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AN ANALYSIS OF AGRICULTURAL CREDIT AND DEBT IN INDIA COMPARISON BETWEEN TAMIL NADU AND UTTAR PRADESH

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ABSTRACT

This article analyses the state of agricultural credit and debt in India. The study aims to (a) identify and compare the characteristics of households in Palanpur and Irruvelpattu that borrow credit, (b) determine and contrast the social groups that borrow credit between Palanpur and Irruvelpattu, and (c) identify and compare the farm size credit borrowed by households between Palanpur and Irruvelpattu. The research concludes that the Murao caste (OBC) borrows the most, with Palanpur and Scheduled Castes (Parriyar) receiving more credit from Irruvelpattu. Both villages have a higher percentage of indebted farming households than total agricultural households as land size decreases. The study also highlights that a significant number of marginal farming households in both regions primarily rely on informal credit sources, particularly for consumption purposes. This underscores the importance of understanding credit markets' dynamics in different agricultural contexts to effectively address the financial needs of rural communities.

KEYWORDS: Formal, Informal, sources of credit and size of farming.

INTRODUCTION

With almost half of the workforce employed and a substantial contribution to the nation's GDP, agriculture is the backbone of the Indian economy. Despite this, the sector faces many obstacles, such as irregular rainfall, volatile commodity prices, and limited access to modern farming techniques. One of the most important factors affecting agricultural sustainability and growth is the availability and management of agricultural credit, which enables farmers to invest in high-quality inputs, cutting-edge farming practices, and modern equipment, ultimately increasing productivity and income. However, an overreliance on debt, especially informal debt, can cause serious financial difficulties, including the problem of farmer indebtedness and agrarian distress.

The agricultural sector is a critical component of the Indian economy, and its growth has increased the need for credit in various aspects, especially in purchasing inputs for cultivation. To address this need, the government of India has initiated several programs to benefit the rural poor and provide timely credit facilities for purchasing inputs like fertilizer, seeds, and other necessities through microfinance and credit provided by banks such as the Punjab National Bank, Bank of Baroda, SHGs, and other sources. However, despite these programs, a considerable proportion of rural households still rely on informal credit sources. These informal credit markets are characterized by varying features in different regions, such as interest rates, availability, and collateral security. Borrowers who access credit from informal sources like moneylenders, landlords, traders, and employers are often exploited by high-interest rates. Friends and relatives are also common informal credit sources, but the role and nature of informal credit in rural agrarian markets are crucial. In light of this, there is an urgent need to improve access to formal credit facilities. As agricultural development continues, the demand for credit is expected to increase further, making it necessary to address the challenges of accessing formal credit facilities. Therefore, policymakers must work towards promoting formal credit facilities to reduce exploitation and improve the livelihoods of rural communities.

In this context, Tamil Nadu and Uttar Pradesh serve as compelling case studies due to their contrasting agricultural landscapes, socio-economic conditions, and credit structures. Tamil Nadu, a southern state with a diversified cropping pattern and significant irrigation infrastructure, showcases a well-developed cooperative credit network. In contrast, Uttar Pradesh, located in northern India, is characterized by a larger agrarian population with diverse landholding patterns and a significant dependency on informal credit sources.

By analysing variables such as loan sources, credit accessibility, debt levels, and the socioeconomic effects on farmers, this comparative study seeks to understand the subtleties of agricultural credit and debt in both states. This study aims to shed light on these variations in order to offer possible policy recommendations for sustainable agricultural growth and financial inclusion, as well as insights into the larger opportunities and problems within India's agricultural loan system.

Agriculture remains a critical pillar of India's economy, providing livelihood to nearly 58 per cent of the country's population and contributing around 17-18 per cent to the national GDP. Despite its importance, the sector is highly vulnerable to various risks, including unpredictable weather patterns, fluctuating market prices, and limited access to modern agricultural practices. To address these challenges, agricultural credit plays a pivotal role in enabling farmers to invest in seeds, fertilizers, irrigation, machinery, and other essential inputs. However, the issue of debt often accompanies credit, with rising concerns about the burden of loans, especially among small and marginal farmers. Mismanagement of agricultural credit, high dependence on informal lenders, and increasing indebtedness have contributed to several instances of agrarian distress, even leading to farmer suicides in extreme cases.

In the Indian context, agricultural credit is primarily provided through formal institutions such as commercial banks, cooperative banks, and regional rural banks, supplemented by informal sources like moneylenders and local traders. The distribution of credit, however, is uneven across states, influenced by regional disparities in agricultural development, socio-economic conditions, literacy levels, and access to institutional finance.

Tamil Nadu and Uttar Pradesh present a sharp contrast in their agricultural credit landscape, making them ideal for a comparative study. Tamil Nadu, with its robust cooperative credit system and significant penetration of formal banking institutions, has a relatively better credit distribution network. The state also benefits from diversified cropping patterns, supported by extensive irrigation systems and agricultural reforms aimed at

improving farmer welfare. Conversely, Uttar Pradesh, with its vast agrarian population and predominantly small and marginal landholdings, faces a complex credit scenario. The reliance on informal credit sources is higher, and institutional credit penetration remains a challenge due to socio-economic factors, lower literacy rates, and inadequate financial infrastructure in rural areas.

LITERATURE REVIEW

Credit is used as an instrument to raise the capital required to increase farm productivity, income and welfare of farmers, particularly small and marginal farmers who lack the capital to buy necessary inputs in time for agricultural operation. But the question of whether the goals of credit policies were met still remains unanswered. This study, therefore, attempted to estimate the effect of farm credit on investment, input expenditure, income and other welfare indicators using national-level farm household survey data. We used the logit function to estimate the determinants of credit access and the propensity score matching algorithm to estimate the effect of credit policies. Results revealed that only 33 per cent of farmers have access to credit facilities and that middle-aged farmers and farmers with a larger farm size have shown a higher probability of accessing credit facilities, whereas farmers from underprivileged castes have shown the least probability of credit access. Nevertheless, credit access, overall, has significant positive effects on farm investments, such as land-building, livestock and machinery. It also has a significant positive effect on the farm revenue expenditure, including the expenditure on seeds, machinery, labour, irrigation, plant protection chemicals and livestock inputs. As a result, credit access has an incremental effect on farm income per hectare, livestock income and monthly consumption expenditure. The results imply that although farm credit policies have improved the welfare of beneficiary farmers, the credit distribution system seems to be inefficient as more than 60 per cent of farmers do not have access to credit. This demonstrates that there is a need for inclusive and holistic policy interventions to include all farmers in the credit system, specifically offering term loans to small and marginal farmers. Apart from this, it is also suggested that simplified crop loan and Kisan Credit Card facilities be made available to tenant farmers.

It's interesting to note that, as highlighted by Ekenta et al. (2019) and Nchuchuwe and Adejuwon (2012), a significant portion of farmers who have obtained loans tend to favour informal sources of credit over formal institutions. This includes sources such as friends, family members, and non-agricultural organizations, which are preferred due to their accessibility, ease of use, and timely disbursement of loans.

In a study conducted by Garikipati, Agier, Guerin, and Szafarz in Tamil Nadu's villages, it was found that the majority of Dalit women prefer informal sources of credit like instant loans and borrowing from friends and family. However, Self-Help Groups (SHGs) are advantageous for them as they are formal sources of credit, helping them to have reduced interest rates and maintain their self-respect while borrowing money. SHGs have provided women with the advantage of not having to turn to informal microfinance organizations to borrow money. This is especially beneficial as informal microfinance organizations can charge high interests and may scold the borrower if the loan is not repaid on time.

As noted by Pradhan (2013), despite the advancements made in recent years, more than 25 per cent of rural households in Nigeria still rely on informal loans. This is similar to the rural loan markets in China and India, which are characterized by a mix of formal and informal financing sources and market fragmentation. Despite the differences in formal and informal lending practices, such as size, duration, payback plan, and collateral requirements, farmers in Nigeria continue to seek funding from informal sources.

Kaushik Basu (1994) highlighted the significant linkages between rural credit institutions and technological progress in his study. The Green Revolution, which was a major agrarian change in India, demanded credit and altered the role of institutions. This highlights the importance of credit institutions and their ability to support farmers in adopting new technologies and improving their agricultural practices.

The study conducted by M. Anjugam and Parthiban J J (2022) explains the relationship between agricultural credit and economic growth has been widely studied, with findings indicating a long-run positive association between India's agricultural GDP and agricultural credit. Empirical studies using the Granger causality test and Vector Error-Correction Model (VECM) suggest bidirectional causality, where agricultural credit drives growth, and increased GDP boosts credit demand. Research highlights the role of institutional credit in enhancing productivity through investments in inputs, machinery, and technology. Institutional loans significantly impact agricultural Gross Value Added (GVA), while informal credit sources remain a challenge due to high-interest rates and exploitative practices. Studies stress the need to expand formal credit channels, improve accessibility, and enhance financial literacy among farmers. Policy recommendations include reducing reliance on informal lenders, implementing regulatory measures, and establishing Credit Grievance Redressal forums. A shift towards market-based agricultural support is essential for sustainable growth. Future research should focus on improving credit risk assessment and financial inclusion strategies to strengthen the agricultural credit system and rural economic development.

OBJECTIVE

- (a) Identify and compare the characteristics of households in Palanpur and Irruvelpattu that borrow credit.
- (b) Determine and contrast the social groups that borrow credit between Palanpur and Irruvelpattu.
- (c) Identify and compare the farm size credit borrowed by households between Palanpur and Irruvelpattu.

HYPOTHESIS

- i. There is no association between caste and the sources of borrowing. In other words, the distribution of borrowing sources is the same across different caste groups.
- ii. There is no association between caste and the purpose of borrowing. In other words, the distribution of borrowing purposes is the same across different caste groups.

DATABASE

The study was conducted in two villages that represent different economic backgrounds, namely Palanpur Uttar Pradesh and Irruvelpattu, Tamil Nadu. Purposive sampling was used to select 131 households from Palanpur and 215 from Irruvelpattu who were engaged in borrowing. Primary data was collected using a structured questionnaire and secondary information was gathered through a review of journals, articles, and websites. To ensure the accuracy and reliability of the collected data, a data-screening test was employed for validation. The study analyzed the percentage of total credit borrowed by each household, dividing them based on caste and farm size in both villages to identify differences. Moreover, the study categorized the farms into Marginal, Small, and Semi-Medium and divided the loans taken by the households into production and consumption loans.

METHODOLOGY

Simple percentage and Average

Simple Percentage and Average methods also used to interpret primary data which trends effectively. The Simple Percentage method is used to measure the proportion of farmers accessing institutional credit or facing debt burdens.

Correlation Matrix

Correlation coefficients between various sets of variables are displayed in a correlation matrix. There is a correlation between each of the table's random variables (X_i) and the other values (X_j). This indicates which two variables are most correlated. Since there is always a one-to-one connection between a variable and itself, the diagonal of the table is always made up of one.

RESULTS AND DISCUSSION

Major sources of Income and Occupation

Agricultural activity is the primary source of family income in Palanpur. The principal crops planted in Palanpur are urad, bajra, jowar, paddy, mustard, and sugarcane, which are crops grown in the Kharif season, and wheat, vegetables, and mentha, which are key crops grown in the Rabi season. Urad and bajra are combined crops. Wage/salaried income accounts for 13.9 per cent of households' income, with casual labour accounting for 10.4 per cent, other sources accounting for 10.0 per cent, and agricultural labour accounting for 3.5 per cent. If we take the general caste, agriculture accounts for 63.2 per cent of household income, whereas wage/salaried employment accounts for 28.07 per cent. When looking at the key sources of income for OBCs, the survey found that 67.86 per cent earn from cultivation, 10.7 per cent from salaried job, 12.5 per cent from other sources, and 5.36 per cent and 3.57 per cent earn from casual labour and Agricultural labourer, respectively. Within the SC group, cultivation accounts for 51.92 per cent of income, casual labour for 26.9 per cent, and other sources of income for 9.6 per cent, agricultural labour for 5.77 per cent, and wage/salaried employment for 5.77 per cent. Other castes rely on wage/salaried jobs for the majority of their income, with casual labour accounting for 30 per cent and other sources accounting for 20 per cent.

Casual work is anything people do to get within or outside the community, such as house construction, road construction, and so on. The majority of the important occupations are private jobs such as watchman, marble polishing, shop, and flour mill work, insurance agent, brick industry, electrician, rickshaw driver, and government jobs such as military service, FSS of Palanpur, railway work, and some professional jobs such as a teacher. Apart from these jobs, under the government's MGNREGS programme, which began in 2005, one adult male in a rural household is guaranteed 100 days of employment at a daily rate of Rs. 100. During the survey period, this came to Palanpur. This programme was not gone well as it was under hands of Palanpur Pradhan.

In Irruvelpattu, agricultural labour accounts for 51.45 per cent of household income, cultivation for 38.3 per cent, other sources for 11.56 per cent, wage/salaried employment for 1.45 per cent, and casual labour for 3.76 per cent. Similarly, when the survey looked at the OBC, the key sources of income were 64.29 per cent from agriculture, 14.29 per cent from other activities, 10.71 per cent from agricultural labour, and 7.14 per cent from wage and salary sources. Cultivation accounts for 47.93 per cent of MBC's income, agricultural labour accounts for 35.54 per cent, casual labour accounts for 7.44 per cent, and other forms of income account for 8.27 per cent. Other caste households earn 33.3 per cent of their income from agriculture and 66.7 per cent from other sources.

The majority of households in Irruvelpattu rely on agriculture for their living, either as cultivators or as agricultural labourers. Aside from that, much labour under the MGNREGA programme, requires one member of each family to work. There is a difficulty with MGNREGA employment; some households have complained about not receiving it. Everyone wants this job because it pays regularly and they get paid whether they work or not (here the supervision of work was not done properly). These individuals stay in the area and return once the work is completed. Even the elderly ladies and gentlemen participate in this

task, as they work for one to two hours before sitting in the shade of a tree and returning home. They have no one to watch them on a regular basis, therefore when they are tired, they sit to rest; they are not required to work continuously. However, in the case of work in Reddiyar households and other agricultural work, they are required to work without rest since the owner supervises them. As a result, many favour MGNREGA labour over other work. The MGNREGA job is only for a half-day in the afternoon, following which they switch to other agricultural activities for the rest of the season. As a result, they have a lot of job openings, which they prefer based on their family status and work schedule. Households working in the Reddiyar house and on the property will be unable to seek other employment. The occupation caste of oil pressers, barbers, and artisans was there in the village if reference to the early studies but when the survey was done such households were not found. According to the information, they have all shifted to different labour activities both within and outside the village, and the study can conclude that there has been a diversification of occupation in Irruvelpattu. Households also depend on occupations like teaching, work in a sugar mill, road and house construction, chamber work (brick making). Most of the SC community households, (they are generally comes under agricultural labour , but work for Reddiyar) work in Reddiyar house both in housekeeping and as agricultural labour; this includes both males and females. Some households working in the Reddiyar home are unable to go for employment, while others work because their parents prefer to work at the Reddiyar house in order to serve the Reddiyar. The main reason for this is that Reddiyar had given them property on which to build a house for their children, and his father had worked for Reddiyar's parents. The family's elders desire to serve the Reddiyar family for many generations, while the younger generation wants to pursue something else that will make them more money and allow them to settle down in life. Some have borrowed money to build a house, as well as for other consuming and agricultural activities, for which he must work and return Reddiyar's loan.

The SC community provides the majority of agricultural labour in Irruvelpattu. Some of these households are landless, while others have leased land. The MBC households in the main village work in agriculture and own or lease at least a half-acre of land. Those who have built houses on Reddiyar land want to work for him, while those who do not have Reddiyar land and live in the forest move out for work or work for someone else within the village, depending on the time and labour available. Because the latter group of households is not obligated to work for Reddiyar House (single landlord family). Males and females function in different ways. In Irruvelpattu, most children do not work as labourers. A female is responsible for sowing, harvesting, and cleaning the grass in the field. The man prepares the field before spreading the seed, performs irrigation work, and threshes. Only a small percentage of children work in agriculture. The majority of them are either going to school or staying at home. Outside and inside the community, the wage is likewise different. When compared to other work, Reddiyar pays a lower wage. The Reddiyar paid wage is determined by the labour or tenant relationship with him. Some agricultural labourers specialise in sugarcane harvesting, and as previously said, they receive a fair wage. These folks migrate to various towns and states, and they are aware of when sugarcane harvesting takes place. Because the harvesting season in other states differs from that in Tamil Nadu, they are able to labour throughout the year.

The study has analyzed the access to credit in both Palanpur and Irruvelpattu villages, focusing on formal and informal loans. The two main indicators used in the study were formal loans and informal loans total outstanding, as well as the purpose of borrowing. The study also disaggregated and reported data on selected household-level indicators by caste and socio-economic class, which included calculating the average debt per household in each caste and socio-economic class.

These findings provide a detailed insight into the credit situation in the two villages and how it varies across different socio-economic groups. This information could be useful in identifying the gaps in access to credit and designing policies to promote greater financial inclusion.

The major caste in the village of Palanpur are Thakur, Murao, Dhimar, Gadaria, Dhobi, Teli, Passi, Jatab, and others, where Teli are Muslims and fall under the OBC category. Thakur comes under general categories population controls the village people and also owns more property, while OBC is the working class (especially in agriculture here most of them are Murao), and SC is involved in both agricultural and other casual labour jobs (mostly are Jatab). Over all the caste of the village can be divided as General (28.4 per cent), OBC (45.3 per cent), and SC (22.5 per cent). In Irruvelpattu, there is just one religion: Hinduism and the majority of Hindus belong to the MBC and SC categories, accounting for 34.9 per cent and 56.07 per cent, respectively, with only 8.09 per cent belonging to the OBC category. Padiyal, Reddiyar, Naidu and Vanniyar are the primary castes, with Naidu being under OBC and Reddiyar being the dominant caste in the village for a long time, as seen by earlier surveys, whereas the OBC population fell in the current census. Vanniyar, an MBC caste, makes up the majority of the population of only Uur (also known as the main village), whereas Padiyal, an SC caste, is situated in separate colonies and contributes to the majority of the population. Padiyal¹ is a traditional practise in which if one family works for the Reddiyar family, then the same family members work for the Reddiyar family from generation to generation, (Padiyal means they get a one-time meal, and kind measurement from which paddy is given to the family works) they mostly work for Reddiyar families, and there was much social discrimination and restriction for some Padiyal works in the past, but now in the present survey has been reduced. In case of OBC some has leased their land out, and just a few people are doing so on their own.

Table 1
Number of indebted households, Palanpur and Irruvelpattu

Variables	Palanpur	Irruvelpattu
Total number of household involved in borrowing (%)	56.7	62.1
Average debt outstanding per household (Rs)	12271	17,939
Number of households borrowed from Formal sources (%)	32.82	37.2
Number of households borrowed from Informal sources (%)	67.18	62.79
Percentage of households borrowed for production (%)	23.4	22.5
Percentage of households borrowed for consumption (%)	76.6	77.5

Source: filed survey

It's critical to note that in Palanpur; around 56.7 per cent of households were indebted, with an average outstanding amount of Rs. 12,271 (table 1). Out of this debt, only 32.82 per cent came from formal sources, while the rest came from informal sources. Additionally, around 23.4 per cent of households borrowed for production purposes, while 76.6 per cent borrowed for consumption purposes. These statistics are concerning and highlight the need to provide adequate formal financial support to households in Palanpur. Encouraging formal borrowing and investing in production-based loans can be a game-changer for these households.

Similarly, in Irruvelpattu, around 62.1 per cent of households were indebted, with an average outstanding amount of Rs. 17,939 (table 1). Out of this debt, only 37.2 per cent came from formal sources, while the rest came from informal sources. Additionally, around 22.5 per cent of households borrowed for production purposes, while 77.5 per cent borrowed for consumption purposes. In Irruvelpattu, among major part of amount is borrowed from Parriyars (SC) from informal sources. Table 2 and Table 3 reveal a fascinating insight into

the borrowing habits of households in Palanpur and Irruvelpattu. Regardless of social status, informal sources accounted for the majority of a household's total debt. Although money lenders, friends, and relatives were common sources of borrowing for both villages, interest rates and accessibility varied. In Irruvelpattu, the landlord's role in providing loans was essential, whereas in Palanpur, villagers had to travel to nearby cities to access informal sources. Nonetheless, access to these sources didn't differ much across social groups. The borrowing patterns in Palanpur and Irruvelpattu are quite concerning. In Palanpur, a staggering 59.2 per cent of people are relying on money lenders, friends, and relatives for loans, with money lenders holding the upper hand with almost 40 per cent of the market share. In Irruvelpattu, the situation is not much better, as people are mostly borrowing from money lenders and friends and relatives, with landlords also having a significant influence. These patterns highlight the need for better financial services and support systems in these regions, to ensure that people are not trapped in debt cycles and can access fair and affordable credit options.

In Palanpur, the General caste had the highest outstanding debt from formal sources, like PNB and Seed Stores, whereas OBC had the most from informal sources. Similarly, in Irruvelpattu, commercial banks and SHGs provided greater access to formal sources. The availability of microfinance options made formal sources more accessible to villagers.

Table 2
Number of indebted households, by social group, Palanpur and Irruvelpattu

Variables	Palanpur			Irruvelpattu		
	General	OBC	SC	MBC	OBC	SC
Total number of household involved in borrowing (%)	22.3	50.8	26.9	33.3	5.16	61.5
Average debt outstanding per household (Rs)	15,845	13,453	6,003	18,697	25,909	16,589
Number of households borrowed from Formal sources (%)	10.8	19.2	3.1	11.3	2.3	23.9
Number of households borrowed from Informal sources (%)	11.5	31.5	23.8	22.1	2.8	37.6
Percentage of households borrowed for production (%)						
Percentage of households borrowed for consumption (%)	5.6	12.1	5.6	7.5	0.9	5.6
	16.9	37.9	21.8	22.1	3.8	51.6

Source: filed survey

Table 3
Number of indebted households, by sources and social group, Palanpur and Irruvelpattu

Villages	Sources	CASTE			
		Gener al	OB C	SC	Total
PALANPUR	Formal				
	FSS/Seed Store	3.80	2.30	1.50	7.70
	PNB	6.90	16.90	0	25.30

	Total	10.80	19.20	3.00	33.00
	Informal				
	Money lender	6.2	17.7	16.2	40.0
	Friends/Relatives	3.1	10.0	6.2	19.2
	Others	2.3	3.8	1.5	7.7
	Total	11.5	31.5	23.8	66.9
IRRUVELPATTU	Sources	CASTE			
		MBC	OB C	SC	Total
	Formal				
	SHG	9.9	1.9	22.1	33.8
	other commercial Banks	1.4	0.7	1.9	3.8
	Total	11.3	2.3	23.9	37.6
	Informal				
	Money lender	7.99	0.7	7.5	15.96
	Landlord	7.5		13.15	20.66
	Friends/Relatives	6.6	2.3	16.9	28.8
	Total	22	3	38	62

Source: filed survey

Table 4 and Table 5 show variation among socio-economic classes. Cultivating households were categorized into small farmers, marginal farmers, and semi-medium farmers. Landless and marginal farmers held less land compared to small, medium, and semi-medium farmers. In Palanpur, 77.1 per cent of households were marginal farmers, followed by small farmers at 10.69 per cent, and landless individuals at 9.9 per cent and in Irruvelpattu, 73.5 per cent of households were Landless labourers, followed by Marginal farmers at 23.26 per cent, and Small farmers at 2.35 per cent.

Did you know that social class affects access to formal sector credit? It's true, and Palanpur is a perfect example. Landowners in Palanpur are receiving formal loans based on their landholdings, while the poor, landless, and tenants are being left behind to resort to informal sources. Loans borrowed from the formal sector by three landowner households amounted to only 22.1 per cent among marginal farmers and 8.3 per cent among small farmers. The average outstanding debt of a semi-medium farmer was Rs 46,666, small farmers had an average outstanding debt of Rs 2, 0071, marginal farmers' outstanding debt was Rs 10,427, and landless labourers had an outstanding debt of Rs 10262. And to add insult to injury, in Palanpur, 54.96 per cent of marginal farmers and 9.2 per cent of landless households are borrowing from informal sources.

But it's clear that there is a better way. In Irruvelpattu, the formal sources of credit are accessible to all categories, including the landless, unlike in Palanpur. The loans borrowed from the formal sector by three landowner households amounted to 27.9 per cent among landless people and 7.44 per cent among marginal farmers. The average outstanding debt of a semi-medium farmer was Rs 80,000, small farmers had an average outstanding debt of 20000, marginal farmers' outstanding debt was Rs 19,283, and landless labourers had an outstanding debt of Rs 16535. And while 45.6 per cent of landless people and 15.8 per cent

of marginal farmer’s households are still borrowing from informal sources, there is clearly hope for a brighter future.

Let's work together to make sure that everyone, regardless of social class, has access to the formal sector credit they need to succeed.

These findings underscore the need for policies and interventions that address the challenges faced by marginalized farmers and landless individuals. By providing targeted support, we can empower these groups and ensure that they too can benefit from the growth and development of the agricultural sector.

Table 4
Number of indebted households, by farm size, Palanpur

Variables	Palanpur			
	Landless	Marginal Farmers	Small Farmers	Semi-Medium
Total number of household involved in borrowing (%)	9.9	77.1	10.69	2.29
Average debt outstanding per household (Rs)	10262	10427	20071	46666
Number of households borrowed from Formal sources (%)	0.76	22.14	8.39	1.53
Number of households borrowed from Informal sources (%)	9.2	54.96	2.3	0.8
Percentage of households borrowed for production (%)	1.53	15.27	4.6	0.76
Percentage of households borrowed for consumption (%)	7.6	58.01	5.34	1.53

Source: filed survey

Table 5
Number of indebted households, by farm size, Irruvelpattu

Variables	Irruvelpattu			
	Landless	Marginal Farmers	Small Farmers	Semi-Medium
Total number of household involved in borrowing (%)	73.5	23.26	2.35	0.004
Average debt outstanding per household (Rs)	16535.6	19283	40000	80000
Number of households borrowed from Formal sources (%)	27.9	7.44	0.93	0.004
Number of households borrowed from Informal sources (%)	45.6	15.8	1.4	
Percentage of households borrowed for production (%)	3.8	13.1	0.54	
Percentage of households borrowed for consumption (%)	79.2	8.74	1.092	0.55

Source: filed survey

Conclusion: Although formal credit has expanded in these villages over the last 30 years, it is concerning that the informal sector of credit still thrives. This highlights the fact that there is still a long way to go in achieving financial inclusion for these communities. The issue of household indebtedness remains a recurring problem, and it is clear that the expansion of formal credit has not been enough to eradicate the influence of informal lenders. It is important

to address this issue and work towards providing equitable access to formal credit to help improve the financial well-being of these communities.

Most in both the village rely on informal lenders for credit, especially manual workers and oppressed groups. This dependence causes high interest rates, exploitation, and debt traps. We must create equitable financial systems for all to avoid these consequences.

In Palanpur and Irruvelpattu, landless labourers face significant inequality in accessing formal credit. In Irruvelpattu, where informal credit borrowing is common, landless labourers comprise 73.5 per cent of households but only 27.9 per cent of outstanding formal credit. In Palanpur, landless labourers comprise 9.9 per cent of all households but account for only 0.6 per cent of outstanding formal credit. In Irruvelpattu, some Scheduled Caste and MBC groups have experienced labour bondage when borrowing from landlords due to the landlord domination history. However, SHGs and other small microfinance initiatives have enabled landless labourers in Irruvelpattu to access formal loans.

The inequality of access to formal credit has significant implications, as formal and informal sector loans differ in size, frequency of loans, purposes, collateral, and interest rates. Although interest-free borrowing from "friends and relatives" is an exception, the interest rate on informal loans is much higher than on loans from banks and cooperatives. The surveys conducted in Palanpur and Irruvelpattu indicate that access to formal credit remains unequal, with landless labourers and socially deprived groups excluded from formal credit and left dependent on informal lenders.

i. There is no association between caste and the sources of borrowing. In other words, the distribution of borrowing sources is the same across different caste groups.

Palanpur

CASTE	SOURCES OF BORROWING		Total
	Formal	Informal	
GENERAL	14	15	29
OBC	25	41	66
SC	4	32	36
Total	43	88	131
Chi-Square Tests			
Test	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.602a	2	0.003
Likelihood Ratio	12.966	2	0.002
N of Valid Cases	131		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.52.			

This means the chi-square test was likely used to see if different caste groups have different patterns in where they obtain loans or credit (e.g., banks, moneylenders, family/friends, etc.). Given the Pearson Chi-Square value of 11.602 with 2 degrees of freedom and a p-value (Asymp. Sig. 2-sided) of 0.003, we would reject the null hypothesis at the conventional alpha level of 0.05. This suggests that there is a statistically significant association between caste and sources of borrowing in your data.

Irruvelpattu

CASTE	SOURCES OF BORROWING		Total
	FORMAL	INFORMAL	
MBC	23	47	70
OBC	5	6	11

SC	52	82	134
Total	80	135	215
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.034a	2	0.596
Likelihood Ratio	1.035	2	0.596
N of Valid Cases	215		
a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.09.			

The crosstab shows the relationship between **CASTE** (categorized as MBC, OBC, and SC) and **SOURCES OF BORROWING** (categorized as FORMAL and INFORMAL). The numbers in the table represent the count of individuals belonging to each caste group who have borrowed from either formal or informal sources.

- **MBC (Most Backward Class): Out of 70 individuals from the MBC category, 23 borrowed from formal sources and 47 borrowed from informal sources.**
- **OBC (Other Backward Class): Out of 11 individuals from the OBC category, 5 borrowed from formal sources and 6 borrowed from informal sources.**
- **SC (Scheduled Caste): Out of 134 individuals from the SC category, 52 borrowed from formal sources and 82 borrowed from informal sources.**
- **Total: Across all caste categories, 80 individuals borrowed from formal sources and 135 borrowed from informal sources, totaling 215 individuals in the sample.**
- **Chi-Square Tests:**
 - The chi-square test is used to determine if there is a statistically significant association between the two categorical variables (CASTE and SOURCES OF BORROWING).
 - Pearson Chi-Square Value: **1.034**
 - Degrees of Freedom (df): **2 (This is calculated as (number of rows - 1) * (number of columns - 1) = (3 - 1) * (2 - 1) = 2 * 1 = 2)**
 - Asymptotic Significance (p-value): **0.596**

Interpretation:

The p-value of 0.596 is much greater than the conventional significance level of 0.05. This means that we fail to reject the null hypothesis.

In practical terms, based on this data and the chi-square test, there is no statistically significant association between caste and the sources of borrowing. In other words, the pattern of borrowing from formal versus informal sources does not significantly differ across the MBC, OBC, and SC caste groups in this sample.

Important Note:

The footnote "1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.09" indicates that one of the cells in the expected frequency table had a count slightly below 5. While this doesn't necessarily invalidate the results, it's a point to consider. Chi-square tests can be less reliable when a significant proportion of cells have expected counts below 5, especially if the minimum expected count is very low. In this case, with only one cell slightly below 5 and a minimum expected count of 4.09, the impact on the overall conclusion is likely minimal, but it's worth noting for a more rigorous analysis with larger datasets.

In summary, while there are numerical differences in the borrowing patterns across caste groups in the crosstab, the chi-square test suggests that these differences are not statistically

significant enough to conclude a real association in the broader population from which this sample was drawn.

ii. There is no association between caste and the purpose of borrowing. In other words, the distribution of borrowing purposes is the same across different caste groups

Palanpur

PURPOSE OF BORROWING				
CASTE	Production	Consumption	Both	Total
GENERAL	7	21	1	29
OBC	15	47	4	66
SC	7	28	1	36
Total	29	96	6	131
Chi-Square Tests				
	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	.974a	4	0.914	
Likelihood Ratio	0.996	4	0.91	
Linear-by-Linear Association	0.098	1	0.754	
N of Valid Cases	131			
a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 1.33.				

Given the Pearson Chi-Square value of 0.974 with 4 degrees of freedom and a p-value (Asymp. Sig. 2-sided) of 0.914, we would fail to reject the null hypothesis at the conventional alpha level of 0.05.

In practical terms, based on this test, there is not enough statistical evidence to conclude that there is a significant association between caste and the purpose for which people borrow money in your data.

Irruvelpattu

PURPOSE OF BORROWING				
CASTE	Production	Consumption	Both	Total
MBC	16	46	8	70
OBC	2	8	1	11
SC	14	111	9	134
Total	32	165	18	215
Chi-Square Tests				
	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	7.849a	4	0.097	
Likelihood Ratio	7.62	4	0.107	
N of Valid Cases	215			
a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is .92.				

Interpretation

The p-value = 0.097, which is greater than 0.05, so there is no statistically significant association between caste and purpose of borrowing at the 5% significance level. If using a 10% threshold ($p < 0.10$), the result is marginally significant, suggesting a possible weak association. Although not statistically significant at the 5% level, the data reveals possible differences in borrowing purposes among caste groups. For instance, SC individuals show a high preference for consumption borrowing (111 out of 134, ie 83%). MBC have a more

balanced distribution, with a notable portion borrowing for production or both. OBC numbers are small.

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