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Research Article

Access To Formal Credit and Women's Economic Empowerment: An Empirical Study of Madhya Pradesh

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Abstract

Access to formal credit is an important mechanism through which financial inclusion can translate into women's economic empowerment. A bank account by itself does not necessarily provide productive financial capacity; women also require affordable and appropriate credit for enterprise creation, working capital, agriculture and allied activities, asset formation, education, housing and household risk management. This paper examines the relationship between women's access to formal credit and economic empowerment in Madhya Pradesh, with particular attention to the institutional and policy environment visible during 2025. The paper is developed from the supplied synopsis on financial inclusion and women's economic empowerment and is strengthened with official 2025 evidence from the Reserve Bank of India (RBI), State Level Bankers' Committee-Madhya Pradesh (SLBC-MP), Department of Financial Services (DFS), Ministry of Finance, NABARD and Government of Madhya Pradesh sources.

The evidence shows a substantial expansion of formal credit in Madhya Pradesh. At the end of March 2025, total bank gross credit in the state was ₹5,96,554 crore, up 12.57 per cent year-on-year. Agriculture credit stood at ₹1,78,745 crore and MSME advances at ₹1,20,082 crore. The state's reported credit-deposit ratio was 83.51 per cent, rising from 80.77 per cent in March 2024. At the national level, women represented 55.7 per cent of PMJDY accounts as of 28 February 2025, while 1.99 lakh women-led accounts had been sanctioned under Stand-Up India by the same date. RBI also introduced revised Priority Sector Lending directions effective 1 April 2025 and continued work on the National Strategy for Financial Inclusion 2025-30.

The paper argues that the empowerment effect of formal credit depends not simply on loan availability but on the quality of access: awareness, eligibility, affordability, collateral requirements, documentation, timely sanction, control over borrowed funds, productive utilization, repayment capacity and complementary financial literacy. Since no original respondent-level dataset was supplied with the present assignment, the paper does not invent primary survey findings. Instead, it provides a complete empirical research design, uses verified 2025 secondary evidence for substantive analysis, and includes a clearly labelled illustrative statistical model showing how primary survey results may be tested once field data are collected.

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KEYWORDS: Formal Credit; Financial Inclusion; Women's Economic Empowerment; Institutional Credit; Women Entrepreneurs; Self-Help Groups; Madhya Pradesh; Financial Literacy; 2025.

1. INTRODUCTION

Financial inclusion has moved from the narrow idea of opening bank accounts to a broader development objective involving meaningful access to savings, payments, insurance, pensions and credit. The supplied synopsis defines financial inclusion as access to appropriate financial products and services at affordable cost and places particular emphasis on vulnerable and low-income groups. It also identifies access, availability and usage of banking services as core dimensions of financial inclusion. These ideas provide the conceptual foundation for the present paper, which narrows the focus to formal credit and women's economic empowerment.

The importance of formal credit for women is linked to the ability to convert financial access into productive economic activity. Women who can obtain credit from regulated institutions may be better positioned to establish or expand micro-enterprises, purchase productive assets, invest in agriculture and livestock, smooth consumption, manage emergencies and increase their control over economic resources. Conversely, formal financial access may remain incomplete when women possess accounts but face barriers in obtaining credit, such as lack of collateral, limited credit history, documentation problems, low financial literacy, social norms, mobility constraints or reluctance of institutions to lend to small borrowers.

The original synopsis notes that gender inequality in asset ownership can affect women's access to credit because traditional lending often requires security or guarantees. It also highlights lack of awareness, documentation difficulties, poverty and reliance on informal lenders as continuing barriers. These observations are especially relevant to a state such as Madhya Pradesh, where the banking system serves a large rural population and where agriculture, micro-enterprise and self-employment are important components of livelihoods.

The 2025 evidence provides an appropriate contemporary setting for examining the issue. RBI's Annual Report 2024–25, dated 29 May 2025, reports continued emphasis on financial inclusion, credit delivery and the formulation of the next National Strategy for Financial Inclusion for 2025–30. The revised Priority Sector Lending directions issued on 24 March 2025 became effective from 1 April 2025. RBI also reported that the national Financial Inclusion Index rose to 64.2 in March 2024 from 60.1 in March 2023. Madhya Pradesh was among the states where 100 per cent coverage under the digital financial inclusion programme had been achieved in all districts by 31 March 2025.

At the state level, SLBC-Madhya Pradesh reported that total bank business reached ₹13,10,890 crore in March 2025. Aggregate deposits were ₹7,14,336 crore and gross credit was ₹5,96,554 crore. Agriculture credit increased by 9.61 per cent to ₹1,78,745 crore, while MSME advances increased by 12.63 per cent to ₹1,20,082 crore. These figures demonstrate that the institutional credit environment is substantial and expanding, but they do not by themselves establish whether women receive credit equitably or whether credit improves their economic

empowerment. That distinction creates the central research problem of this paper.

2. Background and Conceptual Context

2.1 Financial Inclusion

Financial inclusion refers to the process of ensuring that individuals and enterprises can access and use useful, affordable and responsible financial products and services. The supplied synopsis draws on definitions from the United Nations, World Bank, Rangarajan Committee and RBI. Across these definitions, four ideas recur: access, affordability, appropriateness and responsible delivery. The present paper treats formal credit as one major dimension of meaningful financial inclusion rather than as a substitute for the wider concept.

2.2 Formal Credit

Formal credit means borrowing from regulated or institutionally recognized financial providers rather than informal lenders such as moneylenders, relatives or unregulated intermediaries. For women in Madhya Pradesh, formal credit can include bank loans, credit linked to Self-Help Groups, loans under government-supported programmes, agriculture and allied activity loans, micro-enterprise loans, MSME finance, housing finance and other regulated institutional facilities. The critical distinction is not simply whether a woman has borrowed, but whether the credit is adequate, timely, affordable and suitable for her economic purpose.

2.3 Women's Economic Empowerment

Economic empowerment is understood in this paper as an increase in women's capacity to acquire, control, use and benefit from economic resources and opportunities. It includes, but is not limited to, independent or jointly controlled income, savings, productive asset ownership, entrepreneurial activity, employment, investment decisions, financial security and participation in household economic decisions. Empowerment is therefore multidimensional: a loan may increase enterprise income without necessarily increasing control over income if the borrowed funds are controlled by another household member.

2.4 Credit as a Mechanism of Empowerment

The proposed causal pathway is: access to formal credit → productive investment or improved financial capacity → income and asset accumulation → greater financial independence → stronger participation in economic decision-making → economic empowerment. The pathway is not automatic. Credit can have weak or even adverse effects when it is expensive, poorly matched to cash flows, used for non-productive purposes without repayment capacity, or controlled by other household members. Consequently, the empirical study must measure both access and actual use/control of credit.

3. REVIEW OF LITERATURE

3.1 Literature Identified in the Supplied Synopsis

The supplied synopsis provides a useful foundation for the literature review. Rahman (1986) reported that women did not necessarily receive the direct benefit of loans taken in their names because loan funds could be used by male family members, although women using some or all of the loan could gain a greater role in family decision-making. Kempson et al. (2000) examined the causes and barriers of financial exclusion and situated financial exclusion within broader processes of social exclusion. Chavan (2008) found continued gender inequality in access to banking services and argued that policies should consider gender rather than treating microfinance as the only solution.

Demirguc-Kunt and Klapper (2012) broadened the understanding of financial inclusion beyond credit alone to include formal accounts, deposits, loans, frequency of use and alternative mechanisms such as mobile money. Swamy (2014) reported stronger income growth for women than men in the context of financial inclusion and microcredit and emphasized women's use of financial resources for family welfare and savings. Shobha and Shalini (2015) found that women often prioritized family needs and perceived traditional instruments as safer than newer financial products. Singh (2016), in a study of working women in Satna, Madhya Pradesh, found awareness of financial services but also reported barriers related to documentation, queues and limited awareness of online facilities.

World Bank evidence cited in the synopsis identifies asset ownership, inheritance rights and credit history as barriers affecting women's ability to access credit. The synopsis also cites GPFi evidence emphasizing that digital financial products must be convenient, affordable and easy to use, with special attention to women's lower adoption of digital finance. Together, this literature indicates that access should be measured at multiple stages: awareness, application, approval, receipt, use, repayment and outcomes.

3.2 Recent Institutional Evidence Relevant to 2025

The institutional environment in 2025 reinforces the shift toward deeper and higher-quality financial inclusion. RBI's

Annual Report 2024–25 states that work was underway on the National Strategy for Financial Inclusion 2025–30 and that revised Priority Sector Lending directions were issued on 24 March 2025, effective from 1 April 2025. RBI reported a national Financial Inclusion Index of 64.2 for March 2024, with improvement across access, usage and quality. The report also notes continuing attention to credit delivery to productive sectors, agriculture and micro and small enterprises.

For women specifically, the Department of Financial Services reported that as of 28 February 2025 PMJDY had 54.97 crore accounts, of which 30.60 crore, or 55.7 per cent, were women's accounts. PMJDY provides a basic bank account and an overdraft facility of up to ₹10,000 subject to eligibility. Under Stand-Up India, as of 28 February 2025, 2.67 lakh accounts had been sanctioned, including 1.99 lakh women accounts, with ₹60,504 crore sanctioned overall and ₹34,450 crore disbursed. These figures demonstrate significant policy attention to women's formal financial participation, but they do not constitute evidence that all women have equal or adequate access to credit.

3.3 RESEARCH GAP

The literature and policy evidence indicate a gap between financial access at the institutional level and empowerment at the household level. State-wide credit totals do not reveal gender distribution; bank-account ownership does not reveal credit access; and credit sanction does not reveal control over loan proceeds or resulting economic empowerment. A focused empirical study in Madhya Pradesh is therefore justified to connect formal credit access with measurable dimensions of women's economic empowerment.

3. Madhya Pradesh: 2025 Financial and Credit Context

Madhya Pradesh provides a significant setting for this study because the state has a large and diverse rural economy, extensive banking networks, substantial agriculture and MSME credit, and an active policy environment for women's empowerment. The state-level banking data for March 2025 demonstrate that the institutional credit system is sizeable and that credit is expanding across sectors.

Indicator	March 2024	March 2025	Change / observation
Total bank business (₹ crore)	11,86,052	13,10,890	+10.53%
Aggregate deposits (₹ crore)	6,56,101*	7,14,336	+8.88%
Gross credit (₹ crore)	5,29,951	5,96,554	+12.57%
Credit-deposit ratio	80.77%	83.51%	Increase of 2.74 percentage points
Agriculture credit (₹ crore)	1,63,077	1,78,745	+9.61%
MSME advances (₹ crore)	1,06,612	1,20,082	+12.63%
Housing loan portfolio (₹ crore)	72,255	81,709	+13.08%
Gross NPA (₹ crore)	35,639	37,130	NPA ratio fell to 6.22%

*The 2025 SLBC source reports the March 2025 deposit total and year-on-year growth; the March 2024 figure shown here is the implied comparison and should be treated as approximate. Source: SLBC-Madhya Pradesh, FY 2024–25 key highlights.

The state-level figures should be interpreted carefully. Agriculture and MSME credit are not equivalent to women's credit. However, these sectors are relevant to women's livelihoods because women participate in agriculture, livestock,

household enterprises, food processing, retail, services and micro-businesses. The empirical survey should therefore identify the sector and purpose of borrowing rather than treating all credit as homogeneous.

4. Women's Financial Access and Formal Credit

4.1 Women's Financial Access in the Broader 2025 Policy Environment

At the national level, women constituted 55.7 per cent of PMJDY account holders as of 28 February 2025. This is an important access indicator but should not be interpreted as a measure of credit empowerment. A basic account can facilitate receipt of benefits, savings and digital payments while leaving borrowing constraints unresolved.

Stand-Up India provides a more direct example of credit-linked entrepreneurship. As of 28 February 2025, 1.99 lakh women accounts had been sanctioned under the scheme. The 2025 Union Budget also announced a new scheme for five lakh women, Scheduled Castes and Scheduled Tribes first-time entrepreneurs, with term loans up to ₹2 crore over five years. The development of such programmes shows a policy shift from account ownership toward enterprise-oriented credit, although implementation and state-level gender-disaggregated outcomes require continued assessment.

4.2 Self-Help Groups and Formal Credit

Self-Help Groups are an important bridge between low-income

women and formal banking. NABARD's SHG-Bank Linkage Programme has historically emphasized regular savings, internal lending, timely repayment and formal bank linkage. Under DAY-NRLM, women SHGs can receive concessional interest support, and the banking framework allows mature SHG members to access individual enterprise loans. This mechanism is particularly relevant in rural Madhya Pradesh because group-based lending can reduce some information and collateral constraints and can strengthen women's collective financial capability.

NABARD evidence also illustrates the diversity within Madhya Pradesh. For example, its district-level planning material for Niwari reports that as of 31 March 2025, 886 SHGs had been formed and 586 had received bank credit totaling ₹777.78 lakh; 91 per cent of these groups comprised women members. This is a district-level example, not a state-wide estimate, but it demonstrates how SHG-bank linkage can translate collective organization into formal credit access.

5. Conceptual Framework

The conceptual framework developed for this paper integrates financial inclusion theory with women's empowerment. The framework assumes that credit access is influenced by individual, household, institutional and spatial factors and that empowerment outcomes are mediated by the use and control of credit.

Level	Variables/indicators	Expected relationship
Demographic	Age, education, marital status, household size, residence	Influence eligibility, awareness and use
Economic	Personal income, household income, occupation, assets	Influence borrowing capacity and collateral
Financial capability	Banking awareness, financial literacy, digital literacy	Expected positive influence on access and appropriate use
Institutional access	Bank branch/BC access, documentation, KYC, application process	Determines ease and timeliness of credit
Formal credit	Application, approval, amount, interest, tenure, source, purpose	Core independent variable
Credit utilization	Enterprise, agriculture, education, housing, consumption/emergency	Mediates credit-to-empowerment pathway
Empowerment	Income control, savings, assets, entrepreneurship, decisions, independence	Primary dependent variable

Credit utilization Enterprise, agriculture, education, housing, consumption/emergency Mediates credit-to-empowerment pathway

Empowerment Income control, savings, assets, entrepreneurship, decisions, independence Primary dependent variable

The framework distinguishes between credit access and credit outcome. The same nominal loan amount can produce very different empowerment outcomes depending on whether the woman controls the funds, whether the enterprise generates income, whether repayment is manageable and whether the loan improves her productive asset base.

6. OBJECTIVES OF THE STUDY

1. To examine the extent of women's access to formal credit in selected areas of Madhya Pradesh.
2. To identify the major institutional sources and purposes of formal credit used by women.

3. To assess women's awareness of formal credit products and government-supported credit schemes.
4. To identify the demographic, economic and institutional factors associated with women's access to formal credit.
5. To examine the barriers faced by women in applying for and obtaining formal credit.
6. To assess the relationship between formal credit access and women's income, savings, productive assets and financial independence.
7. To examine whether formal credit is associated with women's participation in household economic decision-making.
8. To develop policy recommendations for improving women's access to appropriate, affordable and productive formal credit in Madhya Pradesh.

7. Research Questions

1. How extensive is women's access to formal credit in Madhya Pradesh?

2. What are the main sources and purposes of formal credit used by women?
3. Which demographic, economic and institutional factors influence access to formal credit?
4. What are the principal barriers preventing women from obtaining formal credit?
5. Does access to formal credit relate to higher income, savings, asset ownership and financial independence?
6. Does formal credit relate to women's participation in household economic decision-making?
7. Does the effect of formal credit vary according to education, occupation, income, rural/urban residence or financial literacy?

8. Hypotheses

1. H01: There is no significant association between women's demographic characteristics and access to formal credit.
2. H01a: There is a significant association between women's demographic characteristics and access to formal credit.
3. H02: There is no significant relationship between access to formal credit and women's economic empowerment.
4. H02a: There is a significant relationship between access to formal credit and women's economic empowerment.
5. H03: Access to formal credit has no significant effect on women's financial independence.
6. H03a: Access to formal credit has a significant effect on women's financial independence.
7. H04: There is no significant association between formal credit access and women's participation in household economic decision-making.
8. H04a: There is a significant association between formal credit access and women's participation in household economic decision-making.

9. RESEARCH METHODOLOGY

9.1 Research Design

The study is designed as a descriptive and explanatory empirical study. It combines secondary analysis of official 2025 evidence with a proposed primary survey of women in selected districts of Madhya Pradesh. The secondary component establishes the institutional and state-level context; the primary component is required to test the individual-level relationship between formal credit and economic empowerment.

9.2 Study Area and Proposed Coverage

The geographical universe is Madhya Pradesh. For a feasible field study, districts may be selected through stratification to represent major regional and socioeconomic contexts. A practical design would include a combination of metropolitan/urban, semi-urban and rural districts, while ensuring representation of women engaged in agriculture, wage employment, self-employment, household enterprise and services.

9.3 Population and Sample

The supplied synopsis proposed a sample of approximately 500 respondents and proposed stratified random sampling. The same scale is suitable as a starting point for the present paper, subject to final power calculation and field feasibility. A sample of 500 women could be distributed across selected districts and rural/urban strata. The final research report should state the actual number of completed and valid questionnaires and should not substitute planned sample size for achieved sample size.

9.4 Sampling Strategy

1. Stage 1: Stratify Madhya Pradesh by selected regional or urban-rural characteristics.
2. Stage 2: Select districts purposively or randomly within strata according to research feasibility.
3. Stage 3: Select blocks/wards or communities.
4. Stage 4: Select eligible women respondents using systematic or random procedures where a sampling frame exists.
5. Stage 5: Record non-response and replacement procedures to assess possible selection bias.

9.5 Data Sources

Primary data should be collected through a structured questionnaire. Secondary sources should include RBI Annual Reports, SLBC-Madhya Pradesh reports, NABARD publications, Department of Financial Services scheme dashboards/reports, Government of Madhya Pradesh publications, World Bank/Global Findex material, and peer-reviewed research. The 2025 state banking statistics used in this paper are from SLBC-MP, while national scheme and policy figures are from RBI and DFS.

9.6 Questionnaire Structure

SectionContent Examples of indicators

- A. Demographic profile Age, education, marital status, household size
- B. Economic profile Occupation, personal income, household income, assets
- C. Banking access Account ownership, branch/BC access, digital use
- D. Credit awareness Knowledge of bank loans, SHGs, MUDRA, Stand-Up India
- E. Credit access Application, sanction, amount, source, interest, tenure
- F. Credit barriers Collateral, documents, guarantor, distance, rejection, awareness
- G. Credit utilization Enterprise, agriculture, housing, education, emergency
- H. Empowerment Income control, savings, assets, decisions, financial independence
- I. Perceived outcomes Business growth, income change, resilience, confidence

9.7 Measurement of Formal Credit Access

A Formal Credit Access Index may be constructed from standardized indicators such as awareness, application experience, approval, adequacy of amount, affordability, timeliness, ease of documentation, access to repeat credit and satisfaction. A simple additive index can be used initially, while factor analysis can identify the underlying dimensions. The final index must be validated for reliability and construct validity before regression analysis.

9.8 Measurement of Women's Economic Empowerment

A Women's Economic Empowerment Index may combine indicators of control over income, independent savings, asset ownership, enterprise activity, ability to make or influence household financial decisions, ability to obtain credit independently, and financial security. Likert-scale items can be coded from 1 to 5. Reverse-coded items should be handled consistently. Cronbach's alpha should be reported for multi-item scales, and exploratory factor analysis can be used to test dimensionality.

9.9 Statistical Techniques

1. Frequency and percentage analysis for respondent characteristics.
2. Mean and standard deviation for index variables.
3. Chi-square tests for associations between categorical demographic factors and credit access.
4. t-test or ANOVA for differences in empowerment scores across groups.
5. Correlation analysis for formal credit access and empowerment dimensions.
6. Factor analysis for identifying latent dimensions of credit access and empowerment.
7. Multiple regression to estimate the association between credit access and economic empowerment while controlling for demographic and economic factors.
8. Where appropriate, logistic regression may be used for binary outcomes such as whether a respondent obtained a formal loan.

9.10 Proposed Regression Model

$$\text{Economic Empowerment}_i = \beta_0 + \beta_1 \text{Formal Credit Access}_i + \beta_2 \text{Education}_i + \beta_3 \text{Income}_i + \beta_4 \text{Financial Literacy}_i + \beta_5 \text{Occupation}_i + \beta_6 \text{Rural/Urban}_i + \beta_7 \text{Age}_i + \varepsilon_i$$

The coefficient β_1 is the principal parameter of interest. A positive and statistically significant β_1 would support the proposition that formal credit access is associated with higher economic empowerment, conditional on the other variables included in the model. Because a cross-sectional survey does not automatically establish causality, the paper should use terms such as "association," "relationship" and "estimated effect" cautiously unless a stronger identification strategy is used.

10. Empirical Evidence from 2025

10.1 State-Level Credit Expansion

SLBC-Madhya Pradesh reported that gross credit increased from ₹5,29,951 crore in March 2024 to ₹5,96,554 crore in March 2025, a 12.57 per cent year-on-year increase. Agriculture credit rose to ₹1,78,745 crore and MSME advances to ₹1,20,082 crore. The credit-deposit ratio rose to 83.51 per cent. This indicates an expanding institutional credit environment in the state.

10.2 Financial Inclusion Infrastructure

RBI reported that as of 31 March 2025, 100 per cent coverage under the digital financial inclusion programme had been achieved in more than 60 per cent of districts nationally, including all districts in Madhya Pradesh. This is relevant because improved digital access can reduce geographical and transaction barriers, although digital access should not be equated with credit access.

10.3 Women's Account Ownership

DFS reported that PMJDY had 54.97 crore accounts nationally as of 28 February 2025, of which 30.60 crore were women's accounts. Women therefore represented 55.7 per cent of PMJDY accounts. The figure demonstrates strong participation in basic formal banking, but the paper treats it as an access indicator rather than evidence of economic empowerment.

10.4 Women's Entrepreneurial Credit

Under Stand-Up India, 1.99 lakh women accounts had been sanctioned by 28 February 2025. The scheme's design is important because it links formal finance with entrepreneurship rather than only basic account ownership. The 2025 Budget announcement of a new scheme for five lakh first-time women, Scheduled Caste and Scheduled Tribe entrepreneurs further indicates policy movement toward targeted enterprise finance.

10.5 Women SHGs and Credit Linkage

NABARD's SHG-Bank Linkage Programme is a major institutional route through which rural women can enter formal credit markets. Its model combines savings, internal lending, group discipline and bank linkage. In the Niwari district example, NABARD reported 586 SHGs receiving bank credit totaling ₹777.78 lakh as of 31 March 2025, with 91 per cent of the groups comprising women members. This illustrates the potential of group-based institutional finance while also demonstrating why district-level analysis is important.

10.6 2025 Priority Sector Lending Reform

RBI's revised Priority Sector Lending Master Directions were issued on 24 March 2025 and became effective from 1 April 2025. The revisions included enhanced loan limits under several priority-sector categories and other changes intended to improve targeting of bank credit. For women, the significance lies in whether such institutional credit channels are accessible in practice, especially for micro-enterprises, agriculture and other livelihood activities.

11. Illustrative Primary-Data Analysis (Example Only)

Important methodological note: The tables in this section are illustrative examples showing how the eventual 500-respondent field dataset can be analysed. They are NOT claimed to be

actual survey results from Madhya Pradesh. No respondent-level primary dataset was supplied with the present assignment. These examples must be replaced by actual field results before the paper is submitted as an empirical survey study.

Illustrative indicator	Example distribution (n=500)	Interpretation
Women with a formal bank account	440 (88%)	High basic banking access in the hypothetical sample
Women who had applied for formal credit	285 (57%)	Substantial but incomplete credit engagement
Women who obtained formal credit	220 (44%)	Shows an access-to-credit gap
Women reporting collateral/document barriers	170 (34%)	Institutional access constraints remain relevant
Women using credit for productive activity	150 (30%)	Potential livelihood/enterprise channel
Women reporting increased financial decision-making	190 (38%)	Potential empowerment outcome

In a real dataset, the analysis should compare formal credit users and non-users, while controlling for education, income, occupation, marital status, rural/urban residence and financial literacy. The central concern is selection bias: women who obtain loans may already have higher education, income, assets or entrepreneurial motivation. Regression analysis can

reduce—but not completely eliminate—this problem in a cross-sectional design.

11.1 Example Chi-Square Test

Suppose an actual survey produces the following hypothetical cross-tabulation between financial literacy and formal credit access:

Financial literacy	Formal credit obtained	No formal credit	Total
High	120	50	170
Moderate	80	90	170
Low	20	140	160
Total	220	280	500

An appropriate chi-square test would test H_0 : financial literacy and formal credit access are independent. If the calculated p-value is below 0.05, H_0 would be rejected, indicating a statistically significant association. The numerical significance level and test statistic must be calculated from the actual dataset; the table above is only an illustration.

credit access index, with $p < 0.01$. The correct interpretation would be: holding the included control variables constant, a one-unit increase in the formal credit access index is associated with a 0.31-unit increase in the economic empowerment score. This would support H_{02a} . It would not, by itself, prove that credit caused empowerment, because unobserved factors and reverse causality may remain.

11.2 Example Regression Interpretation

Suppose an actual regression produces $\beta_1 = 0.31$ for the formal

11.3 Suggested Presentation of Actual Results

Model / test	Dependent variable	Key predictor	Statistic to report	Decision
Chi-square	Formal credit access	Education/income/residence	χ^2 , df, p-value	Reject / retain H_0
ANOVA	Empowerment score	Credit-access group	F, df, p-value	Reject/retain H_0
Correlation	Empowerment score	Credit-access score	r, p-value	Direction/strength
Regression	Economic empowerment	Formal credit access	β , SE, t, p, R^2	Association/effect estimate

12. DISCUSSION

The 2025 evidence suggests that Madhya Pradesh has a large and growing formal credit system. The increase in gross credit, agriculture credit and MSME advances indicates that the supply side of institutional finance is expanding. However, the core question for women's empowerment is distribution and usability rather than aggregate supply alone.

The first important distinction is between account ownership and credit access. Nationally, women represented 55.7 per cent of PMJDY accounts as of February 2025, but this does not mean that the same proportion of women have access to productive loans. Account ownership can be an enabling foundation, yet the empowerment pathway becomes stronger

when women can obtain appropriate credit and retain meaningful control over its use.

The second distinction concerns formal credit versus nominal loan sanction. A loan sanctioned to a woman may be used by another family member, particularly in contexts where women have limited control over productive assets or household finances. This concern is consistent with the literature identified in the supplied synopsis. Therefore, the proposed questionnaire must ask who applied for the loan, whose name appears on the loan, who received the funds, who decided the purpose, who controls the enterprise and who makes repayment decisions.

Third, affordability and adequacy matter. A very small loan may be accessible but insufficient for productive investment; a larger loan may be economically useful but unaffordable if repayment terms do not match cash flows. The 2025 interest-subsidy framework for women SHGs under DAY-NRLM, including concessional lending provisions for eligible loans, illustrates an institutional attempt to improve affordability. The effectiveness of such measures depends on awareness, bank implementation and women's ability to meet eligibility requirements.

Fourth, geography and institutional proximity remain relevant even in an increasingly digital environment. Madhya Pradesh achieved broad digital financial inclusion coverage under RBI's programme, but digital access does not remove all constraints. Women may still lack smartphones, digital skills, independent phone access, confidence in digital transactions, or sufficient information about credit products. The paper therefore treats digital literacy as a possible mediator rather than assuming that digitization automatically produces empowerment.

Fifth, SHG-bank linkage provides a potentially powerful pathway because it combines social organization, savings discipline and institutional credit. The Niwari example shows that women's SHGs can be connected to formal credit at district level. Yet the research should investigate whether such credit leads to sustained enterprise activity, income growth and decision-making power rather than treating group membership itself as empowerment.

Overall, the most defensible conclusion from the current evidence is not that formal credit automatically empowers women, but that formal credit creates an important institutional opportunity whose empowerment effect depends on access quality, control, productive use, affordability, financial capability and supportive social conditions.

13. Major Barriers to Women's Formal Credit Access

Collateral and asset ownership: Women may possess fewer individually owned assets that can serve as security for loans.

Documentation and KYC: Identity, address, income and business documentation can be difficult for informal workers and micro-entrepreneurs.

Credit history: First-time borrowers may have limited formal credit histories.

Financial literacy: Limited knowledge of interest, repayment, loan products and digital finance can reduce effective access.

Mobility and time constraints: Household responsibilities and distance can raise the transaction cost of repeated bank visits.

Social norms: Household decision-making and control of assets may limit women's ability to borrow independently.

Income instability: Irregular earnings can make formal lenders perceive greater repayment risk.

Digital divide: Digital finance can reduce some barriers but can create new barriers for women lacking devices, skills or independent digital access.

Information gaps: Women may know about bank accounts but not about enterprise-oriented credit schemes.

Institutional interaction: Complex procedures, perceived discrimination or lack of supportive credit counselling can discourage applications.

14. Policy Implications and Recommendations

1. Move from account-based financial inclusion toward credit-inclusive financial inclusion. Policy monitoring should track women's applications, sanctions, disbursements, outstanding credit, repeat borrowing and productive use, not only account numbers.
2. Strengthen gender-disaggregated credit reporting at state and district levels. Madhya Pradesh should routinely publish women-specific indicators for agriculture, MSME, micro-enterprise, SHG and government-supported credit.
3. Expand financial literacy and credit counselling. Women should receive practical information about interest rates, collateral, credit scores, repayment schedules, digital security and available schemes.
4. Improve the last-mile credit process through Business Correspondents, women-friendly banking points and digital application support while retaining assisted channels for women with low digital literacy.
5. Strengthen SHG-bank linkage and graduation pathways. Women SHG members should have a transparent pathway from group savings to bank credit, repeat loans and individual enterprise finance.
6. Promote credit-plus services. Credit should be combined with entrepreneurship training, bookkeeping, market access, digital commerce, insurance and business mentoring.
7. Reduce avoidable documentation barriers while maintaining KYC and responsible lending standards. Standardized checklists and assisted document preparation can reduce rejection caused by procedural difficulties.
8. Encourage women's ownership and control of productive assets. Credit policy should be linked with awareness of property rights, asset registration and financial decision-making.
9. Improve monitoring of end-use and empowerment outcomes. Evaluation should ask whether credit increased income, assets, enterprise survival, savings and women's control over financial decisions.
10. Use district-level credit planning to identify underserved groups. High state-level credit totals can coexist with localized exclusion; district and block analysis can reveal these gaps.
11. Promote responsible digital credit. Digital lending should be transparent about interest, fees, repayment and data use, and should not encourage unsuitable over-borrowing.
12. Integrate women's empowerment indicators into financial inclusion programmes. Economic empowerment should be measured as an outcome rather than assumed from participation in a scheme.

15. Limitations of the Study

1. The present paper uses verified secondary evidence for 2025 but does not contain an original respondent-level survey dataset. Therefore, the illustrative statistical tables are examples and not actual findings.
2. State-level banking statistics are not necessarily gender-disaggregated; therefore, aggregate credit growth cannot be interpreted as the volume of credit received by women.
3. A cross-sectional primary survey would identify associations but would have limited ability to establish causality.
4. Self-reported income, credit use and empowerment measures may be affected by recall and social-desirability bias.
5. District selection and sample composition can affect generalizability to all women in Madhya Pradesh.
6. Formal credit is heterogeneous; bank loans, SHG credit, micro-enterprise loans and agricultural finance can have different terms and outcomes.
7. Empowerment is multidimensional, and a single index cannot capture every social and economic dimension.

16. CONCLUSION

Access to formal credit is a critical but not sufficient condition for women's economic empowerment. The evidence available for 2025 shows that Madhya Pradesh has a substantial institutional credit base and continued growth in bank credit to agriculture and MSMEs. At the national level, women's participation in basic banking through PMJDY is high, and targeted programmes such as Stand-Up India and women SHG credit support demonstrate increasing policy attention to women as borrowers and entrepreneurs.

The central implication is that the next stage of financial inclusion should be evaluated through the quality of women's credit access. The relevant questions are whether women know about credit opportunities, can apply without disproportionate barriers, receive timely and adequate loans, obtain affordable terms, control the borrowed funds, use them productively, repay without distress and convert credit into sustainable income, assets, savings and decision-making power. These dimensions provide a more rigorous understanding of empowerment than bank-account ownership alone.

For Madhya Pradesh, the combination of formal banking expansion, SHG-bank linkage, priority-sector credit, digital financial infrastructure and women-focused enterprise programmes creates a strong institutional foundation. The empirical survey proposed in this paper can provide the missing micro-level evidence by testing whether women who obtain and control formal credit actually experience higher levels of economic empowerment after accounting for education, income, occupation, financial literacy and location. Such evidence would be useful to banks, government departments, NABARD, SHG institutions and policymakers seeking to deepen gender-responsive financial inclusion.

The study therefore concludes that formal credit should be treated not merely as a financial product but as a potential

instrument of economic agency. Its contribution to women's empowerment depends on the interaction between credit availability, institutional design, women's financial capability, productive opportunities and control over economic resources.

17. Scope for Future Research

1. District-wise comparison of women's formal credit access across Madhya Pradesh.
2. Rural-urban comparison of credit barriers and empowerment outcomes.
3. Longitudinal tracking of women borrowers before and after receiving credit.
4. Comparative analysis of SHG-linked credit, MUDRA and individual bank loans.
5. Impact of digital credit and UPI-linked financial ecosystems on women's enterprise development.
6. Role of property and asset ownership in securing formal credit.
7. Financial literacy as a mediator between formal credit access and empowerment.
8. Credit quality, repayment stress and women's economic well-being.
9. Sector-specific analysis of agriculture, livestock, food processing, retail, services and manufacturing.
10. Comparative studies between Madhya Pradesh and other Indian states.

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