

Access to Credit and Microentrepreneurship: A Gender Comparison

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1 Introduction

Women-led enterprises play an important role in economic development of a nation which has not achieved full potential in many parts of the world. Participation of the women in small- and medium-scale enterprises creates employment opportunities and avenues for women's economic independence. According to the World Bank data, about 25–33% of private businesses are owned or operated by women globally (Ernst and Young 2009). Worldwide, the rates of women entrepreneurs are increasing at a faster rate than men (Global Partnership for Financial Inclusion, GPFI 2011). According to the Global Entrepreneurship Monitor (GEM) report (2013), about 126 million women in 67 countries have started their new business in addition to 98 million established businesses around the world. In the USA, the women-owned firms grew by 23% as compared to 9% men-owned firms; while in Canada, 47% of small enterprises and about 70% new business start-ups in 2004 were registered in the name of women (GPFI 2011). In developing countries, women-owned enterprises are growing at a significant rate and contributing toward economic growth and development. In 2008, Thailand experienced only 0.3% annual growth in men-owned business, while their women counterparts grew at

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2.3% (GPFI 2011). The report depicts that the annual growth rate of women-owned enterprises (10%) in Malaysia is higher than its men counterparts (7%).

In India, women-owned enterprises are making a significant contribution to the growth of the economy. Indian economy has increasing number of participation of the women entrepreneurs in micro-, small, and medium enterprises (MSMEs). However, the number of women-owned enterprises is still less than the men-owned enterprises. It was reported in 2014 that about 3 million women enjoyed either full or partial ownership in MSMEs, which comprised only 10% of all the MSMEs in the economy (International Finance Corporation 2014). The contribution of women-owned businesses in industrial output is 3.09%, and the level of employment generated by them is over 8 million people (International Finance Corporation 2014). It is observed that about 78% of women-owned enterprises belong to the service sector, and about 98% of microenterprises are owned by women (International Finance Corporation 2014). Inadequate access to formal credit in the MSME sector is one of the major impediments to the growth of women entrepreneurs.

Credit is an indispensable instrument facilitating the growth of women entrepreneurs, which helps to remove poverty and various social obstacles. About 80% enterprises run by women are self-financed, while 4.4% receive financial assistance from institutional sources. Lack of institutional financing to women microenterprises led to imbalanced entrepreneurial society. The formal financial institutions in India have a negative perception toward women entrepreneurs. Often, they show doubt toward the creditworthiness of women. Financial institutions are often skeptical about the entrepreneurial abilities of women; they often lack the motivation to venture into the male-dominated market. Most of the enterprises started by women are small and self-financed. Despite evidence that women loan repayment rates are higher than men's, women still face more difficulties in obtaining credit due to discriminatory attitude of financial institutions. It is also noticed that of the women who take loan for income-generating activities, only a minuscule percentage have autonomous control over the loan money. In maximum cases, a male member of the family enjoys the control of the proceeds of loans.

There are differences in an entrepreneurial initiative based on gender, particularly in rural areas. The determinants that lead a person into entrepreneurship can be classified into micro- and macrolevels. By microlevel determinants, we understand individual characteristics, such as age, sex, education qualification, credit availability, asset-ownership, and social capital, which enables an individual to take part in different entrepreneurial opportunities, while the macrolevel determinants are mainly concerned with the business environment, policies, and other location-specific variables, which affect the growth of entrepreneurship. Given this backdrop, this chapter investigates the determinants of access to formal credit among rural microentrepreneurs in rural West Bengal, the underlying determinants that lead to an imbalance in entrepreneurship initiative with respect to gender.

The rest of the chapter is organized as follows. Section 2 describes the literature review of the study. Section 3 presents the credit accessibility of rural households in India. This is followed by data used in the study, which explains the study areas, sampling techniques, and methodology in Sect. 4. Section 5 presents the results of the study. The final section presents the summary of the research with concluding remarks.

2 Literature Review

Credit can often act as a catalyst for the development of the business and enhance earnings. In developing countries, discrimination against women entrepreneurs in access to formal credit is highlighted in many instances (Mckee 1989; Otero and Downing 1989; Fletscher and Kenney 2011; Hansen and Rand 2014). The problem is worse for rural areas where the financial sector is dominated by male (Abor and Biekpe 2006). In both developing and underdeveloped countries, women have lower access to resources as compared to men. They have no or low access to ownership of land, house, education, and training facilities (Katepa 1999). Accessibility of formal credit by women entrepreneurs is limited because lending institutions demand collateral from borrowers rather than the viability of the project (Thuranira 2009). Collateral plays an important role in the banking business and helps in understanding the creditworthiness of the borrowers (Klein, Meyer, Hanning, Burnett and Fiebig 1999). In the rural financial system, formal lending institutions face difficulties in obtaining information about potential borrower's creditworthiness. Consequently, formal and informal lenders might find lending to be risky and prefer not to offer credit at all (Fletschner 2009). The formal institutions are rigid on the matter of collateral. Lending the money to the resource-less poor involves high risk as high transaction cost involved with these unsecured loans (Xia et al. 2011). The result of asymmetric information leads to moral hazard and adverse selection in the credit market (Khoi et al. 2013). The problem of moral hazard is a more likely event once the loans are authorized to the buyers. Apart from the lack of proper information about borrowers, rural entrepreneurs also face other problems, such as lesser number of bank branches in their locality. Thus, borrowers have to cover a long distance to get access to financial services. On the other hand, banks are often unable to monitor the post-credit phases of the borrowers; that is, where, when, and how the borrowers will make the investment. Thus, lack of financing acts as a barrier to growth and success of women entrepreneurs. Limited financial awareness and understanding of financial products or services are areas of concern of women entrepreneurs in India. It makes disinclination for access to finance from formal channels (International Finance Corporation 2014). The experimental study of Cole et al. (2009) on India and

Indonesia reveals that financial literacy is a significant predictor for availing the financial services. Low levels of training among women entrepreneurs make the situation more difficult to access the formal credit. In addition to that, women have a double burden of domestic responsibilities; cultural constraints related to behaviors of women, and lack of decision-making power restrain them from taking up the challenge of entrepreneurship role (Kumari 2013). Gender inequality in the society is perceptual, and it has different forms. Sen (2001) classifies different types of gender inequality. The majority of the discrimination against women is multidimensional. Economically, they are excluded from property rights (Rao 2002); socially, they are excluded to begin economic activities outside the home (Jaiswal 1993); culturally, their work at home is not recognizable as an economic activity because activity at home is not marketable (Tinker 1990; Bardhan 1985). This is a universal truth for almost every country with different intensity. Discrimination against women entrepreneurs in Indian society has been focused in various literature. About 50% of India's population is women, yet economically, socially, and culturally dominated by male. Soundarpandian (1999) depicts that women entrepreneurs face financial constraint, technical difficulties, lack of family support, and hard competition from male entrepreneurs.

The women entrepreneurs respond that they could not get a loan from banks, as they do not have collateral property to show to banks. A study conducted by Vinze (1987) with 50 women entrepreneurs in Delhi also supports the findings of the present study to some extent. Vinze expresses that stringent documentation and formalities need to be more flexible to access the formal credit. Discrimination shoots from the low value attached to women's work. In Indian society, the role of household maintenance and care activities is predominantly assigned to women (Bhatia 2002; Hirway 2002). Consequently, women entrepreneurs need to manage both family and entrepreneurship, which often restricts their ability to grow their businesses and perpetuates in their limited access to credit. Rural women face discriminatory attitudes from lending institutions. They also get inadequate support from family members at operating level (Manimekalai and Rajeswari 2002). According to GEM (2007) report, the share of early-stage entrepreneurial activities for women (7.49%) is slightly less than men (9.51%), but for owned, established businesses, the gap is more wide (8.69%). Female-headed rural households are among the poorest of the poor, and rural women entrepreneurship in India is still at a nascent stage. In rural areas, women are particularly engaged in agriculture and agro-based industries along with their male counterpart. Women are particularly involved with food preservation, bakery, dairy, poultry, and forest-based weaving and handloom business. It is observed that women face difficulties in terms of arranging the raw materials, lack of technical skills, poor infrastructure, and lack of access to market that challenge them to get success in their businesses (Manimekalai and Rajeswari 2002; Rajendran 2003). According to United Nations Industrial Development Organization (UNIDO 1995), loan repayment performance of women is better than men, although they face a lot of difficulties to access credit from the formal channel.

3 Access to Credit Among Rural Households in India

In India, the credit market is fragmented, which consists of the combination of formal, semi-formal, and non-formal segments. Formal sources of credit consist of national and state banks, private banks, regional rural banks, and cooperative banks. Microfinance institutions (MFIs) and self-help groups (SHGs) are considered as semi-formal sources of finance, whereas informal sources include relatives, friends, and private moneylenders. Formal credit is not so easily available to the rural households. Many borrowers belong to low-income households, landless laborers, peasants, and artisans. They do not have access to formal sources of credit because of lack of collateral and unavailability of procedural documents required for sanctioning the loan. Poor rural households are ignorant about the basics of sound money management (Rao and Priyadarshini 2013). Since independence, the availability of formal and semi-formal sources of credit has improved, but still, the availability of rural credit lags far behind the actual needs of finance by the farmers across the country (Basu 2006).

The commercial banks have been successfully enhancing the flow of rural credit since 2003. However, unfortunately, such increase in credit has not benefited the poor, especially the small and marginal farmers and tenants, as credit availability continues to remain low due to poor banking support. As a result, poor household depends on informal credit which comes with an exorbitant rate of interest. They continue to suffer under excessive indebtedness. Contribution to the rural household debt by the institutional credit sources reduced from 64% in 1991 to 57.1% in 2002, whereas, at the same time, loans provided by the non-institutional credit sources have increased from 36% to 42.9%. The share of moneylenders in rural household debt made a significant jump from 15.7% in 1991 to 29.6% in 2002. The share of commercial banks in total dues, during 1991–2002, remained at 35%, although the number of scheduled commercial bank (SCB) branches in rural sector has fallen from 33,089 in 1996 to 30,625 in 2007 (RBI, Handbook of Statistics of Indian Economy 2011–2012).

For years, several efforts have been made by various organizations to provide adequate credit to the rural poor. However, the greatest initiative was taken by National Bank for Agriculture and Rural Development (NABARD), which is responsible for disbursing agricultural credit to provide financial assistance to the state banks, cooperative banks, RRBs, microcredit institutions, and other money-lending agencies and promotion of various developmental activities in village areas. Percentage distribution of NABARD's financial assistance and disbursement per rural household of states and national level during 1996–1997 to 2006–2007 reveals the adverse distribution of credit to agriculture. Financial assistance provided by NABARD to the eastern region is much lower as compared to the other states of India.

The presence of MFIs is a significant landmark in the field of the rural credit market. The primary objective of MFIs is to provide financial services to the poor households. These services include savings, loans, and insurance (Wrenn 2005). Services are provided by the MFIs to those poor who are deprived of getting such

services from the formal financial institutions. MFIs initially started as a non-government organization (NGO) movement to form SHGs, and later led to the emergence of the financial institutions. The poor in India are mainly self-employed, do not possess any expertise skill, and do not restrict themselves to any particular occupation. These small-scale enterprises face limitations regarding capital, physical assets, labor, and so on. The microenterprises operate in areas with low entry barriers and high competition. Moreover, due to continuous low production, their income level becomes low, which further augments poverty of the rural people.

Informal sources of credit provided by the private moneylenders have played a major role in rural credit market since 1950s. Moneylenders provide credit for consumption and investment, and during emergent needs. The interest charged by the informal lenders is nearly 48% per annum. Moneylenders keep a close contact with their clients, and hence, they not only know about their clients, but are also aware of their repayment capacity, something that formal credit institutions are not. Thus, they find easier to offer many flexible services to their clients (Basu 2006).

4 Data and Methodology

4.1 Study area

The data were collected from five districts of West Bengal, namely Howrah, Hooghly, North 24 Parganas, South 24 Parganas, and Bankura. Howrah district is bounded by the Hooghly River and is surrounded by North and South 24 Parganas districts in the east, Hooghly in the north, Purbo Midnapore in the south, and Ghatal subdivision of Paschim Midnapore in the west. Hooghly district is surrounded by Nadia in the east, Burdwan in the north, Bankura in the west, and Paschim Midnapore in the south. North 24 Parganas district is bounded to the Nadia district, South 24 Parganas in the south, and Bangladesh in the east and keeps the Hooghly district, the river Hooghly, and Kolkata at the west. South 24 Parganas located in the southern part of the state. The district is bounded by the river Hooghly in the west, Bay of Bengal in the south, and Kolkata and North 24 Parganas in the north, and eastern boundary is demarcated by Bangladesh and Bidya and Matla rivers. The fifth district Bankura is bounded by Burdwan in the north, Hooghly in the south-east, and Paschim Midnapore in the south and Purulia in the west.

4.2 Sampling

The study is based primarily on data obtained from field survey. After the selection of five districts, the household sample was drawn through multistage random sampling procedure. Every district consists of several subdivisions which in turn

comprise several municipalities and community development (CD) blocks. As the study was centered in rural areas, CD blocks were given importance for gathering relevant data. From every district, two CD blocks were selected. Then, from each CD block, two villages were selected. Hence, from every district, total four villages were selected. In this way, from 5 districts, 20 villages were selected for the study. By the low order of penetration of commercial banks in the villages, a group of four villages was formed in every district where all forms of credit organizations, such as formal, informal, and semi-formal are operating. The formal institutions comprise SCBs, RRBs, and primary agriculture cooperative society (PACS). Apart from this, informal sources consist of moneylenders, friends, relatives, shopkeepers, merchants, traders, and so on. The semi-formal sector, similarly, comprises SHGs and MFIs. Based on the borrower’s list obtained from Panchayat Pradhan, group leader of the SHGs, personal connection with relatives and local information, sample households were chosen randomly. A total of 209 borrowers were chosen to participate in the interview. These sample households either accessed formal, informal, or semi-formal credit.

The dependent variable of the study is whether the respondent has access to credit from formal financial institutions. The response takes the form of yes and no, which can be modeled with logit regression.

The logistic regression model presented here shows the probability of accessing formal credit (Y) and is estimated on the explanatory variables (X).

The dependent variable of the model is presented as

- $Y = 1$ borrower’s access to formal credit
- $Y = 0$ borrower does not have access to formal credit

In order to perform the analysis, we use logistic regression with the following model:

$$L_i = \ln \left[\frac{P_i}{1 - P_i} \right] = \alpha + \beta_i X_i \tag{1}$$

where L_i is the log of the odds ratio called the logit or log-odds, which are a linear function of the explanatory variables. P_i is the probability of accessing formal credit of the i th borrower; the vector X_i contains attributes of socioeconomic and household characteristics; and β is the unknown regression coefficients to be estimated. The probability P_i ranges between 0 and 1 and is nonlinearly related to the X_i attributes.

The cumulative logistic distribution function in (1) can be represented as:

$$P_i(Y_i = 1) = \frac{1}{1 + e^{-(\alpha + \beta X_i)}} \tag{2}$$

If P_i is the probability of accessing formal credit, then $(1-P_i)$ is the probability of not accessing:

$$1 - P_i = \frac{1}{1 + e^{(\alpha + \beta X_i)}} \quad (3)$$

The odds ratio is defined as:

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{(\alpha + \beta X_i)}}{1 + e^{-(\alpha + \beta X_i)}} = e^{(\alpha + \beta X_i)} \quad (4)$$

The odds ratio is the ratio of favorable to unfavorable cases of accessibility. This preference depends on the values of the explanatory variables. By taking the natural log of Eq. (4), we get Eq. (1).

If the error term (μ) is taken into account, the logit model becomes

$$L_i = \alpha + \beta_i X_i + \mu \quad (5)$$

To find out the relation between types of states and access to formal credit, we use chi-square test.

5 Results

5.1 Sample Profile

The personal information of the rural entrepreneurs includes age, education, and income, while business-related characteristics include business experience, holding a savings bank account, financial literacy, agricultural land, and other assets. About 77% of the entrepreneurs belong to the 31–50 age group, while 15% of the respondents are above 50 years and 7.8% below 30 years age group. As for the respondents' education level, the majority have up to higher secondary education (55.6%), followed by graduate and above (22.4%), and 17.6% up to primary education. Regarding income, the respondents' household income is considered, rather than their personal income, because entrepreneurial initiative among rural folks depends not only on their personal income but also on the income of other family members. In the sample, 18.3% of respondents' household income was below INR 5000, while 49% fell into the INR 5001–10,000 income bracket, and the remaining 32.7% had an income level more than INR 10,000.

Genderwise distribution in credit accessibility reveals that 64.7% male entrepreneurs have access to formal credit, while 39.3% female entrepreneurs have accessed the same. Respondents were asked whether they hold any savings account in banks. 75.8% male and 51.8% female respondents have a savings bank account.

Distance from the nearest bank branch is categorized into two categories, namely less than 4 km and more than 4 km; 78.4% male and 80.4% female respondent's nearest bank branch is located less than 4 km from their residence. Regarding financial literacy of the respondents, it is observed that male respondents (85.6%) are more financially literate than female respondents (75.0%). As far as household assets are concerned, about 67% respondents have agricultural land for both male and female respondents. Regarding other assets, 88.2% male respondents have other assets compared to 85.7% female respondents (Table 1).

Table 1 Percentage distribution of the rural microentrepreneurs according to different parameters

	Male (%)	Female (%)
<i>Age</i>		
Below 30 years	7.8	14.3
31–50 years	77.2	76.8
Above 50 years	15.0	8.9
<i>Education</i>		
Up to primary level	17.6	33.9
Less than higher secondary	55.6	60.7
Graduate and above	26.8	5.4
<i>Income</i>		
Up to INR 5000	18.3	28.6
INR 5001–10,000	49.0	48.2
Above INR 10,000	32.7	23.2
Access to formal credit	64.7	39.3
<i>Business experience</i>		
Less than 5 years	30.1	51.8
More than 5 years	69.9	48.2
<i>Bank account</i>		
Yes	75.8	51.8
No	24.2	48.2
<i>Distance to bank</i>		
Less than 4 km	78.4	80.4
More than 4 km	21.6	19.6
<i>Financial literacy</i>		
Yes	85.6	75.0
No	14.4	25.0
<i>Agricultural land</i>		
Yes	67.3	67.9
No	32.7	32.1
<i>Other assets</i>		
Yes	88.2	85.7
No	11.8	14.3

Source Primary survey

5.2 Analysis of Access to Credit

Table 2 provides an analysis of the relationship between household access to credit and socioeconomic and business-related factors. About 64.7% of male and 39.3% female respondents have access to formal credit, indicating huge gender gap in access to credit with respect to gender. Chi-square test of independence showed that the relationship between access to formal credit and gender is not independent implying that there is a statistically significant relationship between the two variables, $\chi^2 = 10.867$ and $p < 0.001$. Access to credit with respect to gender reveals that below 30 age group respondents have greater access to credit (65%) compared to 31–50 years (57.8%) and above 50 years (53.6%) age group respondents. However, chi-square test shows no significant association between the variables. About education, those who have completed their higher education and graduation have the higher accessibility of credit compared to the low level of education. Significant relation is found between household income and access to formal credit. The study reveals access to credit increases with successive higher income level, and chi-square test of independence exhibits a statistically significant relationship between the two variables, $\chi^2 = 27.516$ and $p < 0.001$. Access to credit significantly increases with business experience. Respondents with more than 5 years of experience have 67.1% access to credit, while business experiences of less than 5 years have 41.3% access to credit. In line with expectation, a person having a bank account has higher access to credit. As revealed by the empirical investigation, 67.2% respondents access to credit have a savings bank account, while 41.3% have accessed to credit with no bank account, and chi-square test of independence exhibits a statistically significant relationship between the two variables, $\chi^2 = 44.931$ and $p < 0.001$. Having financial literacy does improve accessed only formal credit; 66.5% respondents access to finance with basic financial knowledge, while only 16.7% respondents have accessed with no financial knowledge in financial matters. Asset position of households (not agricultural land) significantly improved respondents' access to credit. Chi-square test of independence showed that access to formal credit and the bank account was statistically significant, $\chi^2 = 11.685$, $p < 0.001$.

The factors that affect accessibility to formal credit are described as follows. We consider variables that have a significant association with the access to formal credit as observed from the chi-square test. Based on the results found in Table 2, three socioeconomic and household characteristics and four variables in the business environment have been selected for further analysis.

Gender: Male entrepreneurs are likely to take more risk compared to the females. In the Indian society, headship of the family member is claimed by male members, where they take the major financial decisions. Acute gender discrimination prevails in rural India. A comprehensive study from Latin America, South Asia, and Sub-Saharan Africa found that rural women are more deprived of accessing credit than men under equivalent socioeconomic conditions (Fletschner 2009 and Diagne et al. 2000). Evidence from primary data reveals that male entrepreneurs have greater access to formal credit compared to female entrepreneurs.

Table 2 Relationship between credit accessibility and socioeconomic and business-related factors

	Access to formal credit (%)	Calculated χ^2
<i>Gender</i>		
Male	64.7	10.867*
Female	39.3	0.000
<i>Age</i>		
Below 30 years	65.0	0.630
31–50 years	57.8	0.730
Above 50 years	53.6	
<i>Education</i>		
Up to primary level	39.1	27.516*
Less than higher secondary	52.9	0.000
Graduate and above	90.9	
<i>Income</i>		
Up to INR 5000	47.7	5.929**
INR 5001–10,000	54.9	0.052
Above INR 10,000	69.8	
<i>Business experience</i>		
Less than 5 years	41.3	13.162*
More than 5 years	67.1	0.000
<i>Bank account</i>		
Yes	67.2	44.931*
No	41.3	0.000
<i>Distance to bank</i>		
Less than 4 km	57.6	0.33
More than 4 km	59.1	0.499
<i>Financial literacy</i>		
Yes	66.5	30.326*
No	16.7	0.000
<i>Agricultural land</i>		
Yes	56.0	0.619
No	62.0	0.458
<i>Other assets</i>		
Yes	62.30	11.685*
No	26.90	0.000

Source Primary survey

*Significance level at 1%

**Significance level at 5%

Education: With higher education, an individual understands intricate information, maintains business records, conducts cash flow analysis, and also makes right business decisions (Roslan and Karim 2009). In West Bengal, it is observed that people with higher education are more likely to get institutional credit (Mazumder 2013). As shown in Table 3, the percentage of sample respondents who have access

to credit increased with the level of education. Hence, it is hypothesized that level of education has a positive effect on formal credit accessibility.

Households income: Findings of the study in rural West Bengal revealed that as income of the rural households increases, the probability of getting institutional credit also increases (Mazumder 2013). The percentage of male entrepreneurs' access to finance increases with the successive higher income group, while the percentage of the female respondent who has access to financing increases with income but not proportionately with a male counterpart (Table 3). Therefore, the

Table 3 Relationship between credit accessibility and explanatory variables

	Access to formal credit (%)	
	Male	Female
<i>Age</i>		
Below 30 years	83.3	37.5
31–50 years	64.4	39.5
Above 50 years	56.5	40.0
<i>Education</i>		
Up to primary level	33.3	47.4
Less than higher secondary	61.2	32.4
Graduate and above	92.7	66.7
<i>Income</i>		
Up to INR 5000	57.1	31.3
INR 5001–10,000	60.0	40.7
Above INR 10,000	76.0	46.2
<i>Business experience</i>		
Less than 5 years	43.4	37.9
More than 5 years	73.8	40.7
<i>Bank account</i>		
Yes	16.2	44.8
No	80.2	33.3
<i>Distance to bank</i>		
Less than 4 km	65.0	37.8
More than 4 km	63.6	45.5
<i>Financial literacy</i>		
Yes	74.8	40.5
No	4.5	35.7
<i>Agricultural land</i>		
Yes	61.2	42.1
No	72.0	33.3
<i>Other assets</i>		
Yes	69.6	41.7
No	27.8	25.0

Source Primary survey

income of the households and accessibility of formal credit is expected to be positively related.

Experience in business: Borrowers having more experience in their business are more successful, and hence have high repayment rate (Roslan and Karim 2009). Therefore, we may hypothesize that loan repayment performance is positively related to borrower's experience. As per research studies, besides age and education, factors, such as business experience, family business history, industry knowledge, training, and so on, also determine credit accessibility (Kimuyu and Omiti 2000; Zeller 1993; Lore 2007). Women often find it difficult to access loans from formal sources due to lack of education and experience. Those who are literate are not that confident about obtaining loans, particularly when there exists an absence of past credit experience (Kurwijila and Due 1991; Weidemann 1992).

Financial literacy: Financial literacy, as defined by the Organisation for Economic Co-operation and Development (OECD), is 'a combination of awareness, knowledge, skills, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial well-being' (OECD, INFC 2011). Financial literacy has a predominant influence on financial inclusion and protection of customer. Every player in the economy needs to have financial literacy (Chakrabarty 2013). It may be expected that financial literacy and credit accessibility have a positive relationship. In this study, financial literacy of borrowers includes awareness and knowledge about formal sources of credit such as loan schemes for poor sections of people, the interest rate on agricultural credit, and insurance facility provided by the formal credit sources.

Bank account: It is noticed that a large section of the rural people in India does not avail banking services. Hence, they are excluded from getting the facility of the electronic benefit transfer to the bank accounts. Electronic transfer facilitates to reduce the number of intermediaries and corruption. Bank account helps to avail the formal credit. According to Bhaskar (2013), the bank account enables holder to access all financial services. Hence, we may hypothesize that the facility of bank account ensures greater access to formal credit at reasonable cost. Although formal credit institutions have emerged lately, still many villages in India do not have a bank branch. While more than 70% of the population resides in rural areas, only 10% or even lesser enjoy the commercial bank credit. RBI data show that of 84,640,867 villages, only 46,126 were covered by banks in March 2014. Therefore, the necessity of financial inclusion is beyond question (Lok Sabha Secretariat, India 2014). Presently, it is found that most Indians depend on moneylenders for their credit needs and on the parallel, informal banking for savings, such as Saradha group and Sahara group. Saving in these informal banks is highly unsafe. Owning bank accounts might resolve this difficulty. It is important that the facility of a bank account is made available to ensure greater access to credit at reasonable cost. Consequently, the government will be able to provide social growth and development benefits as well as subsidies to the bank accounts of beneficiaries, thereby removing the lacunas in the social welfare schemes. Easy and quick access to the banking system (and freedom from scam-artists and moneylenders) will ultimately lift the country's economic prosperity.

Assets of the household: In our study, we consider assets owned by a household except for agricultural land. The size of landholding is directly proportional to the credit borrowed by a household (Duy 2011). Landownership plays a significant role in increasing the chances of accessibility to credit as formal creditors demand ownership certificates for giving loans or because the families possessing more land can borrow more (Quach et al. 2005). As shown in Table 3, the percentages of male and female sample respondents are higher for households possessing other assets. It is hypothesized that formal credit accessibility enhances with the assets of households.

5.3 Results of Logit Regression

A logistic regression model is used to investigate the impact of the determinants of the access to formal credit by rural entrepreneurs. Respondents who had successfully acquired credit from a formal financial institution are deemed to have accessing credit, while those whose applications were turned down or not applied for formal credit are deemed as not accessing to formal credit. The results of the logistic regression model are depicted in Table 4. Overall, the model fitted the data relatively well, and most of the regression coefficients are statistically significant to have expected signs and significance levels. Hosmer and Lemeshow's (H&L) R^2 measures how much the badness of fit improves as a result of the inclusion of the predictor variables (Field 2005). Its range is $0 \leq R^2 \leq 1$. $R^2 = 0$ indicates that the predictors

Table 4 Results of estimated credit accessibility among rural entrepreneurs

Variables	Coefficient	Odds ratio
Constant	-3.859* (0.803)	0.201
Gender (male)	0.352** (0.394)	1.422
<i>Education</i>		
Class VI to XII	0.048 (0.048)	1.049
Graduate and above	1.447* (0.692)	4.252
<i>Households income</i>		
INR 5001–10,000	0.013 (0.478)	1.002
Above INR 10,000	0.272* (0.536)	1.312
Business experience	0.840* (0.519)	2.317
Bank account	1.508* (0.393)	4.517
Financial literacy	1.450* (0.519)	4.263
Other assets	0.946* (0.590)	2.575
H&L's R^2	0.558	
Number of observations	209	

Dependent variable Access to formal credit (1 = access credit; 0 = otherwise)

Source Primary survey

*Significance level at 1%

**Significance level at 5%

are useless at predicting the outcome variable, whereas $R^2 = 1$ means that the predictors are perfect at predicting the outcome variable. In Table 4, H&L's R^2 was 0.558, so the predictors such as gender, educational level, income, and constraint for accessing formal credit are good enough to predict the outcome variable. Bank accounts, business experiences, financial literacy, and asset position of households are proficient in predicting the outcome variable for supply-related factors.

The coefficient of gender is positive and significant. The odds ratio for the predictor is 1.422, implying males are 1.422 times higher odds of credit accessibility compared to females. They are willing to start their own business if they have sufficient amount of capital, whereas a large proportion of the females are engaged in household-related activities. In addition to that, male members head the family in Indian society, therefore, they have responsibility of their family, which induces them to demand credit more than female members.

The education has positive effect on the probability of access to credit from formal institutions. This is because highly educated people can comprehend information on credit terms and conditions, and have the ability to complete loan application formalities properly. The result of the study also reflected that the odds of credit accessibility increases by 4.25 times, for those who have completed their study up to graduation compared to other lower education categories.

Household income of the respondents with more than INR 10,000 per month has a significant positive impact on formal credit accessibility compared to other lower income categories. High income indicates the higher capability of repayments. Hence, they are more inclined to access formal credit. For low-income households, high transaction costs of credit from formal sources discourage them from taking loans. Rather, they resort to informal sources, especially from friends and relatives, because they are less expensive as compared to formal credits.

Bank account is seen as a gateway to mainstream financial products and services. The result indicates that having a bank account in a household has a positive and significant impact on access to formal credit. Owning a bank account gives the poor households a sense of financial security and growth and encourages the habit of saving among the people so as to enhance the accessibility of credit from formal financial institutions.

Business experience is an important determining factor of credit accessibility. The results suggest a significant impact of business experience on credit accessibility. The odds in favor of accessing to formal credit increases by a factor of 2.317 as compared to the business experience of less than 5 years. A household having more business experiences has better credit management skills. Hence, institutional lenders have more trust on them compared to the inexperienced or less experienced borrowers.

In the second step, we calculate the predicted probability of credit accessibility. The market for formal credit for rural microentrepreneurs can be segmented on the basis of their socioeconomic and business environments. From the coefficients of logistic regression, we have calculated the individual respondents predicted access to credit with respect to gender and categorized them according to different

parameters considered for logistic regression (Table 5). Identification of gender biases with respect to different parameters is important in framing appropriate policies for reducing the gender gap. As calculated from the logistic regression, male microentrepreneurs enjoy 25.5% more probability to receive credit from formal sources than female counterpart. The level of education of the male entrepreneurs increases the probability to access to credit compared to female entrepreneurs. Predicted access to credit with respect to education reveals that probability of access credit is higher for male entrepreneurs in all three education categories. The highest probability is seen among graduates and higher education levels, where the predicted probability is 92.2% for male and 72.9% for female entrepreneurs. Thus, enhancing women education helps women to access more formal credit. The predicted probability is higher among microentrepreneurs who belong to higher income groups. Male entrepreneurs enjoy greater access to credit among all income categories compared to female. The gender gap in predicted access to credit is highest (28.5%) among INR 5001–10,000 income group as indicated earlier; experience in doing business is a significant predictor of access to credit. The estimated predicted probability is higher for both male and female

Table 5 Gender difference in access to credit according to predicted probability of the characteristics

Variables	Male	Female	Gender gap (male—female)
Access to credit	0.647	0.392	0.255
<i>Education</i>			
Up to primary level	0.413	0.360	0.053
Less than higher secondary	0.588	0.381	0.207
Graduate and above	0.922	0.729	0.193
<i>Income</i>			
Up to INR 5000	0.524	0.393	0.131
INR 5001–10,000	0.624	0.339	0.285
Above INR 10,000	0.749	0.502	0.247
<i>Business experience</i>			
Less than 5 years	0.484	0.299	0.185
More than 5 years	0.716	0.492	0.224
<i>Bank account</i>			
Yes	0.773	0.560	0.213
No	0.249	0.212	0.037
<i>Financial literacy</i>			
Yes	0.726	0.472	0.254
No	0.175	0.152	0.023
<i>Household assets</i>			
Yes	0.694	0.421	0.273
No	0.290	0.222	0.068

Source Primary survey

entrepreneurs with business experience of more than 5 years. However, the gap between male and female entrepreneurs is 22.4% higher in this category, while 18.5% gap is found for those whose business experience is less than 5 years. Entrepreneurs with savings bank account significantly improve access to credit, 21.3% higher for a male. The gender gap is also noticed with respect to financial literacy. Male entrepreneurs with basic financial literacy enjoy 25.4% more probability than female. Not much difference in access to credit is observed between male and female entrepreneurs without any bank account, with no financial literacy and without assets of households. The gender gap in predicted probability is large (27.3%) for entrepreneurs holding different assets.

6 Summary and Conclusion

Women-led entrepreneurship is regarded as an untapped source of economic growth and development, which has largely been neglected in Indian society. The majority of the women entrepreneurs are urban based, while entrepreneurship among women in rural areas is very limited. Lack of entrepreneurial initiatives by women is due to the combination of individual, social, and business environment. This chapter analyzed the factors underlying credit accessibility of rural households among rural microentrepreneurs. Using the data from five districts of West Bengal, the study investigated the factors affecting access to formal credit and the discrimination against women entrepreneurs in credit accessibility.

The result shows that gender of the entrepreneur has a dominant and significant impact on access to credit, indicating gender discrimination in access to credit where male respondents were more favored in accessing formal credit than females. Education of the households is another stimulating factor for enhancing institutional credit accessibility. For entrepreneurs with higher levels of education, particularly graduate and above, their chance of accessing institutional credit increases. Household income is another significant determinant, where higher income group households enjoy greater access to credit. The results from factors related to business environment observed that possessing of a bank account is the largest influence on access to credit, followed by financial literacy, other assets, and experience in doing business.

The study also estimated gender gap in access to credit. Among socioeconomic factors, the gender gap is higher among higher education and income levels. Highest gender difference in access to finance is noticed among the respondents holding different household assets, which might help them to access institutional sources of credit. The gender difference is also noticed among respondents with a bank account, financial literacy, and experience of more than 5 years in doing the business.

The results of this study are relevant for policy makers to reduce the gender gap in credit accessibility to promote women-led microentrepreneurs in the country. The gender difference in access to formal credit among microentrepreneurs demands further theoretical and empirical work to investigate the source of the discrimination.

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