The Role of Financial Inclusion in Women's Empowerment in North Karnataka: An Empirical Study of Belagavi and Hubli Dharwad District

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Abstract. Financial accessibility has been intensively investigated in recent years as a way for improving the economic and social well-being of women, notably in developing countries. The study was performed on the females of Belagavi and Hubli-Dharwad districts of North Karnataka. The aim is to explore the level of empowerment of women through financial inclusion. 150 women were interviewed from Self-Help Groups (SHGs), Microfinance Institutions (MFIs) and Pradhan Mantri Jan Dhan Yojana (PMJDY). Their involvement in different financial inclusion programmes and experiences is the basis for the analysis. This study is descriptive and analytical with a statistical technique of percentage analysis, correlation and regression in data analysis. The findings reveal a positive relationship between financial inclusion and women's empowerment, especially their access to formal financial services and credit, which is pronounced. All these positively contribute to women's financial autonomy, ability to make decisions and self-confidence. Formal financial services is cited as the most significant factor. However, digital illiteracy, low awareness and socio-cultural challenges remain to limit ambitious financial inclusion. The findings show that financial inclusion is a crucial element in promoting women's empowerment and underscore the importance of increasing financial literacy and policies related to digital financial inclusion for sustainable and inclusive development.

Keywords: Financial inclusion, women's empowerment, Self-Help Groups (SHGs), Pradhan Mantri Jan Dhan Yojana (PMJDY), digital financial services, rural development, North Karnataka, microfinance.

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1 Introduction

According to the World *Bank (2021), "Financial* inclusion is not just about access to financial services; it is about empowering individuals to improve their livelihoods and participate fully in the economy." One of the foremost concerns of inclusive economic development in the context of financial inclusion is access to low-cost, reliable financial services ranging from savings to credit, digital payments, etc. Although the world has seen various advancements in the field of banking and financial services, there are still unbanked individuals owing to structural and socioeconomic challenges, particularly in developing countries. India has been making strides in its various efforts towards financial inclusion, such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), the Self-Help Groups (SHGs) and an increasing body of digital financial services. Both the Reserve Bank of India (2023) and NABARD (2022) have pointed out that such programme have ushered in this financial era, but there is still scope to bring people much closer to the money, and the empowerment is yet to be experienced at ground level. If there is anything about empowerment, it is, among other things, economic independence and having a voice in both decision-making and society itself.

Unfortunately, despite the fact that it is located in the North Karnataka region of the state, women, especially in the north, face challenges in participating in the economy because of various cultural norms, lack of knowledge about the power of digital literacy, etc. Gender gaps widen, and women's ability to improve their living standards is hampered by access to financial resources (limited access to capital – Duflo, 2012). Untouchability is the magic behind financial inclusion, which is dependent on women having access to formal financial institutions, women practising good saving practices and women being involved in a revenue-generating activity. Swamy (2014) also reported that working in financial services is also restricting women from making financial decisions in their homes and managing their own resources. Although not yet implemented in all contexts due to differences in literacy and infrastructure, there are chances to be more inclusive via the use of technology tools and platforms. (Suri & Jack, 2016; Demirgüç-Kunt et al., 2022). The present study is an effort to explore the role of financial inclusion towards the empowerment of women at the grassroots level of the study areas, the Belagavi and Hubli-Dharwad districts of North Karnataka. It contributes to the available data and literature as it focuses on assessment of the key factors such as access to banking, access to loans and digital financial services in the region.

2. Literature Review

Financial services have become more proactive, extensive, and customer-centric since the advent of AI and online banking. Technology development, like using artificial intelligence (AI)-based applications for risk assessment, customisation of services, automation of processes, etc., has made the traditional financial services available (Kshetri, 2021).

There is now huge evidence that digital financial technology is correlated with financial inclusion. According to Demirgüç Kunt et al. (2022), digital financial services (DFS) such as mobile banking services and fintech have helped alleviate financial exclusion and boost financial access to the poorest members of the world. By expanding people's access to banking services and products, including savings accounts and credit, digital finance can help alleviate poverty and boost economic inclusion, according to the empirical research (Suri and Jack, 2016).
The delivery of financial services is changing with the introduction of new predictive analytics, machine learning and natural language processing. The financial institutions have been able to enhance their credit assessment, operations, and client interactions by leveraging these technological advancements and data-driven decision-making (Kshetri, 2021).
Despite these changes, traditional approaches to monetary inclusion still have a number of constraints. However, there are still barriers, including lack of digital literacy, lack of technological infrastructure and data privacy problems, notably in rural and economically disadvantaged areas (Demirgüç-Kunt et al., 2022). In addition, the review of previous research shows that most of the literature has concentrated on macro-level financial inclusion or financial inclusion outcomes, rather than determining how it directly affects women's empowerment at the community level.

Table 1: Research Gap Identification from Literature (2023–2026)

Sl. No	Author(s) / Study	Focus Area	Limitation	Research Gap Addressed
1	Demirgüç-Kunt et al. (2022)	Financial inclusion (global)	Macro-level focus	Micro-level rural analysis (North Karnataka)
2	RBI (2023)	PMJDY & banking access	Focus on access, not empowerment	Impact on empowerment outcomes
3	NABARD (2022)	SHGs & micro-finance	SHGs studied separately	Integrated financial inclusion approach

4	Lusardi & Mitchell (2014)	Financial literacy	Limited link to empowerment	Literacy–empowerment relationship
5	Suri & Jack (2016)	Digital finance	Focus on adoption only	Impact on empowerment
6	Swamy (2014)	Financial inclusion & gender	Limited regional focus	Regional empirical analysis
7	Kabeer (2005)	Women empowerment	Conceptual focus	Empirical measurement
8	Duflo (2012)	Gender & development	Broad/global scope	Local-level analysis
9	Allen et al. (2016)	Financial inclusion usage	Limited behavioural insights	Usage-based empowerment
10	Ghosh (2013)	Financial outreach	No gender focus	Women-specific analysis

Source: Authors own work

3. Methods

3.1. Research Objectives

- To examine the financial inclusion level of women in Belagavi and Hubli-Dharwad districts.
- To investigate the impact of financial inclusion on women's empowerment.

3.2. Study Hypotheses.

H_0: Financial inclusion has no significant impact on women's empowerment.

H_1: Financial inclusion has a significant impact on women's empowerment.

3.3. Research Design

The study follows a descriptive and analytical research design. It examines the relationship between women's empowerment and financial inclusion using empirical data collected from the selected districts of North Karnataka. The design enables both the description of existing conditions and statistical analysis of relationships among variables.

3.4. Data Collection

Data were collected from a structured questionnaire in relation to the objectives of the study, which is primary data. During the current study, 150 respondents were taken as the sample size. The study had been conducted in only two districts, namely, Belagavi District (80 nos. of participants) and Hubli-Dharwad District (70 nos. of participants).

Convenience sampling was adopted in collecting the data, as it was easy for the respondents to participate.

In order to further elaborate on the role of financial channels in women's empowerment, the respondents have been categorised on the basis of important financial inclusion programmes like Pradhan Mantri Jan Dhan Yojana (PMJDY), Microfinance Institutions (MFIs) and Self-Help Groups (SHGs).

Table 2: Sample Distribution by District and Financial Inclusion Channels

District	**SHG Members**	**Microfinance Beneficiaries**	**PMJDY Account Holders**	**Total**
Belagavi	35	20	25	80
Hubli Dharwad	30	18	22	70
Total	**65**	**38**	**47**	**150**

Source: Authors own work

The table 2 shows that the majority of respondents are associated with Self-Help Groups (SHGs), indicating their important role in promoting financial inclusion among women. The proportion of PMJDY account holders is also considerable, reflecting the effectiveness of government initiatives in expanding banking access. Microfinance institutions play a moderate role in financial inclusion in both districts. Compared to Hubli Dharwad, Belagavi shows slightly higher participation across financial channels, which reflects a better penetration of the financial inclusion efforts.

Table 3: Variables of the Study:

Variable Type	**Variables**	**Description**
Independent Variables	Access to formal banking facilities	Ownership and usage of bank accounts
	Credit Access	Availability of loans through SHGs/banks
	Digital Finance	Use of mobile banking, UPI, etc.
Dependent Variable	Women Empowerment	Economic, social, and psychological empowerment
Control Variables	Age, Education, Income	Socio-economic characteristics

Source: Authors own work

3.5 Measurement of Variables:

The variables of financial inclusion were measured on binary and Likert scales (yes/no, agree/disagree). Women's empowerment was measured using indicators such as the following:

Financial independence Decision making ability
Social participation Confidence level

3.6 Analytical Tools Used

The statistical tools used in the study are as follows:

- Percentage Analysis
- Correlation Analysis (Pearson's correlation)
- Regression Analysis

3.7 Model Specification: In order to analyse the connection between women's empowerment and financial inclusion, the regression equation below is applied:

$$WE = \beta 0 + \beta 1\ (BA) + \beta 2\ (CA) + \beta 3\ (DF) + \epsilon$$

Where:

- **WE** = Women Empowerment
- **BA** = Access to formal banking facilities
- **CA** = Credit Access
- **DF** = Digital Finance
- $\boldsymbol{\beta_0}$ = Constant
- $\boldsymbol{\beta_1, \beta_2, \beta_3}$ = Coefficients
- $\boldsymbol{\varepsilon}$ = Error term

4 Data Analysis and Interpretation

Table 4: Demographic Profile of Respondents

Category	Classification	Frequency	Percentage (%)
Age	18–25 years	27	18%
	26–40 years	93	62%
	Above 40 years	30	20%
Total		**150**	**100%**
Education	Illiterate	33	22%
	Primary	45	30%
	Secondary & above	72	48%
Total		**150**	**100%**
Occupation	Household	60	40%
	Agriculture	50	33%
	Self employed	40	27%
Total		**150**	**100%**
Monthly Income	Below ₹10,000	70	47%
	₹10,000–₹20,000	50	33%
	Above ₹20,000	30	20%
Total		**150**	**100%**

Source: Authors own work

The population structure presented in the table 4 shows that most of the respondents are in the economically active age bracket of 26-40 years. A high percentage of women are involved in household and agricultural activities, as the study area is rural. The majority of the respondents are in the low-income category in terms of income, which underscores the significance of financial inclusion initiatives. There are different educational levels, and almost half of them have secondary education, and a large proportion are illiterate. These socio economic attributes are important in financial inclusion and women's empowerment.

Table 5: District-wise Financial Inclusion Status of Respondents

Financial Inclusion Indicators	**Belagavi (%)**	**Hubli-Dharwad (%)**	**Overall (%)**
Access to formal banking facilities	88%	82%	85%
Access to Credit	55%	50%	52%
Digital Finance Usage	60%	53%	57%
Savings Habit	75%	68%	72%

Source: Authors own work

The above table 5 indicates that a significant proportion of respondents have access to basic banking services, with 85% overall bank account ownership. The Belagavi district has marginally better financial inclusion than Hubli-Dharwad, especially in availability of formal banking services and saving habits. The availability of credit is average, with half of the respondents accessing financial aid via formal or informal sources, including SHGs and microfinance institutions. The use of digital finance is also moderate (57%), meaning that despite the growth of digital financial services, their usage in rural regions remains low. In general, the results indicate that although basic financial inclusion has become much better, more profound financial inclusion, especially in access to credit and digital finance, still needs further improvement.

Financial independence, the ability to make decisions, social participation, and the level of confidence are important dimensions used to measure women's empowerment in the present study. These indicators are used to show how financial inclusion has affected the overall empowerment of women respondents.

Table 6: Women Empowerment Indicators

Empowerment Indicators	**Number of Respondents**	**Percentage (%)**
Financial Independence	105	70%
Decision-Making Power	95	63%
Social Participation	83	55%
Confidence Level	102	68%

Source: Authors own work

As noted in the above table 6, most of the respondents (70 per cent) have become financially independent, which means that they have access to financial services and thus they have the ability to contribute to their households economically. Approximately 63% of the respondents indicated that they had gained more power to make decisions, which could imply a greater involvement in household and financial decisions.

The social participation is quite low at 55, and this could be explained by the socio-cultural barriers that exist in the rural communities. Nevertheless, the psychological effect of financial inclusion was seen in the high percentage of women (68) who indicated increased levels of confidence. On the whole, the findings show that financial inclusion has made a positive impact on various aspects of women's empowerment, but there are some areas which need to be improved, like social participation.

Correlation Analysis:

The relationship between women's empowerment and financial inclusion is analysed using correlation analysis. It measures the degree and direction of association between the variables.

Table 7: Correlation between Financial Inclusion and Women Empowerment

Variables	Financial Inclusion	Women Empowerment
Financial Inclusion	1.00	0.69
Women Empowerment	0.69	1.00

Source: Authors own work

The above table 7 indicates that the relationship between the two variables is strong, with a correlation coefficient of 0.69 between financial inclusion and women empowerment. This indicates that the more financial inclusion (access to banking services, credit facilities, and digital finance) women have, the more empowered they are. This is confirmed by the positive correlation that financial inclusion is a major factor in enhancing the economic and social status of women.

Regression Analysis

Regression analysis is applied to assess the impact of financial inclusion variables on women's empowerment. The model incorporates the availability of formal banking services, credit access, and digital financial services as independent variables that affect women empowerment.

Table 8: Regression Results of Financial Inclusion on Women Empowerment

Variable	Coefficient (β)	t-value	Significance
Constant	0.52	—	—
Access to formal banking facilities (Bank Access)	0.45	3.20	Significant
Credit Access (CA)	0.30	2.75	Significant
Digital Finance (DF)	0.25	2.40	Significant

Source: Authors own work

Table 9: Model Summary

R	**R^2**	**Adjusted R^2**
0.72	0.52	0.50

Source: Authors own work

Results show that (table 9) three dimensions of financial inclusion work positively for women empowerment. The largest coefficient was for access to formal banking facilities ($\beta = 0.45$), followed by access to credit ($\beta = 0.30$, respectively) and digital financial services ($\beta = 0.25$), which had the biggest influence. Each of the interpretations of the coefficients is positive and indicates that an increase in women's participation in financial services translates to greater empowerment. Apart from that, the example accounts for 52% of the variance in the measure of women's empowerment (R 2 = 0.52), which is an appreciable portion of the total variance in the data. As for the variable banking access, availability of personal loans to women and digital financial services, the statistically significant variable highlights that the three of it make a considerable contribution to improving the empowerment status of women in the selected areas.

Hypothesis Testing

Based on the regression results:

Since all independent variables are statistically significant ($p < 0.05$),

- **H_0 (Null Hypothesis) is rejected**
- **H_1 (Alternative Hypothesis) is accepted.**

According to the regression analysis, all independent variables, including access to formal banking facilities, credit access, and digital financial services, are statistically significant at the 5% level. Thus, the null hypothesis (H_0), according to which the effect of financial inclusion on women's empowerment is insignificant, is rejected. The alternative hypothesis (H_1) gets accepted, which means that there is a significant positive relationship between financial inclusion and women's empowerment in the sampled districts of North Karnataka.

5 Discussion

The findings of the present study revealed that financial inclusion has positively influenced on empowerment of women in Belagavi and Hubli-Dharwad districts. The investigation revealed that there is a strong relationship between the availability to financial services and many characteristics of empowerment such as financial independence, decision making capacity and confidence. Women actively involved in financial inclusion projects stated that they are more involved in economic activities and in the management of financial affairs in their houses. The study also reinforces the growing value of technology as an enabler of financial services. Despite a recent downturn in investment in the likes of Mark Zuckerberg's 'financial software' group Open Street, financial technology has propelled a streamlined and more accessible financial sector that has reduced frictions, cut costs, and improved overall efficiency. Such innovations have enabled financial institutions to offer more accessible and convenient services to the people and also encourage people to join the formal financial system, and thus enhance their participation in financial services (Kshetri, 2021). Meanwhile, the following are a few issues that still need to be resolved in attracting and retaining effective financial service usage. During the survey, women in rural areas were found to face challenges more, including (among others) insufficient digital literacy; poor internet access; concern about data security; concerns about returning to 'analog world' after their migration to the digital world made them unaccustomed to traditional lives and sociability; etc. These issues imply that having banking options and digital financial platforms does not necessarily lead to financial inclusion's potential benefits. (Demirgüç-Kunt et al., 2022)

Also, from the analysis of the literature, it is possible to infer that many of the previous studies have tended to concentrate on the way of accessing financial services and the indicators rather than the impact of financial services on women's empowerment at the grassroots level. Thus, long-term and region-specific studies are still needed to provide added insights into how financial inclusion and financial empowerment outcomes can be linked. In conclusion, the results of this study suggests that financial inclusion is not merely about economic inclusion as it is a mechanism which contributes to women's participation in social and financial decision-making processes. Financial services, such as banking, credit and agro financial services, can be made more accessible to boost the socio-economic position of women in research region.

6 Conclusion and Implications:

The study concludes that, in the selected North Karnataka region, financial inclusion pointedly progresses women's empowerment. Women's economic independence, confidence, and capability to make decisions are all improved when they have access to financial services like bank accounts, credit amenities, and digital financial instruments. Among the many features, admittance to banking services is vital, and results related to empowerment are influenced by credit and digital finance. The findings show that one of the main factors influencing women's socioeconomic progress is financial inclusion.

The viability of financial inclusion projects is not just about being able to utilize financial services but also about financial literacy, digital awareness and existing socio-cultural circumstances. Awareness-raising of women and strengthening institutional support structures can support the long-term viability of this programme. The outcomes of the study show that solid initiatives to promote financial inclusion may enhance women's access to financial resources, boost their involvement in economic activities and help in lowering the gender gap in the specified study region.

6.1 Policy Implications

- Foster financial literacy initiatives to improve the quality and utilisation of financial services for women.
- Upgrade digital literacy programmes to encourage the use of digital banking and payment systems.
- Help Self-Help Groups (SHGs) and microfinance institutions (MFIs) to give financial and economic opportunities.
- Strengthen financial standardisation and banking accessibility in disadvantaged and remote areas.
- Develop women-orientated financial strategies addressing women's specific financial requirements.
- To promote greater female involvement in household/community economic decision-making

6.2 Limitations of the study

- The study covers the two districts – Belagavi and Hubli-Dharwad – in North Karnataka.
- Only 150 individuals can respond to the sample.
- The findings are based on self-reports and subject to response bias.

6.3 Area for further research

- Carry out comparison studies with districts, states or regions.
- Family planning is a key aspect of gender equality. The gender equality issue of family planning plays an important role.
- Carry out repetitive studies to assess the effect of financial inclusion programmes over time.
- Other socio-cultural aspects, behaviours and psychosocial factors should also be included in future research.
- Critically review how governments' financial inclusion policies have contributed to the socio-economic situation of women.

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