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HOW LIVELIHOOD DIVERSIFICATION AND INSTITUTIONAL CREDIT HELP TO IMPROVE HOUSEHOLD WELL-BEING IN INDIA?

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ABSTRACT

Using nationally representative data from the India Human Development Survey (IHDS) collected in 2011-12, this study examined the impact of livelihood diversification and accessibility to institutional credit on the monthly per capita consumption expenditure (MPCE) of households. The data provided information about 42,152 households, and our study focused on only the households that had taken a loan from any source, thus reducing the sample size to 22,630 households. The estimate suggested that, if a household had taken a loan from a formal source, then it was likely to have a higher MPCE by approximately 24.68 percent on average. We also found that households whose main source of income belonged to the secondary sector had a negative and insignificant coefficient while the coefficient of the tertiary sector suggested that they had about a 29 percent higher MPCE compared to those households who belonged to the primary sector. The results also suggested that Hindus had a higher consumption compared to Muslims. However, Christians and Sikhs had about 36 percent and 23 percent higher consumption, respectively, than Hindus. The study also found that households belong to lower social groups (OBC, SC, and ST) had lower consumption compared to households that belonged to the general category of the caste system.

Contribution/ Originality: This study contributes to the existing literature on livelihood diversification, institutional credit, and household well-being in India. The findings provide insights into how accessibility to formal credit sources plays a vital role in increasingly engaging households in diversifying their livelihood in non-farm businesses. This has significant policy implications for livelihood diversification and household wellbeing.

1. INTRODUCTION

In developing countries, including India, accessibility to credit plays a vital role in the lives of rural households in several ways. In circumstances where household income undergoes large seasonal fluctuations in rural areas as majority of them are directly or indirectly engaged in agriculture, accessibility to credit sources helps them in smoothing consumption and production activities (Ghosh *et al.*, 2000). However, credit markets of developing nations in rural areas do not act entirely like competitive markets.

The formal and informal financial institution seems two sides of the same coin in rural India. Although informal sources of credit charge a higher rate of interest, on account of the absence of accessibility to structured

credit sources in the rural regions, most of the households prefer to borrow from informal sources (Townsend and Ueda, 2006). The formal source of credit includes commercial banks, regional rural banks, co-operative banks, and insurance, etc while the informal source of credit refers to moneylenders, relatives, friends, and landlords, etc.

By considering a lower rate of interest, the government forces its credit agencies to enlarge their credit facilities with particular emphasis on supplying the rural areas. However, an individual cannot deny that both casual and formal industry still form an essential facet of the lending situation in rural households (Banerjee and Duflo, 2007). Madestam (2014) developed a version where they mimic how informal finance complements the banks by allowing for bigger formal loans to poor borrowers.

The financing methodologies of formal and informal sources differ significantly. The quantity of loans provided, the rates of interest charged, the depreciation of these loans, repayment programs, etc. are distinct. Bhattacharjee (2014) argued whether borrowing from formal source or informal source, that the repayment of loans would be contingent upon the purpose of the loan, and also how efficiently the loan amount had been utilized. In spite of the access to formal credit sources, informal sources continue to be enormously common among rural households due to the easier and adequate access to informal sources (Pal, 2002).

To make informal credit more viable, informal lenders use third-party enforcement or standing mechanism as an informal retrieval technique. This is also the underlying principle for the development of microcredit in rural India. Formal and informal loans have terms and conditions. Therefore, each household determines the related punishment based on the source of credit. The purpose of forcing formal credit institution authorities to prepare rural banks is to provide easier credit access to the household, which helps to fight the high rates charged by informal sources.

As discussed, there are several formal and informal credit sources that an Indian household can approach. However, if unable to repay their borrowed amount, the government has waived loans taken for agricultural purposes from formal sources only, especially nationalized rural banks.

Many questions have been raised over the effectiveness of government interventions in the credit systems. Expanding access to formal credit at lower interest rates has also been justified as protecting poor rural households from steep informal interest rates. However, the non-repayment situation could be raised due to the easier availability of credit and the unproductive spending of credit amount. Hence, source and purpose both are very important for the smooth functioning of the credit market.

In this light, this paper tries to provide empirical evidence for the impacts of livelihood diversification and institutional credit on consumption levels. The study contributes to the literature in following ways: first, it assessed the impact of both formal and informal credit accessibility on the consumption patterns of the household; second, it also investigated the role of credit sources in starting a new business venture and how accessibility to better credit sources plays an essential role in diversifying the household livelihood; and, third, the study also tested the variation in consumption patterns with the purpose of the loan taken.

For the purpose of the loans, the study has used 2011-12 nationally representative household survey data for India, from the Indian Human Development Survey (IHDS). The results showed that the households that borrowed from formal sources had a higher monthly per capita consumption expenditure.

The rest of the paper is organized as follows: Section 2 discusses the related literature in the field, section 3 mentions the data sources followed by estimation strategy in section 4; section 5 states the descriptive statistics of the dataset used and section 6 discusses the regression results. Section 7 concludes the paper.

2. REVIEW OF LITERATURE

The findings in the existing literature are mixed. Most of the studies have found a positive impact of credit accessibility on the household's welfare indicators. Dobridge (2018) has found a positive impact of high-cost credit on consumption smoothening of the households during financial distress. Zaki (2016) tried to assess the impact of

payday loans on the timing, levels, and compositions of consumption using difference-in-difference technique. He found that payday loan access enables consumers to better smooth their consumption between paychecks, with no detectable effect on the level of food consumption. Morgan *et al.* (2012) found that individuals bounce fewer checks as a result of access to credit. Morse (2011) found that loans have a mitigating impact on income shocks occurring as a result of natural disasters. Using long panel data from Sri Lanka, Shoji *et al.* (2012) concluded that households facing credit constraints reduce their investment in social capital, which leads to further decline in trust among villagers and business partners. They suggested potential poverty due to prevailing credit constraints. Along the same lines, Ma and Yang (2011) also concluded for China that private lending promotes local economic development by providing entrepreneurial possibilities as an alternative income source to farmers and increase their non-agricultural income. Studies concerning Bangladesh (Khandker, 1998; Pitt and Khandker, 1998) and India (Binswanger and Khandker, 1995) indicated increased agricultural productivity and higher income due to better rural finance.

On the other hand, other studies have found adverse effects of credit accessibility. For example, Campbell *et al.* (2012) concluded that access to formal loans leads to forced debit and checking account closure due to excessive overdrafts. Similarly, Skiba and Tobacman (2009) found that accessibility to loans leads to increased bankruptcy and Melzer (2011) found credit accessibility to be a leading factor in the postponing of medical bill payments within the households. The problem of dependency on credits was also indicated by Lee and Sawada (2010). They said that having access to informal credit markets reduced the precautionary savings of the households. A study by Jia *et al.* (2013) differentiated between the impact of formal and informal loans and suggested that it is microfinance and not formal or informal loans that increase farmers' income by increasing their off-farm working time.

Given this mixed evidence from the previous literature, there is a need for further investigation in the area, especially in a developing country like India where the informal credit market is more prominent than formal credit markets. The study tried to fill this gap by examining the behavior of Indian rural households in a broader framework.

3. DATA SOURCE

The study used nationally representative data from the India Human Development Survey-2 (IHDS-2). IHDS is a collaborative research project of the National Council of Applied Economic Research (NCEAR), New Delhi, and the University of Maryland, USA. IHDS -2 is the second round of interviews covering 42,152 households in 1504 villages and 970 urban neighborhoods across India. The survey was conducted across all the states and union territories except the Andaman & Nicobar Islands and Lakshadweep. The detailed IHDS-2 methodology has been explained by Desai (2010).

We used detailed information on the accessibility to credit, sources of credit, purposes of the credit, consumption expenditure and investment, etc. for 42,152 households. Out of the total sample of households, our study focused on only those households that had taken out a loan from any source, thus reducing the sample size to 22,630 households. To understand the accessibility to credit to start a new business venture, it was important to look into the households that had at least one member that had started a non-farm business venture outside of their primary source of income.

4. EMPIRICAL STRATEGY

In the first stage, we explored the differences in key variables across the households taking out loans from formal or informal sources using descriptive statistics. In the second stage, to test empirically the impact of net income received from livelihood diversification and credit sources on consumption levels of the household, we used the multiple linear regression model. It was specified as follows:

$$lnY_i = \alpha_1 + \beta_1 C_i + \beta_2 \ln BI_i + \phi_1' X_i + u_i \quad (1)$$

In the above equation (1), lnY_i is the log of monthly consumption expenditure per capita (MPCE) of the i^{th} household C_i is a dummy variable for credit source, taking value '1' if the household has taken loan from formal sources, '0' otherwise. $\ln BI_i$ is the log of net income from non-farm business, X_i is the vector (with ϕ_1 as coefficient vector) of other household variables impacting consumption levels such as education level, religion, caste, income, household size, number of males, number of females, etc.

5. DESCRIPTIVE STATISTICS

To increase the access to credit from formal sources for poor and rural households, the Indian government aggressively promoted social banking program and various other schemes. However, Table 1 shows that wealthier households borrow from formal sources. The average income of a household borrowing from a formal source was more than twice the average income of a household borrowing from an informal source. Similarly, the average monthly per capita consumption expenditure (MPCE) and non-farm business (NFB) related outcomes were higher for households borrowing from formal sources. This raises a question as to whether this higher MPCE and more than doubled higher total expenses in NFB were an income effect or if households that borrowed from formal sources behaved differently in their consumption and investment patterns due to their source of credit.

Table-1. Descriptive statistics of key variables across different categories of credit sources.

Variables	Informal		Formal		Total	
	Amount	No. of obs.	Amount	No. of obs.	Amount	No. of obs.
Total consumption exp.	98216	14572	147500	8004	113876	22576
MPCE	1870	14572	2781	8004	2160	22576
Total income	80799	14380	167140	7860	108152	22240
Income per capita	17844	14575	36545	8008	23787	22583
Loan largest amount	44998	14568	145504	7993	76913	22561
Gross receipts of NFB	147478	2678	325185	1868	213124	4546
Total expenses in NFB	91709	2743	223407	1899	140018	4642
Net income from NFB	58181	2880	111963	1980	77985	4860

Notes: MPCE = monthly per capita consumption expenditure; NFB = Non-Farm Business.

Table 2 shows that about 68 percent of the households still borrowed from informal sources like moneylenders, relatives, and friends, etc. while about 32 percent of households borrowed from formal sources like banks, Kisan Credit Card, and other formal financial agencies. Analyzing the incidence of formal and informal sources of credit, we saw that about 77 percent of Muslim households had borrowed a loan from informal sources followed by Hindu households with about 68 percent. Dissecting households by castes, we noticed that the majority of borrowers from informal sources belonged to lower caste categories such as scheduled castes (SC) with 79 percent and scheduled tribes (ST) with 73 percent as opposed to the category (general) with about 57 percent.

Education plays an important role in accessing credit from formal sources, and Table 2 shows that more education leads to better access to formal credit sources and that less educated household heads hesitated to approach formal sources due to the complicated process and paperwork.

Table-2. Socioeconomics distribution of households across credit sources.

	Informal (%)	Formal (%)	(No. of observation)
Religion			
Hindu	67.81	32.19	19285
Muslim	76.95	23.05	2441
Christian	49	51	414
Sikhs	53.61	46.39	231
Others	58.23	41.77	210
Caste			
General	57.47	42.53	5025
Other backward castes	67.69	32.31	10396
Scheduled castes	79.03	20.97	5470
Scheduled tribes	72.83	27.17	1273
Others	55.69	44.31	397
Education			
Illiterate	73.64	26.36	14,533
1 to 8	59.39	40.61	6,055
9 to 12	57.97	42.03	1,562
Graduation & above	46.93	53.07	432
Income Source			
Primary	62.97	37.03	9,361
Secondary	78.27	21.73	8,549
Tertiary	58.79	41.21	3,384
Others	64.52	35.48	1,285

Notes: primary = cultivation, livestock and other agricultural allied activities; secondary = organized business, and petty shop, etc.; tertiary = salaried, and other professions.

Table 3 summarised the behavioral patterns of households who had taken out loans for different purposes from informal sources as opposed to those who had taken out loans from formal sources. Amongst the 22,566 households who had taken out loans from any source, households who had borrowed for the purpose of cultivation and agricultural equipment constituted the second-largest purpose for taking out loans from formal sources (64.11 percent) as opposed to buying and/or renovation of a house (38.05 percent), educational loans (36.91 percent), and marriage (19.74 percent). To purchase a vehicle, household approached formal sources (67 percent), as usually the showroom owners would join up with financial service agencies to provide loans. To start a new business venture and to expand an existing business, about 42 percent of households had taken out loans from formal sources, in contrast to 58 percent from informal sources.

Table-3. Access to nonfarm business, credit, and its purpose.

Variables	Percent	No. of observation	
Any nonfarm business	21.01	8851	
Access to credit from formal sources (1/0)	63.09	2902	
Access to credit from informal sources (1/0)	36.91	1698	
Loan purpose	Informal (%)	Formal (%)	(No. of observation)
Buy/Improve a house	61.95	38.05	3,621
Marriage expenses	80.26	19.74	3,997
Agriculture/Agri. eq	35.89	64.11	3,697
Business	57.74	42.26	1,632
Household consumption	81.42	18.58	3,060
Vehicle	33	67	537
Educational	63.09	36.91	1,146
Medical expense	91.27	8.73	3,884
Others	74.6	25.4	991
Total	68.23	31.77	22,566

However, when we restricted the sample to just those households who had borrowed to start a new business, the share of formal credit was higher at 63 percent. This indicated that households who had borrowed to start a

new business were very likely to be more educated, aware, and comparatively well-off households. Hence, the probability of repaying their loans on time would be higher since they were involved in productive expenditure.

To investigate these possibilities, we first empirically explored whether borrowing from formal sources as opposed to informal sources had an impact on the consumption expenditure and investment patters of a household.

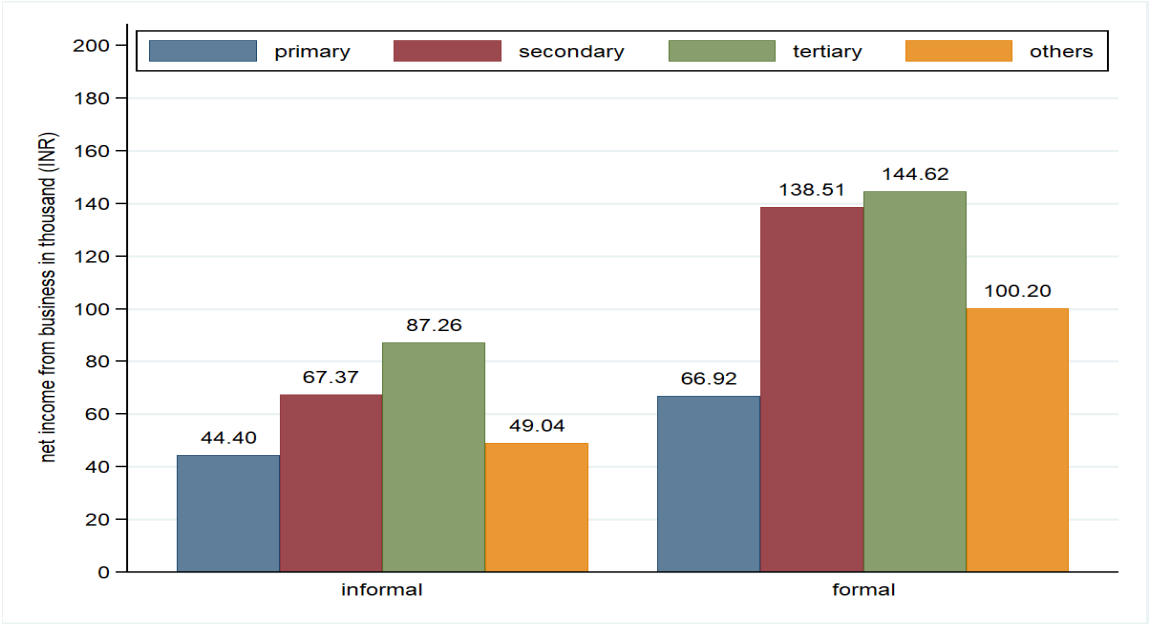

Figure-1. Sources of income and income received from the business.

Figure 1 shows the net income received from different sources. We had categorized the income sources into four categories and have explained it in the above paragraphs. Those working in the tertiary sector received a higher income, followed by the secondary and primary sectors. We also looked at the net income received for those who had taken out credit from formal and informal sources. This indicated that those who had received credit from formal sources, in all the income categories, had received a much higher income than those who had access to informal credit sources.

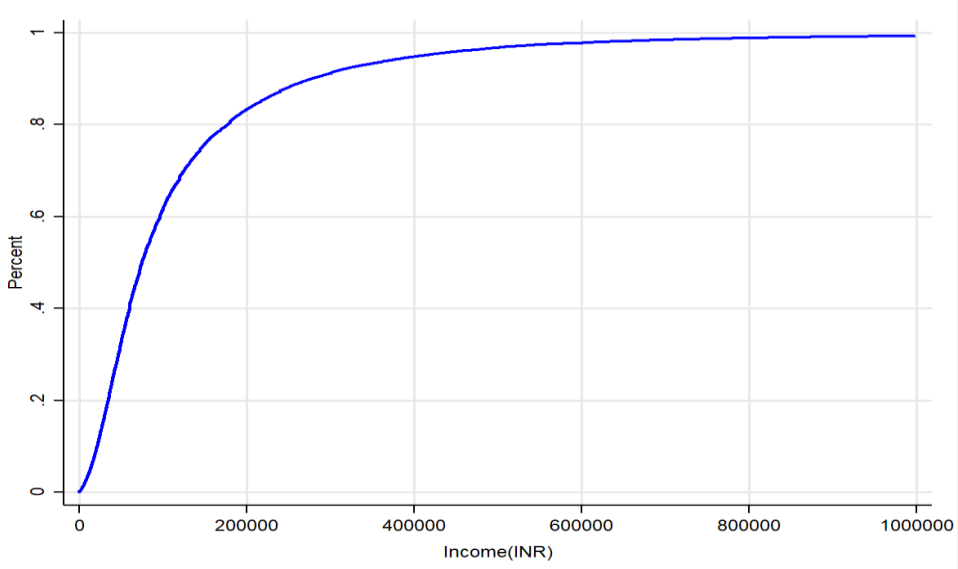

Figure-2. Cumulative distribution of income at the household level.

Figure 2 shows the cumulative density function of the annual income of households. It revealed significant disparities in income distribution among households. An overwhelming majority of the household stayed at the

bottom of the income distribution, with about 80% of them earning annual income less than rupees 200000. For another 15% of the farmers, it was in the range of rupees 200000 to 400000 annually; and only 5% of the farmers had a per capita income exceeding rupees 400000 annually. The majority of households had less income and, therefore, less per capita income and less monthly consumption per capita (MPCE). However, we conjectured that those who got access to credit would have a greater MPCE.

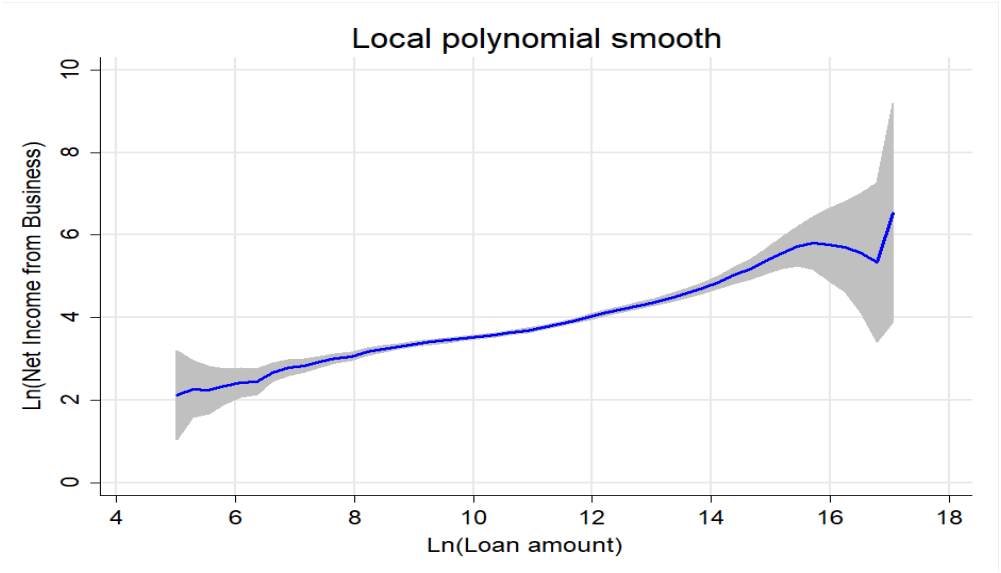

Figure-3. Relationship between the loan amount and net income from business.

Figure 3 shows the relationship between the loan amount and income from the business. The horizontal axis has the log of largest loan amount, and the vertical axis is the log value of net income received from business. The expectedly higher loan amount is a monotonic function of the net income from the business. There is indeed a positive relationship between these two variables of interest. The higher the loan amount, the higher the net income, or else it could be the higher the new return from the business for households who had a larger loan amount. This had the reverse causality from both sides. However, we concluded that these two had positive associations with each other.

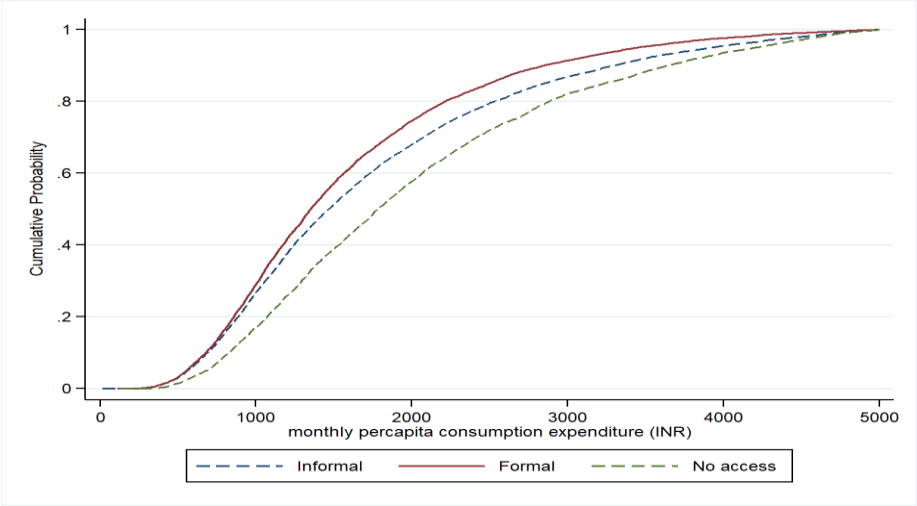

Figure-4. Distribution of MPCE across the different sources of credit.

Figure 4 shows the cumulative probability or distribution of monthly per capita consumption expenditure (MPCE) across two categories of credit source. The Kernel density for those who had access to credit from formal

sources had the highest MPCE, while those who had taken out loans from informal sources were lower than other groups.

We also had plotted the MPCE distribution for those who had no access to credit. Households who had taken out a loan from formal sources had a greater MPCE. Around 20 percent of the households had less than INR 1000 monthly per capita consumption expenditure, and approximately 40 percent had less than INR 2000 while 15 percent had less than INR 3000, and the top 20 percent had more MPCE, which was higher than INR 3000. The distribution has revealed significant disparities in the MPCE distribution among households. An overwhelming majority of the households stayed at the bottom of MPCE distribution.

6. REGRESSION RESULTS

We examined whether households with similar characteristics, consumed differently if they borrowed from different credit sources. Consumption was measured as the monthly per capita consumption expenditure (MPCE) for a household. It was calculated as a sum of total spending on food, non-food, and household assets every month. Column [1] in Table 4 reports the baseline estimates after controlling only for access to formal credit and net income from the non-farm business.

To standardize continuous control variables, we transposed them in logarithm form, which helped us to minimize their variation as well. Since wealthier households were more likely to have better access to formal financial institutions, at the same time, they were expected to have a higher consumption expenditure. Hence, we controlled for net income from the non-farm business even in the very sparse specification. The estimated results suggested that, for a similar level of net income from a non-farm business, if a household had borrowed credit from a formal source as opposed to an informal source then it was likely to have a higher MPCE by approximately 24.68 percent on average.

Column [2] controlled for the main source of income and findings suggested that households whose main source of income belonged to the secondary category had a negative and insignificant coefficient while the coefficient of those working in the tertiary sector suggested that they had about a 29 percent higher MPCE compared to households who belonged to the primary sector.

Column [3] additionally controlled for household size, total income, number of adult members in the household, religion, caste, and education of the household head. Previous studies suggested that households from different socioeconomic backgrounds tended to focus more on consumer goods as a signaling mechanism (Khamis *et al.*, 2012). The estimation indicated that there was a significant difference in the consumption expenditure of households depending on the source of their borrowing even after controlling for the additional variables. Compared to column [1], the coefficient was almost halved, and households borrowing from formal sources still had a higher level of consumption compared to households borrowing from informal sources. However, the difference was now approximately 12 percent.

Other control variables also had sound and significant effects. The results also suggested that Hindus had a higher consumption as compared to Muslims. However, Christians and Sikhs had about 36 percent and 23 percent higher consumption, respectively, than Hindus. OBC, SC, and ST had lower consumption compared to the households that belonged to the general category of caste.

Column [4] estimated the same specification as column [3], but we restricted the sample to only those households who had borrowed for business purposes only. These households had borrowed from either a formal source or an informal source, especially for investment in the business. The findings were similar, as households who had borrowed for investment in business purposes from formal sources as opposed to an informal source spent about 9.47 percent more per person in the household on consumption every month. Overall, we found a significant difference in the consumption behavior of households depending on the source from which they borrowed their loans.

Table-4. Regression analysis: Dependent variable = Ln (MPCE).

Explanatory variables	(1)	(2)	(3)	(4)
Access to credit from formal source (1/0)	0.2468***	0.2370***	0.1181***	0.0947***
	(0.0189)	(0.0190)	(0.0169)	(0.0294)
Ln (Net income from business)	0.1654***	0.1669***	0.0451***	0.0457**
	(0.0078)	(0.0079)	(0.0093)	(0.0204)
Secondary (1/0)		-0.0003	0.0192	0.0034
		(0.0233)	(0.0208)	(0.0487)
Tertiary (1/0)		0.2888***	0.1165***	0.0398
		(0.0359)	(0.0314)	(0.0716)
Others (1/0)		0.1859***	0.0598	-0.0360
		(0.0518)	(0.0445)	(0.0908)
Household size (In numbers)			-0.1357***	-0.1414***
			(0.0049)	(0.0092)
ln (Income)			0.2333***	0.2688***
			(0.0118)	(0.0241)
Adult male (In numbers)			0.0849***	0.1008***
			(0.0111)	(0.0211)
Adult female (In numbers)			0.0605***	0.0414*
			(0.0127)	(0.0231)
Muslim (1/0)			-0.0120	0.0212
			(0.0225)	(0.0391)
Christian (1/0)			0.3558***	0.2884***
			(0.0605)	(0.0963)
Sikhs (1/0)			0.2324***	0.1404
			(0.0549)	(0.1029)
Others (1/0)			0.0335	0.1069
			(0.0829)	(0.1325)
Other backward caste (1/0)			-0.0813***	-0.0513
			(0.0187)	(0.0326)
Scheduled caste (1/0)			-0.1882***	-0.2161***
			(0.0262)	(0.0479)
Scheduled tribe (1/0)			-0.3120***	-0.2376***
			(0.0412)	(0.0738)
Others (1/0)			0.1002	0.1293
			(0.0610)	(0.1024)
Class 1 to 8 (1/0)			-0.0227	-0.0336
			(0.0174)	(0.0313)
Class 9 to 12 (1/0)			0.1402***	0.1102**
			(0.0294)	(0.0490)
Graduation and above (1/0)			0.3149***	0.3668***
			(0.0543)	(0.0964)
Constant	6.8531***	6.8186***	5.2134***	4.8028***
	(0.0299)	(0.0320)	(0.1156)	(0.2277)
No. of observation	4848	4848	4823	1398
Adj-R2	0.1327	0.1488	0.3781	0.3990
F statistics	371.7988	170.4661	147.5683	47.3693

Notes: Asterisks denote significance: * p < :10, ** p < :05, *** p < :01. Standard errors are in brackets.
Omitted categories: main source of income = primary; religion = Hindu; caste = general; education = illiterate.

7. DISCUSSION AND CONCLUSION

This study examined the dynamics of credit sources and how accessibility to formal and informal sources affects consumption expenditure in India. We used nationally representative data from the India Human Development Survey (IHDS) collected in 2011-12. We explored the role of livelihood diversification and institutional credit sources as opposed to informal credit sources to start a new business venture and smoothing consumption expenditure.

Empirical results suggested that households that borrowed from formal sources had a higher monthly per capita consumption expenditure, which showed that these were the relatively better-off households who were able to get credit from the formal sources.

Net income from a non-farm business, the main source of income, household size, total income, number of adult members in the household, religion, caste, and educational status of household head were used as control variables. Since households starting new businesses were less likely to borrow from formal credit sources, urgent policy intervention is required in this direction.

Variances in social groups were identified in the analysis and show the urgent need for policy intervention measures to emancipate the lower castes where demand for and access to formal credit was the lowest. There should be greater regulations and awareness programs to protect and promote lower caste households from unwittingly trapping themselves in high-cost loans that lead to foreclosure, bankruptcy, or other financial problems. Hence, a strong policy is urgently required for the formal access of credit to the SC and ST households. As an enabling strategy and confidence-boosting measure, the government needs to enact laws to protect the rural credit applicants/recipients and streamline credit demand and credit taking relationships.

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