Working Paper 370

The probability of taking a loan: evidence from Indian cities

Saon Ray

Smita Miglani

Sandeep Paul

February 2019

INDIAN COUNCIL FOR RESEARCH ON INTERNATIONAL ECONOMIC RELATIONS

Table of Contents

Abstract i

1. Introduction 1

2. Background 1

3. Literature survey 4

4. Methodology 7

5. Empirical exercise 9

6. Findings from regression analysis 10

7. Conclusions 12

References 13

List of Tables

Table 1: Sample characteristics 8

Table 2: Results 10

Abstract

Financial inclusion or access to financial services, is a major development goal for all nations across the globe. Financial inclusion does not concern only ‘access, but also the ‘use’ of financial services. This paper examines the loan taking behavior of individuals based on survey of 844 individuals across five cities in India. Probit regression has been used to ascertain the role of various socio-economic factors in affecting the loan taking behavior. The results indicate that the probability of taking a loan increases with the probability of owning a house and if a person is employed and has a bank account.

Key words: *Financial inclusion, household finance, financial literacy, India*

JEL classification: *D14, G20, G21, G41, O17*

Author’s email: *sray@icrier.res.in; smiglani@icrier.res.in; spaul@icrier.res.in;*

The probability of taking a loan: evidence from Indian cities[ξ]

Saon Ray, Smita Miglani and Sandeep Paul

1. Introduction

The issue of financial inclusion is an important one. Financial inclusion or access to financial services, is a major development goal for all nations across the globe. Financial inclusion can be thought of as the proportion of individuals and firms that use financial services in an economy (World Bank, 2014). The level of financial inclusion varies across the world, with the share of adults in developed countries holding an account at a formal financial institution, more than twice the share in developing countries (World Bank, 2014). The Global Findex Survey (Demirgüç-Kunt, et al., 2018) reported that in the 15+ age group, 79.9 percent of the population had accounts with financial institutions in year 2017 in India. This meant a strong growth compared to 53.1 percent reported in the previous edition of the survey in 2014, and 35.2 percent in 2011. The 2011 Census reported that 59 percent of total households in India availed banking services, with 67.8 percent and 54.4 percent in urban and rural areas respectively.

Financial inclusion does not imply only ‘access’, but also the ‘use’ of financial services. While access essentially refers to supply of services, use is determined by demand as well as supply (Demirgüç-Kunt et al., 2008). This paper examines the loan taking behavior of individuals based on survey of 844 individuals across five cities in India. Specifically it focuses on the difference between poor and middle income individuals to ascertain differences and highlights the case of the urban poor in the country.

The paper is organized as follows. Section 2 presents a discussion on the AIDIS 70th Round and the findings of the Ramadorai Committee on household finances in India. Section 3 discusses the literature on access versus use in financial inclusion and why it is important to look beyond access. Section 4 discusses the methodology of the paper. Section 5 presents the results of the empirical exercise. Section 6 concludes while summarizing the findings of the paper.

2. Background

The All India Debt and Investment Survey (AIDIS) or the National Sample Survey (NSS) 70th Round[1] was carried out during January-December 2013, and reveals interesting trends about loans and indebtedness in India. While non institutional agencies played a major role in advancing credit to rural households, in urban area the opposite was true. The results from AIDIS suggest that there is a high demand for small loans for smaller duration for non-business purposes. About 65 percent of total amount of cash debt outstanding as of end-June,

ξ The authors wish to thank Dr. Jyoti Prasad Mukhopadhyay and Dr. Saibal Paul for their comments on an earlier version of the paper.

1 Available at Ministry of Statistics and Programme Implementation (MOSPI), Government of India website, http://mospi.nic.in/sites/default/files/national_data_bank/ndb-rpts-70.htm

2012 among rural households and 52 percent of the same among urban households was contracted for a relatively shorter duration of less than two years. A meager 2 percent was disbursed for a period of 10 years or more for both the sectors. Much of the debt is incurred for non-business purposes - the percentage share of debt against 'non-business expenditure' is highest in the bottom decile class at 85 percent and about 44.5 percent in the top decile class in the rural areas while for the urban areas the corresponding figure is 99 percent in bottom decile class to 76 percent in the top decile class, indicating that the bottom deciles take loans mostly for non- productive purposes.

The Report of the Household Finance Committee (RBI, 2017)[2] discusses several aspects of financial behavior of Indian households. The report, quoting Financial Inclusion Insights Survey (2015), points out that the correlation between access and use of bank accounts in India is 0.59, which is not particularly high. The study builds on the data of AIDIS, arguing that there is clear substitution effect between real estate and gold as households become richer. Conditional on age levels and other demographic characteristics, households in the top quintile of wealth have a 50 percent higher share of real estate and a 30 percent lower share of gold in their portfolio of assets. It also notes that the holding of financial assets is not very popular even among the high income households. At the same time, it was observed that higher education is unambiguously associated with a lower share of real estate, and higher shares of both pensions and financial wealth and thus more exposure to formal financial markets. Another aspect of household behavior the reports looks at is the sources of financial vulnerability and how households manage or deal with the risk (using data from Financial Inclusion Insights Survey). It notes for the majority of the households (more than 60 percent) the major financial loss was due to the loss of crops or livestock due to bad weather, medical emergencies associated with hospitalization, and damage to properties, farm equipment or other business capital, due to a natural disaster.

An enquiry into how households cope with these losses reveals and underlines the fact that India is still predominantly an informal economy. While half of the population depends on help from family, friends and moneylenders, only a quarter are able to deal with emergency expenses using accumulated wealth. Formal financial institutions are not in the picture, which indicates that the current financial system is deficient in helping households to smooth cash flows and consumption patterns. In 1950-51, only 7.2 percent of total rural credit was from institutional sources. The share of private moneylenders has decreased from nearly 93 percent to about a third by the turn of the millennium.

The study also reports that Indian households do not plan for retirement much. As per the report, 77 percent of Indian households either do not expect to retire, or have not actively planned for retirement. Consistent with the implication of the optimal life cycle model, the arrangement is informal and aged relies heavily on their off springs for support.

2 Available at Reserve Bank of India (RBI) website, https://rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=41471

Why do Indian households deviate from optimal financial allocation and behavior? The report notes that this arises out of the presence of several frictions that impede efficient participation. This includes high transactions costs, bureaucratic impediments, trust issues, the complexity of Indian households' financial lives and the lack of a unified framework and guidelines for the provision of high quality and low cost financial advice to households. The report notes that the main reason for the continued prevalence of non-institutional debt is emergency expenses. The other important factor is the onerous bureaucratic requirements that exist or are perceived to exist in the formal banking sector. The additional flexibility inherent in informal arrangements also acts in favor of informal arrangements, often pushing the households to debt trap. One example would be the issue of credit worthiness. It would be very difficult for formal sector to correctly assess the credit worthiness when borrowers lack borrowing track records, or have irregular patterns of income. The local money lender appears to be at advantage here because of local networks, regional and cultural knowledge, ease of immediate access, timeliness of credit provision, and near zero bureaucratic transactions costs.

The study identifies that, it is trust rather than access that is the main problem for households on the assets side. Access to the relevant product, especially in case of emergencies, is the main issue on the liabilities side. Another related issue pointed out is the issue of financial literacy. The Indian households appear to lack the skills required to understand the concept of compound interest accruing on debt obligations. This could eventually lead to debt traps, as the households might be ill informed or fail to grasp how the details of their liabilities and the manner in which interest accrues on them. Though Indian households' levels of financial literacy compare favorably with those in other low income countries, there is much scope for improvement as they are much worse off when compared to developed country experiences.

The reports points out there are huge heterogeneity across Indian states. The availability of resources and the sources of debt are very different across Indian states. While households in states like Bihar have little financial assets and depend on unsecured debt from non-institutional sources, the same cannot be said about many other states. In states such as Tamil Nadu, where households store a high fraction of their wealth in gold, they also have more than 40 percent of their total debt in the form of gold loans. It suggests that policies need to go beyond provision of bank accounts and enable effective use of finance amongst Indian households. At the same time, it acknowledges the effectiveness of the Pradhan Mantri Jan Dhan Yojana (PMJDY)[3] which has created new demand for formal banking credit from households that were previously unbanked. The main approach to systematic reduction of informal credit from non-formal unregulated institutional sources such as moneylenders is to expand the banking network to reach the unbanked areas in India.

[3] The PMJDY is a National Mission on Financial Inclusion, launched by the Government of India in August 2014. The scheme was started with a target to provide 'universal access to banking facilities', starting with 'Basic Saving Bank Accounts' with an overdraft facility, a RuPay Debit card with inbuilt accident insurance cover of Rs. 1 lakh and other social security schemes. The scheme had a special focus on weaker sections and low income groups.

3. Literature survey

The literature on loan taking behavior can be divided into two main themes: one, which looks at the country level experiences in order to understand how financial inclusion can be improved.[4] This is discussed below through experiences of Nepal (Prina, 2015). The second aspect deals with the access versus use argument to look at why access may not be enough. This literature also highlights the reasons for exclusion. It suggests that even when there is access to conventional banking services, there could be a group of non-users who are excluded from the system voluntarily. For instance, this could be because of lack of financial literacy[5] or due to religious and cultural reasons. Lack of financial literacy is due to not having "familiarity with and understanding of financial market products, especially rewards and risks, in order to make informed choices" (RBI, 2008). In case of religious and cultural exclusion, the individual chose to abstain from financial infrastructure as certain faiths prohibit the use of financial instruments that pay interest.

Involuntary exclusion, which is the main issue under discussion in this paper, refers to a situation where the population lacks access despite a demand. This can happen because of both, price and non-price barriers such as risk perceptions, information asymmetry, commercial viability, high transaction costs, and lack of institutional infrastructure. The non-price barriers are important mostly with respect to financial services, such as deposit or payment services. The exclusion in this case is largely due to a lack of banking penetration or regulatory requirements. Price barriers are in the form of associated costs, fees, and minimum requirements etc. which are unaffordable to many non-users. The exclusion issue is more pertinent when it comes to credit services as credit rationing can exist even in equilibrium (Stiglitz and Weiss, 1981) Potential borrowers can be denied credit services even when there is demand on account of risk concerns arising out of adverse selection and moral hazard problems.

Account ownership alone does not guarantee usage of financial services. The focus is now on digital technologies in promoting the use of such services. Experience over the last few years has shown that when coupled with other efforts like digital infrastructure, well-developed payment systems, appropriate regulations and consumer protection safeguards, digital technology can be important tools in this direction (Demirgüç-Kunt et al., 2018). Technology has also been helpful in achieving gender parity and in reducing the gap between richer and poorer adults. In India three years ago, men were 20 percentage points more likely than women to have an account. Today, India's gender gap has shrunk to 6 percentage points.

4 The Reserve Bank of India (RBI) defines Financial Inclusion as "the *process of ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups such as weaker sections and low income groups in particular at an affordable cost in a fair and transparent manner by mainstream institutional players."*

5 Financial literacy has been considered as a definite stepping stone to reach the goal of financial inclusion. In 2015, the Standard & Poor's Ratings Services Global Financial Literacy Survey (S&P Global FinLit Survey) found that 76 percent of Indian adults did not adequately understand key financial concepts, such as risk diversification, inflation and compound interest. This was lower than the worldwide average of financial literacy. For details, see S&P (2015).

This has been due to a strong government push to increase account ownership through biometric identification cards (Demirgüç-Kunt et al., 2018).

It is particularly interesting to look at the case of developing countries. Prina (2015) examines the reasons for low penetration of bank accounts in bank-branches for female household heads in Nepal. The paper finds that zero fees and physical proximity of the bank led to high take-up and usage rates compared to other settings. The paper finds that there is reallocation of expenditures across categories (e.g. more spending on education and meat and fish, and less on health and dowries), and higher ability to cope with shocks. On qualitative outcomes, it finds that households report that their overall financial situation has improved due to the intervention (opening of bank account) which is consistent with access to quality savings accounts leading to household improvements in well-being.

In the Indian context, Fulford (2010) examines the NSS data to understand how opening of bank branches led to consumption behavior of rural households. The mean number of branches per 1000 people in rural areas in 1981 was 0.052, while it was 0.088 in 1991, an increase of 69 percent over 10 years during the height of the branch expansion period. The increase in branches per 1000 is approximately 0.0036 per year. Using the values for total consumption, an increase of 0.0036 in the number of branches per 1000 people is associated with an immediate increase of 3.3 percent in per capita household consumption relative to trend, and a long-term increase of 0.84 percent which is statistically different from zero. Increased access to bank branches in rural India increased consumption initially but fell later. The number of branches seems to do a better job of explaining changes in total consumption than consumption excluding durables. Since durables are the most likely to be bought on credit and so having banks in the area may facilitate such purchases, this result seems reasonable.

Burgess and Pande (2005) show that branch expansion into rural unbanked locations in India significantly reduced rural poverty. They use branch level data provided by RBI and construct an annual state level panel for 16 Indian states for the period 1961-2000. They observe that there was a dramatic increase in the importance of banks as a source of rural household credit - between 1961 and 1991, bank borrowing as a share of total rural household debt increased from 0.3 to 29 percent. The probability of a rural household obtaining a commercial bank loan moved sharply upwards in tandem with rural branch expansion. This left urban poverty outcomes unaffected.

Rajeev and Vani (2017) have tried to establish the importance of financial inclusion for the economy and the factors affecting it. In particular, their work presents the challenges faced by the urban poor in accessing financial services in India, which they identify to be structurally different from those of the rural poor. Using data from the National Sample Survey Office (NSSO) (All India Debt and Investment Survey) data on 59th and 70th Rounds on characteristics like the physical and financial asset holdings of individuals, liabilities, and addition of capital expenditure and assess their impact on the extent of financial exclusion. Problems in access of financial services are identified from both the demand (lack of knowledge and antipathy towards banking system) as well as the supply side (infrastructural constraints). A comparison of interest rates charged by informal markets across households of different economic strata as well as states revealed that compared to the poorer households in the states of Karnataka, Chhattisgarh and Madhya Pradesh, similarly placed households in the states of Punjab, Haryana and West Bengal got loans at lower interest rates from informal money lenders. In addition, the households headed by self-employed women have much lower access to credit than the male headed households.

Based on a series of multiple long term studies, Collins et.al (2009) throw interesting insights into the financial lives of the poor households. One of the tools employed in this book is financial diaries to learn about the households money management methods in minute detail. This is used to create household-level balance sheets and cash flow statements, to understand the behavior with regard to the money they borrowed and repaid, lent and recovered, and saved and withdrawn, along with the costs of doing so. Poor households face three challenges - low incomes; irregularity and unpredictability of income; and a lack of financial tools. Three financial decisions taken by such households on a day to day basis include:

1. *Managing basics*: cash-flow management to transform irregular income flows into a dependable resource to meet daily needs.

2. *Coping with risk*: dealing with the emergencies that can derail families with little in reserve.

3. *Raising lump sums*: seizing opportunities and paying for big ticket expenses by accumulating usefully large sums of money"

The ways and means by which the poor cope up with these objectives are diverse and complex. They have to make use of multiple instruments to achieve the needs. This may lead poor to different lenders who offer loans that vary in value term, price, repayment structure, and availability. It also warns that these institutions may not be always comparable. Annualized rates may not be the most appropriate way to compare a large, yearlong microcredit loan with a small, short-term loan from a moneylender. The authors also warn against making broad assumption about informal markets. The term 'Informal' itself could be misleading as many a times loans are interest free. Illustrating the results from three countries, Collins et al. (2009) argue that there are high incidence and frequency of interest free loans, which may complement the households' attempts to save at home. At the same time, the authors suggest that while the informal sector may serve some needs of poor households, they are not happy with the instruments available. The informal institutions suffer from major deficiencies namely unreliability (persons to whom money lent may not have the cash when it is needed), lack of privacy (since it is accessed through network of kin, community or workplace, it may lead exposure to public gaze), and lack of transparency (in some instances there is duping of households in informal deals). It points out that formal institutions can take lesson from these experiences and built it into their models of operations. In particular, the authors argue that the formal institutions need to give more attention to the cash flows of the poor households if they want to meet their financial needs. To do business with the poor it needs to weave in two features of cash-flow-friendly finance- namely bite size payments that can be extracted from normal household cash flows and flexibility in payment schedules- to the formal businesses. These characteristics are already finding their way into formal business. One example would be the ‘Kishan Credit Card’, which refashioned the seasonal crop loan scheme to a more flexible product in tune with the cash flow pattern of small and marginal farmers.

From the supply side, therefore, Banerjee and Duflo (2011) point out the cost of lending to the poor is higher due to the fact that they are likely to default. However, as they explain, the rates of default on informal loans is low. The problem that formal institutions face is that they have to collect a lot of information on people, which entail monitoring and screening costs which for small loans can be quite high. This in turn means that the agency needs to charge a higher rate of interest to cover the cost of lending.

4. Methodology

This paper uses probit regression to examine the loan taking behavior of 844 individuals across five cities of India.[6] With a view to understanding the perceptions of people towards credits and loans, particularly in the consumer finance segment in the urban areas of India, a survey was undertaken by ICRIER in March and April, 2018. The survey covered 844 respondents across five cities: Bangalore, Bhopal, Delhi, Kolkata, and Mumbai. Middle-income and lower-income group respondents (defined as monthly household income of Rs. 25000 and above and monthly household income of Rs. 25000 and below respectively) were included.

a) Data collection

Two stage sampling methodology was used to sample households. A sample size of 400 respondents was surveyed for each category i.e. low income and middle income. The sample was further equally distributed in terms of representation of poor and middle class across the five cities. A two-stage sampling methodology was used to cover the sample households in the given project locations. Eight clusters from four areas for each of the cities were chosen in which four belonged to the middle income group while the other four were for low income groups. The criterion for selecting the study location was that it should be in the catchment area of three kilometers of any commercial location (popular market area) of the city. From each of these clusters, 20 respondents were covered using random sampling technique. The sample characteristics have been summarized under Table 1.

[6] The literature in this context mostly focuses on rural outcomes. The focus of the study was urban centres and Non Banking Financial Companies (NBFCs). Details of the survey can be found in Ray et al. (2018).

Table 1: Sample characteristics

	Bangalore	Bhopal	Delhi	Kolkata	Mumbai	Total Respondents	Percentage of total
No. respondents (male)	94	108	90	132	144		67
No. of respondents (female)	94	52	73	40	17		33
Total number of respondents	188	160	163	172	161		
Average age of respondent	34	33	34	40	35		
Education							
Education level (number of respondents with high school and below)	53	87	95	103	87		50
Education level (number of respondents with senior secondary and above)	135	75	68	69	74		50
Employment							
Employment type - daily wage (percentage of persons engaged in daily wage by total number of daily wagers)	7	40		20	33	75	
Employment type - home maker (percentage of persons engaged as home maker by total number of home makers)	33	13	32	18	5	152	
Employment type - salaried (percentage of persons engaged in daily wage by total number of salaried)	38	11	16	15	20	223	
Employment type - self-employed (percentage of persons engaged in daily wage by total number of self-employed)	12	19	21	24	25	266	
Employment type - students (percentage of persons engaged in daily wage by total number of students)	20	30	24	8	18	89	
Financial inclusion							
Number of persons with bank account	184	138	153	168	111	754	
Number of persons with loans for consumer durables	132	24	29	61	8	254	
Number of persons with other loans	90	41	31	61	8	231	
Persons without any loans	54	136	134	111	153	588	
Family characteristics							
Type of family – nuclear (percentage)	92	27	44	82	56		62
Total number of family members (average)	4	5	5	5	4		5

Source: Survey

5. Empirical exercise

a) Regression analysis

In the empirical exercise, we regress the variable of loans taken in the last one year against independent variables discussed below. The dependent variable is a dummy which takes the value zero if no loan has been taken or one if loan has been taken. We perform probit regression which takes the following form:

Loan taken = f (independent variables) + error terms

b) Variables

The independent variables[7] are listed below:

1. **Family type:** The variable has been constructed in the following manner: it takes the value '0' if the individual is part of a joint family and '1' if the individual is part of a nuclear family.
2. **Employment:** This is a dummy variable: it takes the value '0' if the individual is employed (whether salaried or self employed) and '1' if the individual is unemployed (housewife or student).
3. **Own house:** A dummy variable, takes the value of '0' if accommodation is rented and '1' if the accommodation is owned.
4. **Income:** A dummy variable that takes values of '0' if it in the respondent is in low income category and 1 otherwise.[8]
5. **Bank account:** This variable has been constructed in the following way: '0' if the individual has an account and '1' is the individual does not have an account.
6. **Age:** A continuous variable, measured in number of years
7. **Education:** Constructed as '0' if a person is illiterate or with no formal education and '1' as those with education.
8. **Marital status:** Dummy variable, '0' if married and '1' if single
9. **City dummies:** Bhopal is the numeraire and since there are five cities, four dummies were given.

---

[7] We have not used gender as an independent variable since the question did not ascertain the gender of the person who took the loan. While a third of the respondents were women, the loan was taken by any member of the household. In most cases, it was the male member (s).

[8] Two measures of income were used: the first used income defined in the following way: Middle-income and lower-income group respondents (defined as monthly household income of Rs. 25000 and above and monthly household income of Rs. 25000 and below respectively). Under Table 2, Equations 1, 2, and 3 use this measure of income. Alternatively, respondents were also asked to categorize average family monthly income into four categories: less than Rs. 10,000, Rs. 10,000 to Rs. 25000, Rs. 25000 to 50000 and more than Rs. 50000. An alternative income variable was constructed on the basis of this information. The regression using this measure of income is reported in Equation 4 and 5.

6. Findings from regression analysis

Table 2 reports the results of the regression analysis. Five different models have been run, controlling for a combination of various independent variables. The variable of bank account has been controlled for in Equations 3-5, while Equations 2 and 5 include the effect of city dummies.

Table 2: Results

Variables	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5
Age	-0.005 (-0.97)	-0.006 (-1.13)	-0.006 (-1.12)	-0.002 (-0.31)	-0.006 (-1.18)
Bank account			-0.636 (-3.40) ***	-0.592 (-3.18)***	-0.217 (-1.07)
Education[9]	0.094 (0.55)	0.131 (0.73)	0.196 (1.13)	0.524 (2.01)*	0.133 (0.74)
Employment	-0.060 (- 0.52)	-0.237 (-1.94) ***	-0.151 (-1.37)	-0.122 (-1.07)	-0.241 (-2.11) ***
Family type	-0.267 (-2.68)***	0.60 (0.51)	-0.250 (-2.49) ***	-0.225 (-2.20)***	0.061 (0.53)
Income [10]	8.45e-06 (2.36) ***	8.63e-07 (0.19)	-0.103 (-1.89) **	-0.188 (-3.34)***	-0.101 (-0.17)
Marital status	0.010 (0.09)	0.104 (0.86)	0.005 (-0.04)	-0.072 (-0.61)	0.103 (0.85)
Own house	0.422 (3.89)***	0.234 (1.83)**	0.353 (3.21) ***	0.321 (2.85)***	0.102 (1.84) **
City dummies (Bangalore)		0.372 (2.32)***			0.357 (2.21) ***
City dummies (Delhi)		-0.157 (-1.00)			-0.161 (-1.03)
City dummies (Kolkata)		0.389 (2.29)***			0.357 (2.21) ***
City dummies (Mumbai)		-0.904 (-4.30)***			-0.852 -(4.02) ***
Constant	-0.826 (-2.86)***	-0.807 (-2.59)***	-0.513 (-1.75) *	-0.560 (-1.59)	-0.758 (-2.39) ***
Number of observations	844	844	844	844	844

Note: Robust standard errors reported. The parenthesis show z statistics

Level of significance reported: *10 percent, ** 5 percent; *** 1 percent

a) Discussion of results

Family type: The coefficient of this variable is negative and significant at one percent level of significance in most cases equations indicating that the probability of taking a loan is lower in a nuclear family.

---

9 This variable has been discussed in details in the results below whereby the dummy for each education category has been taken separately. Equation 4 reports one variant of this equation where the coefficients of only the significant dummy has been reported (graduate and above)

10 See footnote 8.

Employment: This coefficient of this variable is negative and significant in case of Equation 2 and 5, indicating that the probability of taking a loan is higher if a person if employed. This variable may be explaining the supply side of the story, since formal institutions look for certain characteristics of the individual while giving a loan and the chances of an employed person in getting a loan is certainly higher since to the formal institution, it indicates that she may be in a position to repay the loan. Here, the reverse causality seems improbable since taking a loan may not lead to employment.

Own house: The coefficient for this variable is significant with a positive sign in all cases. This indicates that the probability of taking a loan is higher loan for individuals or families which own a house.[11]

The dummies for the cities shown in equation 2 in Table 2 also indicate an interesting pattern: the dummies for Bangalore, Kolkata and Mumbai are positive and significant indicating that the probability of taking loans in these cities is higher than the national average in our sample after controlling for other variables. Inclusion of the city dummies renders the family type and income variable insignificant. This indicates that after controlling for city status effect, within a city, these variables do not matter.

In equations 3 to 5, we include another variable in the regression exercise; having a bank account. This variable is negative and significant indicating that having a bank account is associated with taking a loan. Since this is a correlation, it could be associated both with the effect of having a bank account on taking loans and the reverse effect of taking loans on having a bank account. The first effect that is having a bank account can represent the financial literacy of the individual and hence the individual could be ready to take a loan. The reverse effect happens because those who take a loan may be required to open a bank account. Similar results have been documented by Mukhopadhyay (2016). As argued by him, opening a bank account is the first step towards a relationship with a bank.

The inclusion of city dummies in the regression yields similar results as discussed above. However, the coefficient for bank account variable becomes insignificant with the inclusion of the city dummies. The other variables included in the regression but which do not report a significant result include age and marital status. These variables do not play any significant role in the probability of taking a loan versus not taking a loan.

In order to test whether there are significant differences between respondents who take loans from informal sources and those who do not, we carried out the following exercise as an alternate dependent variable. The dummy takes the value '0'if the loan was availed from the formal sector, and '1' if a loan was availed from informal sector and '0' otherwise. In the sample, 225 persons reported having taken a loan from formal sources, while 48 reported taking a loan from informal sources. In all, 43 persons took loans from both sources. The

[11] Deaton (1997) points out the relationship between saving and housing which combines the life cycle and accumulation motives for savings. Viewed from the point of taking a loan, a house owner could use the house as collateral.

results of this exercise reveal that those who own a house have a lower probability of taking a loan from the informal sector.

The education variable was also reconstructed in the form of five dummies ('1' if no formal education, '0' otherwise; '1 if less than class 7, '0' otherwise; '1' if high school and '0' otherwise; '1' if senior secondary and '0'otherwise; '1' if graduate and above, '0' otherwise). Compared to the group 'illiterates', the probability of taking a loan from the informal sector is lower for the group 'senior secondary', 'graduates and above' and those with 'no formal education.'[12] The age variable is also nearly significant, suggesting that younger people have a higher probability of taking a formal sector loan.[13]

7. Conclusions

Financial inclusion is an important development goal. Financial inclusion can be thought of as the proportion of individuals and firms that use financial services in an economy (World Bank, 2014). As per the Global Findex Report (2017) report, in India, the share of adults with an account has more than doubled since 2011, to 80 percent. However, account ownership alone does not guarantee usage of financial services. The mode of savings is an important indicator of financial inclusion. People save to secure their retirement, to invest in education or business, or for emergencies. In India, the share of people saving in a formal institution of age 15 and above rose from 12 percent in 2011 to 20 percent in 2017, whereas the share of people using semiformal institutions or someone outside of family for their savings increased from three percent in 2011 to nine percent in 2014, indicating a positive bent towards formal modes of savings.

Just like savings, borrowings are also important for financial well-being of an individual. Borrowings help in building capacity and accumulation of human capital by providing immediate funds for expansion of business, purchase of land or homes. This paper examines the loan taking behavior of individuals based on survey of 844 individuals across five cities in India. Probit regression has been used to ascertain the role of various socio-economic factors in affecting the loan taking behavior. The results indicate that the probability of taking a loan increases with the probability of owning a house, if a person is employed and has a bank account. We also examined if there are significant differences between respondents who take loans from informal sources and those who do not. The results of this exercise reveal that those who own a house have a lower probability of taking a loan from the informal sector.

---

[12] Mukhopadhyay (2016) finds that an individual with a graduate degree is more likely to borrow from formal sources.

[13] Ray et al. (2019) find that age is the only factor that is significant in explaining over indebtedness for a sample of households having accessed from microfinance. The sample included both the rural and urban areas. Mukhopadhyay (2016) reports a non-linear relationship between the likelihood of borrowing and age.

References

Banerjee, A. and Duflo, E. (2011) *Poor Economics*, Random House India.

Collins, D., Morduch, J., Rutherford, S., and Ruthven, O. (2010). *Portfolios of the poor: how the world's poor live on $2 a day*. Princeton University Press.

Deaton, A. (1997) The Analysis of Household Surveys: A Microeconometric Approach to Development Policy (English). Washington, D.C.: The World Bank. http://documents.worldbank.org/curated/en/593871468777303124/The-Analysis-of-Household-Surveys-A-Microeconometric-Approach-to-Development-Policy

Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., and Hess, J. (2018). *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution.* Washington, DC: World Bank. doi:10.1596/978-1-4648-1259-0. License: Creative Commons Attribution CC BY 3.0 IGO.

Fulford, S. (2010) The Effects of financial development in the short and long run, Boston College Working Papers in Economics 741, Boston College Department of Economics.

Mukhopadhyay, J. P. (2016) Financial Inclusion in India A Demand-side Approach, *Economic and Political Weekly*, December 3, 2016 vol. LI no. 49.

NSSO, National Sample Survey Office (2014). Key Indicators of Debt and Investment in India, NSS 70th Round, 2013. National Sample Survey Office, Ministry of Statistics & Programme Implementation, Government of India, New Delhi.

Prina, S. (2015). Banking the Poor via Savings Accounts: Evidence from a Field Experiment, *Journal of Development Economics*, 115, 16-31.

Rajeev, M., and Vani, B. P. (2017). *Financial Access of the Urban Poor in India: A Story of Exclusion.* Springer.

Ray, S., Miglani, S., and Paul, S. (2018) The growing importance of consumer finance for financial inclusion in India, ICRIER Working Paper 367, December.

Ray, S., Mahapatra, S. K., and Nath, S. (2019) Over-indebtedness and Its Drivers among Microfinance Borrowers in India, *Economic and Political Weekly,* February 16, Vol. LIV, No. 7.

RBI (2008), Draft Report on 'Financial Literacy and Credit Counselling Centres'. Apr 03, 2008. Available at https://m.rbi.org.in/scripts/PublicationDraftReports.aspx?ID=526 (last accessed on September 22, 2017).

RBI (2014), Non-Banking Finance Companies: Game Changers, Speech by Mr. P Vijaya Bhaskar, Executive Director, Reserve Bank of India at ASSOCHAM in Delhi on

January 23, 2014. Available at https://www.rbi.org.in/scripts/FS_Speeches.aspx?Id=870&fn=14 (last accessed on September 12, 2017).

RBI (2017), Indian Household Finance, Report of the Household Finance Committee. July. Available at https://rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=41471

Stiglitz, J. E., and Weiss, A. (1981). Credit rationing in markets with imperfect information. *The American Economic Review*, 71(3), 393-410.

World Bank. (2014) Global Financial Development Report 2014: Financial Inclusion. Washington, DC.

LATEST ICRIER'S WORKING PAPERS

NO.	TITLE	AUTHOR	YEAR
369	EXPLAINING THE CONTRACTUALISATION OF INDIA'S WORKFORCE	RADHICKA KAPOOR P. P. KRISHNAPRIYA	JANUARY 2019
368	THE ANOMALY OF WOMEN'S WORK AND EDUCATION IN INDIA	SURBHI GHAI	DECEMBER 2018
367	THE GROWING IMPORTANCE OF CONSUMER FINANCE FOR FINANCIAL INCLUSION IN INDIA	SAON RAY SMITA MIGLANI SANDEEP PAUL	DECEMBER 2018
366	INNOVATION, EFFICIENCY AND INCLUSION: INTEGRATION OF DIGITAL TECHNOLOGIES IN THE INDIAN MICROFINANCE SECTOR	SAON RAY SANDEEP PAUL SMITA MIGLANI	OCTOBER 2018
365	TRADE, TRADE AGREEMENTS AND SUBSIDIES: THE CASE OF THE INDIAN APPAREL INDUSTRY	ARPITA MUKHERJEE ANUSREE PAUL ANGANA PARASHAR SARMA SOHAM SINHA	OCTOBER 2018
364	SKILL MISMATCH AND RETURNS TO EDUCATION IN MANUFACTURING: A CASE OF INDIA'S TEXTILE AND CLOTHING INDUSTRY	PRATEEK KUKREJA	SEPTEMBER 2018
363	EMERGING TRENDS IN INDIA-PAKISTAN TRADE	NISHA TANEJA SAMRIDHI BIMAL VARSHA SIVARAM	AUGUST 2018
362	HIGH-SKILLED LABOUR MOBILITY IN AN ERA OF PROTECTIONISM: FOREIGN STARTUPS AND INDIA	ARPITA MUKHERJEE AVANTIKA KAPOOR ANGANA PARASHAR SARMA	JULY 2018
361	LAND USE AND LAND ACQUISITION LAWS IN INDIA	ANWARUL HODA	JULY 2018
360	UPGRADING IN THE INDIAN AUTOMOBILE SECTOR: THE ROLE OF LEAD FIRMS	SAON RAY SMITA MIGLANI	JUNE 2018
359	THE ROLE OF WATERWAYS IN PROMOTING URBAN RESILIENCE: THE CASE OF KOCHI CITY	ZEBA AZIZ INDRO RAY SANDEEP PAUL	MAY 2018
358	TOWARDS SUSTAINABLE, PRODUCTIVE AND PROFITABLE AGRICULTURE: CASE OF RICE AND SUGARCANE	ASHOK GULATI GAYATHRI MOHAN	APRIL 2018

About ICRIER

ICRIER, one of India's leading think tanks, was established in August 1981 as a not-for-profit research organisation to provide a strong economic basis for policy making. Under the current Chairperson, Dr. Isher Judge Ahluwalia, ICRIER has continued and reinforced the pursuit of its original vision and in the process significantly expanded the scope of its research activities.

ICRIER is ably supported by a Board of Governors, which includes leading policy makers, academicians, opinion makers and well-known representatives of the corporate world.

ICRIER's success lies in the quality of its human capital. Led by Dr. Rajat Kathuria, Director & Chief Executive, ICRIER's research team consists of highly qualified professors, senior fellows, fellows, research associates and assistants and consultants.

ICRIER conducts thematic research in the following eight thrust areas:

1. Macroeconomic Management, Financial Liberalisation and Regulation
2. Global Competitiveness of the Indian Economy – Agriculture, Manufacturing and Services
3. Challenges and Opportunities of Urbanisation
4. Climate Change and Sustainable Development
5. Physical and Social Infrastructure including Telecom, Transport, Energy and Health
6. Skill Development, Entrepreneurship and Jobs
7. Asian Economic Integration with focus on South Asia
8. Multilateral Trade Negotiations and FTAs

International conferences, seminars, public policy workshops, public lectures and publications form an integral part of ICRIER's outreach activities. ICRIER maintains a wide network of resource persons from India and abroad. It strives to attract well-qualified researchers, provides them a stimulating and scholarly work environment and encourages researchers to work in teams. ICRIER's research is widely cited by both academia and the popular press, and has over the years provided critical inputs for policy making.

ICRIER