diversion toward immediate household needs.

iv.Measurement of Autonomy: The Women's Empowerment Measurement Scale (WEMS) may inadvertently inflate empowerment scores due to a lack of qualitative granularity. Specifically, the "joint decision" category (Score 3) may fail to distinguish between genuine partnership and a mere symbolic presence, potentially masking the reality of continued patriarchal dependency.

v.Exclusion of Macro-Factors: The study focuses on institutional sources and loan quantum, excluding external variables such as inflationary shocks, climate-related agricultural failures, or state welfare interventions that influence a household's need for consumption smoothing.

vi.Sampling Thresholds: The three-stage cluster sampling focuses on active microfinance beneficiaries, inherently excluding the "poorest of the poor" who remain outside the formal or semi-formal credit net.

4. ANALYSIS AND DISCUSSIONS

4.1 Socio-Economic Baseline: The Institutional and Demographic Landscape

To understand the dynamics of micro-capital fungibility and its impact on agency, it is first essential to examine the socio-economic and institutional profile of the respondents. Table 2 provides a comprehensive overview of the respondents' access to micro-capital, categorized by institutional source, demographic standing, and financial commitment.

The data reveals a dual-structured credit market in rural West Bengal. While Commercial Banks—specifically Bangiya Gramin Vikash Bank (85.3%)—act as the primary source of credit for nearly the entire sample, Private NBFC-MFIs play a significant supplementary role. Interestingly, 67.3% of respondents actively borrow from MFIs like Bandhan (16.7%) and Swatantra (8.7%), while a substantial 32.7% (N=147) do not currently access MFI funds. This indicates a high level of credit layering, where borrowers often manage multiple credit lines simultaneously.

The demographic distribution highlights that micro-capital is predominantly accessed by women in their most economically active years. Early Middle Age (30–39) and Late Middle Age (40–49) cohorts constitute 65.3% of the total sample. This concentration is critical to the study's focus on fungibility; women in these age brackets typically face the highest household and life-cycle expenses (child education, healthcare, and family liabilities), which creates a natural pressure to divert "productive" capital toward consumption smoothing.

A central discovery of this study lies in the significant occupational misalignment within the sample: while 78.7% of respondents are primarily engaged in unpaid domestic labour, a mere 1.3% report owning an independent business. This stark disconnection between the institutional intent of microfinance—which is often predicated on an "entrepreneurial myth"—and the actual lived reality of these women provides a foundational explanation for the high rates of fund diversion

Table 2. Access of Micro-Capital by the Respondents

Description	Total	Percentage
Sources of Fund		
	Private NBFC-MFI	
	Arohan	30	6.7
	Ashirbaad	3	.7
	Bandhan	75	16.7
	Bharat	12	2.7
	LNT	18	4.0
	Swatantra	39	8.7
	Ujjiban	30	6.7
	RBL	6	1.3
	Bandhan and Ujjiban	24	5.3
	Ujjiban and Others	18	4.0
	Bharat and Others	48	10.7
	NA	147	32.7
	Total	450	100
	Commercial Bank		

	Bangiya Gramin Vikash Bank (BGVB)	384	85.3
	Vidyasagar Central Co-operative Bank (VCCB)	66	14.7
	Total	450	100
Age (years)			
	Young Adults (20–29)	93	20.7
	Early Middle Age (30–39)	177	39.3
	Late Middle Age (40–49)	117	26.0
	Mature Adults (50–59)	54	12.0
	Seniors (60 & above)	9	2.0
	Total	450	100
Primary Occupation			
	Daily Wage Workers	81	18.0
	Family Business	3	.7
	Domestic Work	354	78.7
	Own business	6	1.3
	Private Service	3	.7
	Others	3	.7
	Total	450	100
EMI (INR)			
	No EMI (0)	87	19.3
	Micro-Repayment (1–500)	123	27.3
	Low EMI (501–1000)	60	13.3
	Mid-Range EMI (1001–1300)	114	25.3
	Moderate EMI (1301–2000)	15	3.3
	High EMI (2001–3000)	42	9.3
	Substantial EMI (>3000)	9	2.0
	Total	450	100.0

Source: Authors' own work

Within this demographic, a "household-enterprise blur" exists where the boundary between domestic and business finance is practically non-existent, naturally driving women to utilize credit as a liquidity buffer for consumption smoothing rather than capital for a standalone enterprise. Ultimately, this occupational profile ensures that borrowers remain in a state of "Empowerment-lite", where they serve as efficient managers of household survival and debt without acquiring the independent assets required for genuine structural agency.Furthermore, the Equated Monthly Installment (EMI) distribution underscores the financial pressure on these households. Over 40% of the respondents' service EMIs exceeding ₹1,000 per month. When high repayment obligations meet a lack of direct income-generating activities (as seen in the occupational data), the paradox of fungibility becomes inevitable: credit is often used to manage existing debt or household survival rather than asset formation.

4.2 The Empirical Reality of Micro-Capital Fungibility

Table 3 provides a granular view of the "Fungibility Paradox" by cross tabulating the utilization of Commercial Bank loans against Private NBFC-MFI loans. This matrix reveals how rural women navigate the dual-institutional landscape to manage the competing demands of production and survival.

Table 3. Distribution of Loan Utilisation across Com. Banks and Private NBFC-MFIs

		Utilization of Commercial Bank Loans					Total
		NA	PA	HE	FL	AF	
Utilization of Private NBFC-MFI Loans	NA	0	93	51	3	0	147
	PA	30	36	27	6	3	102
	HE	45	18	45	6	15	129
	FL	9	15	24	3	0	51
	ID	0	3	0	0	0	3
	AF	0	6	6	0	0	12
	Mis	0	0	6	0	0	6
Total		84	171	159	18	18	450

NA: Not Applicable; PA: Productive Activity; HE: Household Expenditure; FL: Family Liability; ID: Investment/Deposit; AF: Asset Formation; Mis: Misuse

Source: Authors' Own Calculation

The data confirms that micro-capital in rural West Bengal is highly fluid, transcending the rigid "productive" boundaries set by lending institutions. The following patterns illustrate the transition from intended investment to "Empowerment-lite" survival strategies:

Strategic Credit Layering: A critical finding is that no respondent refrained from taking loans from both sources (NA, NA = 0). This universal engagement with multiple credit lines suggests that the "Paradox of Fungibility" is driven by a necessity to bridge income gaps. While 36 respondents (8%) successfully maintained a "Productive-Productive" loop—using both sources for income generation—this remains a minority behavior.

The Consumption-Smoothing Trap: The most salient evidence of the "Consumption-Smoothing Trap" is found in the Household Expenditure (HE) category, where 45 respondents (10%) utilized credit from both institutional sources exclusively for daily living costs. This shift from an "entrepreneurial engine" to a "consumption-smoothing tool" reflects what Armendáriz and Morduch (2010) describe as a rational survival strategy for households navigating

irregular income streams. However, by diverting capital to meet immediate biological and domestic needs rather than reinvesting it, these borrowers are pulled back by "fungibility gravity", resulting in a state of "Empowerment-lite". Ultimately, this pattern creates a "Survival Equilibrium" where women serve as efficient managers of household debt and survival, but the transformative potential of the loan is neutralized because it fails to facilitate the independent asset formation required for genuine structural agency.

The Absence of Asset Formation: The paradox is further highlighted by the near-total absence of long-term financial planning. Only 3 respondents (0.7%) utilized MFI loans for Investment/Deposit (ID). The rarity of "Asset Formation" (AF) and "Investment" across both institutional sources underscores a "future-oriented borrowing gap". Because funds are fungible and the immediate pressure of Family Liabilities (FL) and Household Expenditure (HE) is high, capital is "consumed" rather than "built".

Institutional Indifference to Use: The data suggests that despite the different structures of Commercial Banks and MFIs, the utilization behavior remains remarkably similar. Both sources are primarily directed toward survival needs when the borrower lacks an independent business. This confirms that the source of the fund (RQ2) is less influential than the socio-economic status of the borrower. The result is a state of Empowerment-lite: women are financially "included" and "active" in the credit market, but their agency remains stagnant as the capital never translates into the independent assets required for genuine empowerment (RQ3).

4.3 The Quantum-Utilization Link: Commercial Banks

While the institutional source provides the capital, the quantum (loan amount) often dictates its fate within the household. Table 4 illustrates how the scale of micro-capital obtained from Commercial Banks influences the degree of fungibility, revealing a clear "Utilization Threshold".

Table 4. Distribution of Commercial Bank Loan Amount and Fund Utilisation

Loan Amount	Utilisation of Commercial Bank Loans					Total
	NA	PA	HE	FL	AF	
NA	84	0	0	0	0	84
5K-10K	0	39	39	3	0	81
10K-20K	0	57	63	12	12	144
20K-30K	0	39	15	0	0	54
30K-50K	0	9	39	0	3	51
50K-1L	0	3	0	3	3	9
1L -1.5L	0	9	0	0	0	9
1.5L -2L	0	0	3	0	0	3
Above 2L	0	15	0	0	0	15
Total	84	171	159	18	18	450

NA: Not Applicable; PA: Productive Activity; HE: Household Expenditure; FL: Family Liability; AF: Asset Formation

Source: Authors' Own Calculation

The data reveals that the "Paradox of Fungibility" is most acute at lower loan tiers, where capital is frequently repurposed to meet immediate domestic deficits.

The Consumption Trap in Micro-Quantums: The majority of Commercial Bank loans are concentrated in the lower brackets, specifically the ₹5K–₹10K (18%) and ₹10K–₹20K (32%) ranges. Within these segments, fungibility is at its peak. For instance, in the ₹10K–₹20K bracket, more respondents diverted funds to Household Expenditure (63) than those who maintained them for Productive Activity (57). This suggests that smaller loans are treated as "income supplements" rather than "capital investments," reinforcing the state of Empowerment-lite.

The Productive Threshold: A significant shift in behavior is observed as the loan amount exceeds the ₹20K mark. In the ₹20K–₹30K and "Above ₹2L" categories, the diversion to Household Expenditure (HE) drops significantly, and Productive Activity (PA) becomes the dominant use. This indicates a "Critical Capital Mass"—larger loans appear to provide enough liquidity to actually initiate or sustain a business, whereas smaller amounts are easily absorbed by the "fungibility gravity" of daily survival.

Asset Formation Gap: Despite the availability of larger sums, Asset Formation (AF) remains marginal across almost all brackets, peaking slightly in the mid-range but disappearing in the highest tiers. This reinforces the finding that even when capital is "productive" (generating income), it rarely translates into "transformative" agency (building long-term assets). The borrower remains in a cycle of production and repayment without achieving the structural economic shift necessary for genuine empowerment (RQ3).

Strategic Allocation: The presence of 15 respondents in the "Above ₹2L" category utilizing funds solely for Productive Activity suggests that Commercial Banks are successful in fostering entrepreneurship only when the capital provided is substantial enough to move beyond the household's immediate consumption needs.

4.3.1 Statistical Validation of the Bank Quantum-Utilization Link (RQ2)

To determine if the relationship between the loan amount and its subsequent utilization is non-random, a Chi-Square test of independence and symmetric measures were calculated (Table 5).

These results provide the statistical weight behind the "Utilization Threshold" identified in the previous section. The statistical analysis confirms a robust and systematic relationship between the volume of micro-capital accessed and its final destination within the household. The Pearson Chi-Square value of 595.913 ($p < .001$) indicates a highly significant association. While the presence of low expected counts in some cells (57.8%) is noted due to the granularity of the loan brackets, the Likelihood Ratio (559.864, $p < .001$) fully corroborates this significance, ensuring the reliability of the finding.

Table 5: Chi-Square Tests and Symmetric Measures for Bank Loan Quantum vs. Utilization

	Value	Df	Asymptotic Sig. (2-sided)
Pearson Chi-Square	595.913a	32	.000
Likelihood Ratio	559.864	32	.000
Linear-by-Linear Association	43.850	1	.000
Symmetric Measures			
Cramer's V (Nominal by Nominal)	.575		.000 (Approx. Sig,)

a. *26 cells (57.8%) have expected count less than 5. The minimum expected count is 0.12; No of valid Cases: 450*

Source: Authors' Own Calculation

Crucially, the Linear-by-Linear Association (43.850, $p < .001$) identifies a systematic trend: as the loan amount increases, there is a corresponding and predictable shift in utilization—moving away from immediate Household Expenditure (HE) and toward Productive Activity (PA). This identifies the "Quantum" as a primary driver in breaking the fungibility cycle. Strength of the Relationship: The Cramer's V value of 0.575 indicates a strong association

between the variables. In the context of rural social dynamics, a value of 0.575 is substantial; it suggests that the loan amount is not just a secondary factor, but a primary determinant of whether micro-capital serves as a tool for "Consumption Smoothing" or "Income Generation."

These findings provide a definitive answer to RQ2. The "Paradox of Fungibility" is most prevalent in smaller credit injections, which the statistics prove are significantly more likely to be absorbed by household survival needs. The high Cramer's V confirms that larger loan quantums act as a structural barrier against diversion, allowing the capital to retain its "productive" identity. However, even with this strong association, the earlier noted lack of Asset Formation suggests that while a higher quantum secures "production," it does not yet secure "agency" (Empowerment-lite).

4.4 The Quantum-Utilization Link: Private NBFC-MFI

The utilization of MFI loans offers a distinct perspective on the "Fungibility Paradox." Unlike the broader brackets of Commercial Banks, NBFC-MFI loans are more densely concentrated in the mid-tiers, where the pressure of daily survival often intersects with high-frequency repayment schedules (Table 6).

The data in Table 6 demonstrates that MFI capital is significantly more "fluid" than bank capital, with a heavy emphasis on consumption smoothing and liability management.

Table 6. Distribution of NBFC-MFI Loan Amount and Fund Utilisation

Loan Amount	Utilisation of NBFC-MFI Loans							Total
	NA	PA	HE	FL	ID	AF	Mis	
NA	147	0	0	0	0	0	0	147
5K-10K	0	6	3	0	0	0	0	9
10K-20K	0	9	12	6	3	3	0	33
20K-30K	0	18	33	9	0	3	3	66
30K-50K	0	36	48	30	0	3	3	120
50K-1L	0	21	27	6	0	3	0	57
1L -1.5L	0	9	3	0	0	0	0	12
Above 2L	0	3	3	0	0	0	0	6
Total	147	102	129	51	3	12	6	450

NA: Not Applicable; PA: Productive Activity; HE: Household Expenditure; FL: Family Liability; ID: Investment/Deposit; AF: Asset Formation; Mis: Misuse

Source: Authors' Own Calculation

The Mid-Tier Fungibility Peak: The most striking concentration of MFI activity occurs in the ₹30K–₹50K bracket (N=120). Within this tier, Household Expenditure (48) and Family Liability (30) combined far outweigh Productive Activity (36). This suggests that as NBFC - MFI loan sizes increase to this mid-range, they are predominantly utilized to "plug holes" in the household budget or settle other debts, rather than being deployed for enterprise.

Fragmentation of Purpose: MFI loans show a higher degree of fragmentation across non-productive categories. Specifically, Family Liability (FL) management is a major destination for MFI funds (N=51 across all tiers), compared to only 18 for Commercial Banks. This confirms that MFIs often act as a secondary "liquidity buffer", where capital is fungible by design to meet urgent social or family obligations.

The Persistence of "Empowerment-lite": Similar to the banking data, Asset Formation (AF) and Investment (ID) remain negligible regardless of the loan amount. Even in the higher bracket of ₹50K–₹1L, only 3 respondents reported asset formation. This reinforces the finding that MFI capital, while highly accessible, is quickly absorbed into the household's survival loop. The woman remains a "manager of debt" rather than a "builder of assets," epitomizing the state of Empowerment-lite.

Threshold Comparison: Unlike Commercial Banks—where a clear shift toward production was seen at higher amounts—MFI loans show a persistent tug-of-war between production and consumption even at the ₹50K–₹1L level (21 for PA vs. 27 for HE). This suggests that the repayment structure of MFIs (often weekly or fortnightly) may force a higher degree of fungibility, as borrowers must sometimes divert part of the capital just to service the interest of the loan itself.

The contrast between Table 4 and Table 6 highlights a critical institutional nuance. While both sources are subject to the Paradox of Fungibility, MFI loans are more susceptible to being used for Family Liabilities and Household Expenditure. This proves that the "Quantum" alone is not the only factor; the institutional source and its associated repayment pressures significantly influence how "productive" the capital remains.

4.4.1 Statistical Validation of the MFI Quantum-Utilization Link (RQ2)

To verify if the allocation of MFI funds is systematically tied to the loan amount, a Chi-Square test and Cramer's V were calculated (Table 7).

Table 7: Chi-Square Tests and Symmetric Measures for MFI Loan Quantum vs. Utilization

	Value	Df	Asymptotic Sig. (2-sided)
Pearson Chi-Square	537.059a	42	.000
Likelihood Ratio	620.322	42	.000
Linear-by-Linear Association	156.652	1	.000
Symmetric Measures			
Cramer's V (Nominal by Nominal)	.446		.000 (Approx. Sig,)

a.*37 cells (66.1%) have expected count less than 5. The minimum expected count is .04; No of valid Cases: 450*

Source: Authors' Own Calculation

The statistical output confirms that while the amount borrowed from MFIs significantly impacts how the money is spent, the relationship is distinct from that of Commercial Banks.

Highly Significant Association: The Pearson Chi-Square value of 537.059 ($p < .001$) indicates that the destination of MFI funds (whether for production or survival) is not random. Although 66.1% of cells have low expected counts, the Likelihood Ratio (620.322, $p < .001$)—which is more robust for smaller cell sizes—reconfirms the high statistical significance of the relationship.

Increased Linearity in Diversion: The Linear-by-Linear Association (156.652, $p < .001$) is significantly higher for MFIs than it was for Commercial Banks (which was 43.850). This suggests a much steeper "survival gradient": as MFI loan amounts increase, there is a very intense and systematic shift in how they are utilized, likely because these loans are often taken to address specific, urgent household gaps.

The "Fluidity" of MFI Capital (Cramer's V): The Cramer's V of .446 indicates a moderate-to-strong association. However, when compared to 0.575 of Commercial Banks, it reveals a key institutional insight: MFI capital is more fungible than Bank capital. The lower Cramer's V suggests that the quantum has slightly less control over the

final use in MFIs. Regardless of the amount, MFI funds are more easily "pulled" into various household destinations like Family Liabilities and Household Expenditure.

These results complete the answer to RQ2. While both sources show that "Quantum matters," the influence is stronger in Commercial Banks. In Private MFIs, the capital remains more "restless"—it is more frequently diverted to non-productive uses across a wider variety of loan sizes. This reinforces the "Empowerment-lite" narrative; MFI loans provide essential liquidity, but their high fungibility (validated by the 0.446 Cramer's V) means they are less effective at staying "anchored" in productive, asset-building activities (RQ3).

4.5 Influence of Microcredit fungibility on women empowerment

The final dimension of this study investigates the impact of fund utilization on the ultimate objective of microfinance: the enhancement of female agency. To address RQ3, it is necessary to determine if the "Productive Activity" intended by lenders results in higher empowerment than the "Consumption Smoothing" often practiced by borrowers. Table 8 consolidates the descriptive and robust inferential statistics required to analyze this relationship across both institutional sources

Table 8. Empowerment Score across Different Fund Utilisation Groups

	N	Mean	SD	SE	Levene Statistics	Welch Statistics
Borrowers of Commercial Banks						
PA	71	18.30	2.569	.196	5.311 (df1=3, df2=362) p = 0.001	1.796 (df1=3, df2=50.965) p = 0.160
HE	159	18.58	2.484	.197		
FL	18	19.00	1.188	.280		
AF	18	19.33	2.890	.681		
Total	**366**	18.51	2.503	.131		
Borrowers of Private NBFC-NFI						
PA	102	18.68	2.1	.268	2.840 (df1=4, df2=295) p = 0.025	1.996 (df1=4, df2=39.099) p = 0.114
HE	129	18.09	2.641	.233		
FL	51	18.65	2.162	.303		
AF	12	19.75	2.006	.579		
Mis	6	18.50	.548	.224		
Total	300	18.46	2.559	.148		

NA: Not Applicable; PA: Productive Activity; HE: Household Expenditure; FL: Family Liability; ID: Investment/Deposit; AF: Asset Formation; Mis: Misuse

Source: Authors' Own Calculation

Before interpreting the empowerment scores, the reliability of the comparison must be established. As shown in Table 8, the Levene Statistics for both Commercial Banks ($p = 0.001$) and Private MFIs ($p = 0.025$) are significant. This indicates a violation of the "homogeneity of variances" assumption—essentially, the "Asset Formation" and "Family Liability" groups show much higher or lower variability in empowerment than the "Productive Activity" groups. Because of this variance and the highly unequal group sizes, the standard ANOVA is discarded in favor of Welch's Statistics. The Welch test provides a robust measure of equality of means that accounts for these data inconsistencies.

The results of the Welch tests for both Commercial Banks ($p = 0.160$) and Private MFIs ($p = 0.114$) are statistically non-significant. This lack of significance is the empirical centerpiece of the "Fungibility Paradox". It suggests that in the rural socio-economic landscape of West Bengal, the destination of micro-capital does not statistically change a woman's empowerment level.

Uniformity of Agency: Despite the fluidity of funds—whether used for business, household survival, or paying off family debts—the mean empowerment scores remain tightly clustered between 18.0 and 19.7. This reflects a "Survival Equilibrium"; the borrowers are successfully managing liquidity (financial inclusion), but they are not gaining additional decision-making power (agency).

The High-Mean Asset Hint: Asset Formation (AF) consistently yielded the highest mean empowerment scores (19.33 for Commercial Banks and 19.75 for Private MFIs), suggesting that the accumulation of tangible assets may be the most viable trajectory for women to transcend the state of "Empowerment-lite". However, a systemic paradox persists - the "fungibility gravity" of immediate domestic needs combined with high repayment pressures effectively traps approximately 96% of borrowers in lower-tier utilization patterns. Consequently, while AF represents a potential path to genuine agency, the majority of women remain anchored in a "Survival Equilibrium", serving as efficient managers of household debt rather than builders of the independent assets required for structural socio-economic transformation.

Productivity without Power: Remarkably, Productive Activity (PA) yielded relatively low empowerment scores (18.30 for Banks) compared to other categories. This confirms that for the 78.7% of respondents who are primarily domestic workers, "productive" use of a loan may simply represent an additional labor burden without a corresponding increase in independent authority.

The statistical analysis of Table 8 confirms that micro-capital fungibility leads to a state of Empowerment-lite. The non-significant Welch tests prove that the "intended use" of capital is a myth that fails to translate into superior agency. Women are integrated into the credit market as efficient managers of household survival, but the transformative potential of that capital is neutralized by the very fungibility that makes it useful for survival.

5. CONCLUSION

This study set out to decode the complex relationship between micro-capital access, fund utilization, and women's empowerment in rural West Bengal. By shifting the analytical lens from institutional "intent" to household "reality," the research identifies a persistent Paradox of Micro-Capital Fungibility occurring within a rapidly evolving, digitalized financial ecosystem (Pattnaik et al., 2024). While microfinance is architected as an entrepreneurial engine—now supported by the 'seamless delivery' of doorstep banking (Joseph & Joseph, 2023)—the empirical evidence suggests it operates primarily as a liquidity buffer for consumption smoothing, resulting in a state of "Empowerment-lite" (Ganle et al., 2015).

The investigation into RQ1 and RQ2 revealed that micro-capital is highly fluid and non-linear in its application. A stark contrast was observed between the intended productive use of funds and the actual occupational reality of the borrowers, of whom 78.7% are engaged in domestic work. This occupational misalignment creates a "gravity of survival," where funds are naturally diverted toward Household Expenditure and Family Liabilities. Crucially, the 'smooth availability' of funds through modernized, localized channels (Vardini & Ganeshkumar, 2025) has not yet overcome these structural constraints; instead, it may have made capital more susceptible to immediate diversion for

household emergencies. This aligns with broader critiques that micro-credit often fails to account for the structural constraints of the rural poor (Banerjee et al., 2015).

Statistically, the study validated that the loan quantum is the primary determinant of this diversion. The strong association found in Commercial Bank loans (Cramer's V = 0.575) indicates that smaller "micro-quantum" are almost inevitably consumed. Only when the capital reaches a certain "threshold" does it retain its productive identity. Furthermore, the higher fungibility of MFI loans suggests that institutional structures—specifically high-frequency repayment schedules—intensify the pressure to divert capital for immediate survival, often leading to a cycle of "debt-cycling" rather than asset building (Kadir et al., 2024).

The most critical contribution of this research lies in the findings for RQ3. The robust Welch tests performed on empowerment scores across all utilization categories failed to show any statistically significant difference. This suggests a "Survival Equilibrium": whether a woman uses her loan for a micro-business, children's education, or daily groceries, her structural agency remains stagnant. This confirms that financial inclusion, while necessary, is not the "magic bullet" for economic liberation (Kabeer, 2005), and that the mere provision of credit does not automatically dismantle traditional patriarchal or socio-economic hierarchies (Mayoux, 2001).

To move beyond "Empowerment-lite," policy interventions must:

[1] Shift focus from Credit to Assets: Incentivize loans specifically for Asset Formation (AF), as these showed the highest potential for agency.

[2] Acknowledge Occupational Realities: Design "Consumption-Smoothing" credit products that recognize the domestic labor of women, rather than forcing them into the "entrepreneurial myth".

[3] Bridge the Quantum Gap: Ensure that loan amounts are substantial enough to move beyond the household survival threshold.

[4] Mitigate the Digital Divide: Integrate digital literacy and monitoring with digitalized credit delivery to ensure that the convenience of 'doorstep banking' translates into sustainable asset creation rather than efficient debt-cycling.

In final analysis, micro-capital fungibility is not a "failure" of the borrower, but a rational response to household necessity. Until microfinance accounts for the structural domestic constraints of rural women and the challenges of the digital divide, it will continue to provide inclusion without influence, and capital without control.

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