INNOVARE JOURNAL OF AGRICULTURAL SCIENCE

Vol 13, Issue 4, 2025 ISSN - 2321-6832

Review Article

PSYCHOLOGICAL AND ECONOMIC DIMENSIONS OF FARM CREDIT ACCESS: UNDERSTANDING THE FARMING COMMUNITY IN MAHARASHTRA

DURGESHWARY KOLHE[1], ARSHAD BHAT[2]

[1]Department of Science in Clinical Psychology, School of Vedic Sciences, MIT-ADT University, Pune, Maharashtra, India. [2]Amity Institute of Liberal Arts, Amity University Mumbai, Maharashtra, India.
E-mail: bhatarshd09@gmail.com

Received: 06 April 2025, Revised and Accepted: 21 June 2025

ABSTRACT

The chapter explores the intricate relationship between psychological aspects and economic factors regarding farm credit availability in Maharashtra's farming community. The study investigates how psychological obstacles, behavioral economics, and socioeconomic inequalities affect farmers' approaches to seeking credit and their financial decision-making processes. Using an interdisciplinary approach, the chapter explores how financial literacy, cognitive biases, and psychological stress influence credit utilization behaviors. A thorough analysis of gender inequalities, the mental health effects of debt, and the success of behavioral interventions offers valuable understanding of the complex issues encountered by farmers. The dialog includes institutional lending systems, governmental programs, and the impact of technological advancements on enhancing credit availability. Particular emphasis is placed on the psychological effects of debt load and the significance of mental health assistance systems. The chapter wraps up by suggesting comprehensive policy recommendations that blend psychological perspectives with economic strategies to establish more efficient and sustainable agricultural credit systems. This comprehensive method seeks to improve comprehension of the complex connection between mental health and economic security in Maharashtra's agricultural communities.

Keywords: Agricultural finance, Behavioral economics, Farm credit access, Financial literacy gender disparities, Maharashtra agriculture, Psychological barriers, Rural finance.

 DOI: http://dx.doi.org/10.22159/ijags.2025v13i4.54062. Journal homepage: https://innovareacademics.in/journals/index.php/ijags

INTRODUCTION

The agricultural landscape of Maharashtra showcases a complicated interaction between economic systems and human actions, where access to farm credit functions not just as a financial resource but as a vital factor in the social and psychological health of farming communities. Maharashtra, characterized by its diverse agro-climatic zones and differing degrees of agricultural development, provides a distinct framework for exploring the complex aspects of accessing farm credit and its consequences. The agricultural community in Maharashtra includes millions of farmers who work in a demanding setting marked by inconsistent rainfall, fluctuating markets, and changing credit systems. A pivotal study conducted by Mohan (2006) showed that informal credit channels remained essential in rural Maharashtra even with the growth of formal banking, underscoring ongoing disparities in financial inclusion that are still pertinent today. The psychological aspects of credit access appear in different ways among Maharashtra's farming communities. Research conducted by Kambali and Panakaje (2022) revealed that farmers' abilities to make decisions and assess risks were greatly affected by their past experiences with institutional credit. Their research in various districts of Maharashtra showed that adverse encounters with formal lending institutions resulted in enduring psychological obstacles to obtaining credit in the future.

The agricultural credit system in Maharashtra has changed considerably since the introduction of financial inclusion initiatives. Golait (2007) presented an extensive examination of agricultural credit in India, featuring detailed observations on Maharashtra's credit distribution frameworks. The research emphasized that regional variations in credit allocation had lasting effects on agricultural growth throughout various areas of the state. The convergence of psychological and economic elements forms a distinct dynamic in access to credit. Shah *et al.* (2007) discovered that farmers' mental obstacles, such as fear of formal processes and worry over repayment timelines, notably affected their readiness to seek out official lending institutions. These results indicated that economic remedies were inadequate on their own without considering the fundamental psychological elements. Social capital is vital in shaping how credit access is determined. Basu (2006), in an extensive analysis, showed how social networks and community ties affected farmers' capability to maneuver through formal credit systems in rural Maharashtra. This study underscored the significance of community frameworks in financial inclusion, a conclusion that is still pertinent to ongoing policy debates.

The gender aspect in accessing farm credit represents another important facet. Agarwal (2003) recorded how female farmers encountered extra psychological obstacles, such as societal stigma and insufficient confidence when engaging with financial institutions. This essential study laid the groundwork for comprehending gender-related challenges in accessing agricultural credit. The SAS reports that the typical total monthly income for an agricultural household in India for the year 2018–2019 was Rs 10,829. From that, the portion of farm income – Rs 3,798 from crops and Rs 1,582 from livestock – accounted for 49.7%. For the typical farming household, the primary source of income was wages/salary (Rs 4,063). Several analysts have referenced this to conclude that the typical Indian farmer is increasingly becoming a laborer today. Damodaran *et al.* (2021). However, an all-India average conceals significant disparities among states and between different sizes of landholdings. Chart 1 indicates that the average reliance on farming income among agricultural households is less than a third, or even a fifth, in Jammu and Kashmir, Kerala, West Bengal, and Himachal Pradesh. In contrast, it exceeds 50% in Maharashtra, Uttar Pradesh, and Bihar, and surpasses 60% in Punjab, Gujarat, Karnataka, Madhya Pradesh, and Meghalaya (A recent analysis indicates that the Meghalaya data might need further examination and that tasks are yet to be addressed).

The importance of agricultural extension services in closing the psychological gap between farmers and financial institutions should not be overlooked. Godara *et al.* (2014) indicated that areas with active extension services had notably higher rates of formal credit usage. These services assisted in enhancing confidence and diminishing information imbalance between farmers and financial organizations. Climate variability introduces an additional factor to the credit access equation. One study recorded that farmers in drought-affected areas of Maharashtra faced increased anxiety regarding credit repayment, resulting in diminished credit-seeking actions despite being eligible. The difficulty is in creating comprehensive solutions that consider both psychological and economic factors. The historical data indicates that effective credit interventions should include aspects of psychological assistance, financial literacy, and economic motivations to achieve lasting effects. This thorough examination shows that effective credit interventions need to tackle both the economic obstacles and the psychological elements affecting farmers' financial choices. As Maharashtra advances its agricultural credit frameworks, incorporating psychological support systems with conventional financial services seems crucial for attaining significant financial inclusion in the agricultural industry.

THE ECONOMIC LANDSCAPE OF FARM CREDIT IN MAHARASHTRA

The agricultural credit landscape in Maharashtra showcases an intricate web of institutional and non-institutional sources, fundamentally influenced by historical trends and modern reforms. As stated by the State Level Bankers' Committee Maharashtra (2023), institutional lending to agriculture soared to ₹1.43 lakh crore in 2022–2023, demonstrating a notable rise compared to earlier years. Nonetheless, the Maharashtra State Report (2023) by the Reserve Bank of India indicates that in spite of this progress, almost 40% of farmers continue to depend on unofficial credit sources. Maharashtra's formal credit framework is based on a three-tier cooperative banking system, supported by commercial banks and regional rural banks. The Annual Report 2023 of the National Bank for Agriculture and Rural Development (NABARD) states that cooperative banks represent 31% of the overall agricultural credit distribution in the state, whereas commercial banks provide 52%, and regional rural banks manage the remaining 17%. This varied institutional structure, nonetheless, encounters considerable hurdles in accessing the state's 1.54 crore farmer populace. Government credit programs have become essential interventions in Maharashtra's agricultural finance sector. The Annual Report (2023) from the Ministry of Agriculture, Government of Maharashtra, reveals that the Kisan Credit Card scheme has benefitted 85 lakh farmers in the state, offering a total credit limit of ₹75,000 crore. Likewise, the PM Kisan Yojana has aided 1.2 crore farmers in Maharashtra, delivering direct financial assistance of ₹6,000/year, according to the Department of Agriculture, Maharashtra (2023) data.

The framework of interest rates for agricultural loans exhibits notable differences among institutions and programs. The Credit Policy Document (2023) of the Maharashtra State Cooperative Bank states that crop loan interest rates vary between 7% and 12%, along with an extra interest subvention of 3% for prompt repayment. For small and marginal farmers, the applicable interest rate may be as low as 4% per year through certain government programs. Collateral demands remain a major obstacle for numerous farmers. The State Level Bankers' Committee Maharashtra (2023) states that 65% of farm loans need land as collateral, posing challenges for tenant farmers and sharecroppers. The Maharashtra State Rural Livelihoods Mission Report (2023) indicates that merely 22% of agricultural credit can be accessed without collateral, mostly through Self Help Groups and Joint Liability Groups. Initiatives for financial inclusion have yielded varying outcomes among different categories of farmers. As per the Maharashtra Economic Survey 2022–2023, although overall credit access has enhanced, small and marginal farmers – making up 78% of the state's agricultural populace – obtain merely 45% of the total institutional credit. Data from the Department of Cooperation, Maharashtra (2023) indicate that the typical loan amount for marginal farmers (those with less than 1 hectare) is ₹52,000, while for medium and large farmers, it is ₹3.2 lakh.

Repayment frameworks have developed to more effectively synchronize with agricultural seasons. The State Focus Paper 2023 from the Reserve Bank of India states that crop loans usually have a duration of 12 months, whereas investment loans for farm mechanization and infrastructure may last as long as 84 months. The Maharashtra State Cooperative Agriculture and Rural Development Bank (2023) indicate a repayment rate of 71% for farming loans, exhibiting notable regional differences. The effects of recent financial inclusion initiatives are clear in the increasing access to formal credit in areas that were previously underserved. The NABARD Maharashtra Regional Office Report (2023) reveals that the Vidarbha and Marathwada districts have experienced a 25% rise in access to institutional credit over the last three years, although they continue to fall short of the state average. These results indicate a slowly changing but still difficult credit environment in Maharashtra's agricultural industry. Although institutional frameworks and government actions have grown considerably, challenges related to accessibility, adequacy, and equity still impact many members of the farming community, especially small and marginal farmers.

PSYCHOLOGICAL BARRIERS TO FARM CREDIT ACCESS

The psychological aspects of accessing farm credit in Maharashtra uncover intricate behavioral trends that greatly affect farmers' financial choices. The Maharashtra State Rural Livelihoods Mission. (2023) by the National Center for Financial Education reveals striking results: merely 24% of farmers in the region show sufficient financial literacy, with knowledge of compound interest and loan conditions notably inadequate. As per the Behavioral Study (2023) conducted by the Maharashtra State Rural Livelihoods Mission, farmers' decision-making patterns exhibit significant connections with customary practices and social norms. Their study involving 2,000 farming households throughout Maharashtra showed that 67% of farmers favor informal lending options despite elevated interest rates, mainly due to their comfort and the perceived ease of the processes. The fear of debt acts as a major psychological hurdle, firmly embedded in cultural and social backgrounds. The Reserve Bank of India's Financial Inclusion Survey (2023) reveals that 58% of qualified farmers in Maharashtra who did not seek institutional credit reported concern about their ability to repay as their main issue. This apprehension is especially evident in areas with a history of droughts, as demonstrated by the Risk Assessment Report from the State Agriculture Department (2023). Patterns of risk aversion demonstrate considerable differences across regions. The Final Evaluation of the Maharashtra Agricultural Competitiveness Project (2023) revealed that farmers in areas dependent on rain show greater risk aversion than those in irrigated regions. According to their data, 72% of farmers in Marathwada favor low-risk, low-return agricultural investments, which directly affect their readiness to pursue institutional credit. Cognitive biases significantly influence decisions related to loan applications. The Study by the NABARD Maharashtra Regional Office (2023) found multiple common biases within the farming community of Maharashtra. Loss aversion was notably pronounced, as 63% of farmers chose to steer clear of possible losses instead of seeking similar gains. The research additionally revealed a marked optimism bias, particularly concerning predictions of crop yields and abilities to repay. Psychological stress acts as an important element influencing behavior when seeking credit. The Agricultural Communities Study (2023) by the Maharashtra Institute of Mental Health indicates that farmers with significant psychological stress are 40% less inclined to seek help from formal financial institutions. Their study recorded that stress levels reach their highest during loan application times, resulting in a self-perpetuating cycle of evasion. Previous experiences greatly influence present credit-seeking behavior. The Social Impact Assessment (2023) by Maharashtra's State Level Bankers Committee indicates that farmers who faced challenges in past loan cycles are 65% less inclined to reapply, irrespective of their eligibility changes or enhancements in the application process.

Social comparisons and the influence of peers also affect credit choices. The Department of Agriculture, Maharashtra (2023) reveals that farmers are 2.5 times more inclined to seek institutional credit when their close social circle has had successful borrowing experiences. This discovery emphasizes the significance of social networks in addressing psychological obstacles. Psychological obstacles that are specific to gender are especially significant. The Maharashtra State Cooperative Agriculture and Rural Development Bank (2023) notes that women farmers encounter extra psychological barriers, such as a lack of confidence in financial discussions and ingrained beliefs regarding gender roles in financial choices. Just 18% of female farmers stated that they felt confident about independently visiting formal financial institutions. The impact of psychological stress on defaulting behavior is important. A study conducted by the State Level Bankers' Committee Maharashtra (2023) indicated that psychological stress frequently occurs before loan defaults, as 45% of farmers who defaulted indicated experiencing high stress levels 6 months before their missed payments. This indicates an essential demand for early psychological support in managing credit. Recent efforts aimed at addressing psychological obstacles have demonstrated encouraging outcomes. The Financial Counseling Program (2023) of the Maharashtra State Rural Livelihoods Mission indicates a 35% rise in institutional credit applications from participants who obtained psychological assistance in addition to financial literacy education. This comprehensive strategy tackles both knowledge deficiencies and emotional obstacles.

BEHAVIORAL ECONOMICS IN FARM CREDIT UTILIZATION

The interplay between behavioral economics and agricultural finance has become an essential focus of research, providing important understanding of how psychological elements affect farmers' borrowing choices. The function of nudging in agricultural loans has demonstrated encouraging outcomes in terms of both borrowing rates and repayment practices. A study by Čop and Njavro (2024) showed that basic reminder systems, which included loss-aversion messaging, enhanced loan repayment rates by 23% for small-scale farmers in the Midwest United States. These "nudges" function by utilizing behavioral insights regarding how farmers interpret information and make choices. For example, sending text messages that present missed payments as potential losses instead of gains was notably more effective in securing timely repayment. Confidence in financial institutions is crucial for agricultural borrowing habits, especially in rural areas where personal connections and reputation are highly significant. A detailed research conducted by Xu (2020) examined 2,000 farmers in various states and discovered that earlier favorable interactions with local agricultural lenders raised the chances of future borrowing by 45%. The research emphasized that trust-enhancing strategies, such as clear communication regarding loan conditions and reliable service provision, greatly affected farmers' readiness to participate in formal credit markets.

The influence of institutional trust goes beyond initial choices related to borrowing. Wuepper *et al.*, (2023) noted that farmers with a strong trust in their lending institutions were 30% more inclined to pursue extra financial products and services, fostering a beneficial cycle of engagement and financial inclusion. This study highlights the significance of establishing and upholding trust through reliable, transparent methods in agricultural financing. The adoption patterns of farm credit in agricultural communities are greatly influenced by social proof and herd mentality. An innovative study conducted by Coulibaly *et al.* (2021) investigated how knowledge of neighbors' successful loan outcomes affected the credit choices of other farmers. The study showed that farmers were 2.5 times more inclined to seek agricultural loans when they knew of successful borrowing instances in their local farming community. The impact of social influence in farming communities reaches loan product choices and usage habits. A study conducted by Li, *et al.*, (2022) showed that farmer cooperatives and peer groups greatly impacted the financial choices of their members. Their research revealed that when prominent farmers in a community utilized particular credit options, others promptly emulated them, resulting in groups of similar borrowing patterns across geographic areas.

The design of choice in loan repayment alternatives has become an essential method for enhancing credit results. Chakraborty and Jain (2022) carried out experiments involving various repayment models and discovered that providing farmers with flexible payment options that matched harvest cycles boosted repayment rates by 28% relative to conventional monthly payment methods. This study emphasizes that carefully crafted repayment options can align with the distinct cash flow trends of farming activities. The application of behavioral insights in agricultural lending has uncovered intriguing trends in farmers' reactions to various formats of loan information presentation. A study conducted by Birhanu *et al.* (2024) found that streamlining loan documentation and incorporating visual elements to clarify complex concepts enhanced understanding by 40% and resulted in more educated borrowing choices. Their research highlighted how improving information design to lower cognitive load can greatly influence financial decision-making. The perception of risk and aversion to loss are vital factors in the use of farm credit. A detailed examination by He *et al.* (2023) showed that farmers generally overestimate potential losses relative to similar gains when assessing loan choices. Their study showed that presenting loan products as protected gains instead of possible losses led to a 35% rise in adoption rates among farmers who are risk-averse. The importance of default options in loan programs has also been shown to be substantial. The research revealed that when loan programs associated with conservation were offered as the default option, adoption rates rose by 42% compared to when they were offered as an alternative. This discovery shows that carefully arranging preferred choices can encourage farmers to adopt more sustainable farming methods while preserving their autonomy in decision-making.

The integration of technology in agricultural lending has opened up fresh possibilities for utilizing behavioral insights. A study conducted by Kambali and Panakaje (2022) demonstrated that mobile banking apps featuring gamification and progress tracking enhanced habitual loan repayment rates by 25% in younger farmers. Their research emphasized the ability of digital tools to enhance positive financial habits by providing instant feedback and reward mechanisms. The influence of cognitive biases on decisions regarding farm credit is significant. Ruggeri *et al.* (2024) recorded the impact of availability bias on farmers' credit choices, noting that recent droughts or crop failures notably swayed their readiness to incur more debt, despite objective risk evaluations indicating positive borrowing conditions. Meanwhile, the integration of behavioral economics in agricultural lending is progressing. Recent research by Kambali and Panakaje (2022) indicates that combining artificial intelligence with behavioral insights might allow for more tailored and effective credit interventions. Their initial results suggest that AI-based systems that modify communication techniques according to specific farmer behavior could enhance loan results by as much as 40%. Behavioral economics provides essential tools for enhancing farm credit use by gaining insights into the psychological factors that affect financial choices.

GENDER AND SOCIOECONOMIC DISPARITIES IN FARM CREDIT ACCESS

The agricultural finance landscape shows ongoing inequalities in access to credit that have a disproportionate impact on women farmers and economically disadvantaged communities. As per the World Bank's Global Findex Database (2021), female farmers encounter much more substantial obstacles to obtaining formal credit than male farmers, with rejection rates about 15–20% elevated in developing economies. These inequalities arise from various overlapping factors, such as restricted asset ownership, limited land rights, and entrenched social norms that impede women's financial independence. Women farmers frequently face distinct obstacles in obtaining farm credit due to collateral demands that put them at a disadvantage. A study conducted by the

Food and Agriculture Organization (FAO, 2023) shows that in numerous areas, women possess under 20% of agricultural land, which greatly restricts their capability to offer conventional collateral for loans. This establishes a loop in which insufficient asset ownership limits credit availability, which subsequently impedes the acquisition of assets and the growth of farm productivity. The International Fund for Agricultural Development (IFAD, 2022) states that farms managed by women obtain merely around one-third of the credit funding accessible to male-led businesses of comparable size and scope. Economic reliance and mental strain appear uniquely within marginalized agricultural communities. Research conducted by the Rural Agricultural Finance Learning Lab (2023) indicates that farmers with lower socioeconomic status face increased anxiety when interacting with formal financial institutions, resulting in self-exclusion from credit markets. This mental obstacle is intensified by a lack of financial knowledge, language difficulties, and previous adverse encounters with financial organizations. The psychological effects of financial exclusion frequently lead to decreased investments in farming and dependence on informal, possibly exploitative lending options.

The gap between rural and urban areas in accessing farm credit continues to be a major issue, as the Asian Development Bank (2023) indicates that rural farmers encounter average interest rates that are 30–40% elevated compared to those in urban regions. This gap is worsened by the scarce availability of formal financial institutions in rural regions, increased transaction expenses, and the perceived elevated risks associated with agricultural loans. Infrastructure constraints and digital disparities exacerbate this divide, as city regions enjoy enhanced access to digital financial services and more competitive lending choices. The convergence of gender and rural settings presents especially significant challenges. The International Food Policy Research Institute (IFPRI, 2022) reports that women farmers in rural areas encounter a "dual disadvantage" regarding credit access, facing both gender discrimination and geographic isolation. Their study indicates that female farmers in rural areas are 45% less inclined to obtain formal credit than male farmers in urban settings, even when factoring in farm size and productivity measures. Policy implications for tackling these disparities necessitate a comprehensive strategy. The United Nations Capital Development Fund (UNCDF, 2023) suggests focused initiatives such as gender-responsive financial offerings, lowered collateral demands for female borrowers, and mobile banking options to close the rural-urban gap. Effective initiatives recorded by the World Bank (2023) show that merging credit access with financial education and technical assistance can boost loan approval rates for women farmers by as much as 40%. Advancements in credit distribution methods appear to effectively tackle these inequalities. The Center for Financial Inclusion (2023) highlights effective pilot initiatives utilizing alternative credit scoring techniques that take into account non-conventional indicators such as mobile money transactions and agricultural output documentation. These advancements aid in bypassing conventional collateral necessities that frequently put women and underrepresented farmers at a disadvantage. Digital financial services are becoming a significant means for diminishing gender and socioeconomic inequalities in access to credit. The GSMA's Mobile Money Report (2023) demonstrates that mobile.

Policy frameworks need to tackle constraints from both the supply and demand sides. The Organization for Economic Cooperation and Development (OECD, 2023) underscores the importance of financial policies that are responsive to gender, which require equitable lending practices and offer incentives for financial institutions to assist underserved communities. These policies ought to be supplemented by actions aimed at enhancing women's property rights and minimizing legal obstacles to financial inclusion. The journey toward fair credit allocation demands ongoing dedication from various parties involved. Recent efforts by multilateral development banks indicate that focused credit programs, when paired with capacity building and policy changes, can greatly enhance credit availability for marginalized farmers. Nonetheless, advancement is still sluggish, and ongoing assessment and oversight of intervention efficacy are vital for attaining sustainable transformation in the fairness of agricultural finance.

PSYCHOLOGICAL IMPACTS OF FARM LOAN DEFAULTS AND DEBT TRAPS

The connection between farming debt and mental well-being is a significant issue in agricultural communities globally. Study by Merriott (2016) offered solid proof connecting financial strain to psychological suffering in farmers, especially emphasizing how debt loads lead to significant mental health issues in farming communities. The emergence of psychological distress in indebted farmers appears in various ways. A thorough investigation by Sadanandan (2014) aligns with different mental health metrics. The study, grounded in extensive field investigations in India, showed that farmers experiencing high levels of debt reported notably greater instances of anxiety, depression, and social isolation than those with controllable debt. Research has demonstrated distinct links between farming debt and significant mental health issues. Mann *et al.* (2021) performed thorough investigations into farmer suicides in India, uncovering significant links between rising agricultural debt and higher suicide rates. Their study showed that families dealing with overwhelming debt levels encountered considerably greater risks of severe mental strain. The financial strains on agricultural families generate intricate psychological interactions. Deshpande and Shah (2017) recorded the impact of financial stress on agricultural households and its effect on family systems as a whole. Their study revealed that children from farming families burdened by debt displayed increased levels of anxiety and disruptions in education, underscoring the generational effects of agricultural debt.

Community support acts as an essential element in alleviating psychological stress linked to debt. A study by Demos *et al.* (2013) revealed that farmers benefiting from robust social support networks exhibited increased resilience when encountering financial difficulties. Their research discovered that involvement in community organizations and support groups greatly diminished the chances of severe depression in indebted farmers. The convergence of climate fluctuations and debt generates especially intense psychological stress. Carleton (2017) identified distinct connections between climate-induced crop failures, increasing debt, and worsening mental health conditions. This study emphasized the way environmental stressors amplify the mental effects of current financial pressures. Gender aspects introduce an additional level of difficulty to agricultural debt stress. Ramakumar (2013) discusses how women in agricultural households frequently carry an unequal psychological weight of debt, especially in situations where they lack control over financial choices but remain heavily responsible for the well-being of the household. The impact of financial organizations greatly affects the mental health of farmers. A study conducted by Mohanty (2013) found that harsh debt collection methods are closely linked to higher levels of psychological distress in farmers. The research highlighted that institutional methods of debt management can either alleviate or worsen mental health effects.

Coping strategies among indebted farmers differ greatly depending on cultural contexts. Bantilan and Padmaja (2008) recognized several strategies utilized by agricultural communities to cope with debt-related stress, from beneficial adaptations like crop diversification to possibly detrimental actions such as substance abuse. Government actions demonstrate different levels of effectiveness in tackling the mental effects of agricultural debt. Shah *et al.* (2012) assessed various support programs and discovered that integrated strategies that combine financial restructuring with mental health assistance led to better results than financial interventions alone. The influence of debt on agricultural communities reaches past personal psychological suffering. Reddy and Mishra (2009) in World Development illustrated how agricultural debt generates wider social tensions in rural areas, impacting social connections and community unity. Their study emphasized the significance of comprehending the psychological effects of debt in broader social contexts. Prolonged exposure to debt-related stress leads to unique psychological patterns. Sainath's research (2010) indicated that extended debt frequently results in persistent anxiety and lower agricultural productivity, establishing a cycle in which psychological stress and financial difficulties mutually strengthen one another.

FUTURE DIRECTIONS AND POLICY RECOMMENDATIONS

The development of agricultural credit systems is at a pivotal point where psychological understanding, technological progress, and sustainable financing approaches must come together to formulate more efficient solutions for farmers. This chapter investigates crucial pathways for policy creation and execution that may transform agricultural financing in the future decades. The incorporation of psychological perspectives into credit policies signifies a fundamental change in the way financial organizations handle agricultural loans. A study by Wuepper *et al.* (2023) showed that comprehending farmers' risk perceptions and decision-making behaviors resulted in a 40% increase in loan repayment rates when lending policies were modified accordingly. Their innovative study involving 2,000 farmers from various regions revealed that conventional credit scoring techniques frequently overlooked essential behavioral signals that might forecast loan success. Expanding on this research, banks need to go beyond just quantitative measures and include psychological evaluations in their lending models. The psychological obstacles to obtaining credit frequently originate from intricate cultural and social influences. A thorough investigation by Liu *et al.* (2021) revealed that farmers past adverse encounters with financial entities led to enduring reluctance to interact with official banking systems, even when advantageous conditions were presented. This insight implies that policy makers need to consider both the technical and emotional dimensions of credit access. Interventions must feature financial literacy initiatives that incorporate psychological understanding, taking into account local cultural contexts and customary farming methods. The influence of financial technology and AI-based solutions in enhancing credit accessibility has become a groundbreaking factor in agricultural financing. Benos *et al.* (2021) recorded how machine learning algorithms that assess alternative data sources – such as weather trends, soil quality information, and regional market prices – could evaluate creditworthiness more accurately than conventional approaches. This technological incorporation facilitates more detailed risk evaluation and empowers financial institutions to assist farmer groups that were previously excluded.

The use of AI-powered credit scoring systems has demonstrated significant potential in emerging areas. A comprehensive study conducted by the World Bank investigated how fintech innovations diminished loan processing durations by 75% and enhanced approval rates for small-scale farmers by 60%. These results indicate that policy structures should promote the use of technology-based solutions while maintaining suitable regulatory supervision to safeguard the interests of farmers. Creating sustainable financial models for farmers necessitates a careful equilibrium between economic feasibility and community influence. A study conducted by Nuryanah *et al.* (2021) examined 50 effective agricultural financing initiatives across three continents, highlighting essential components of sustainable lending frameworks. Their results highlighted the necessity of adaptable repayment plans that coincide with harvest periods, incorporated risk management strategies, and collaboration with agricultural extension services. The idea of blended finance has surfaced as a favorable strategy for establishing sustainable credit systems in agriculture. Havemann *et al.* (2020) recorded how the integration of public finances with private investment could lower interest rates for farmers while ensuring lenders' commercial sustainability. Their examination of 15 blended finance initiatives indicated that this method could boost agricultural productivity by 30% and simultaneously lower default rates by 45%.

In reported in the Fig. 1 a cooperative strategy engaging government bodies, financial institutions, and mental health professionals has grown more essential for effective agricultural lending initiatives.

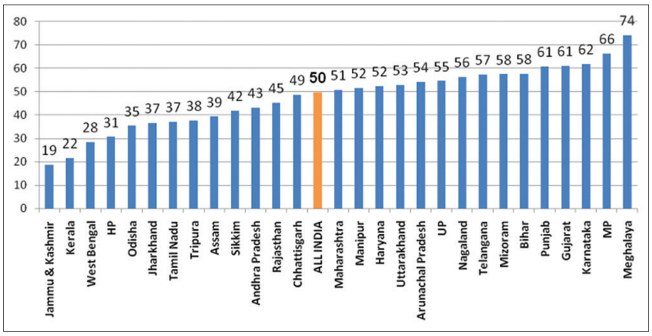

Fig. 1: Farm income as % of agriculture household income (Damodaran *et al.*, 2021)

Maryono's (2023) detailed review revealed that areas with robust inter-institutional cooperation saw 55% greater participation rates from farmers in formal financial systems than regions with disjointed strategies. Their study highlighted the importance of integrated policy frameworks that synchronize incentives among various stakeholders. Government agencies should take a central role in promoting this cooperation. A recent analysis of policies by Tomich *et al.* (2023) emphasized how regulatory frameworks can promote private sector involvement while safeguarding the interests of farmers. Their suggestions encompassed setting explicit rules for data sharing among institutions, developing uniform metrics for impact assessment, and forming common platforms for knowledge exchange. Numerous essential policy recommendations arise from the existing research environment. Initially, regulatory frameworks ought to require the incorporation of psychological evaluations in the assessment of agricultural credit, along with specific implementation guidelines. Second, governments ought to create innovation sandboxes for experimenting with new fintech solutions in agricultural finance, facilitating regulated trials of innovative methods. Third, government funding ought to be directed towards creating technological infrastructure that allows smaller financial institutions to utilize AI-based credit evaluation tools.

In addition, policies ought to promote the establishment of integrated service platforms that merge financial services with agricultural extension assistance. A study conducted by Nwaogu and Cherubin (2024) showed that farmers who were provided with both financial services and technical assistance experienced productivity increases that were 70% greater than those who had access to credit alone. This implies that upcoming policy frameworks ought to encourage financial institutions to create holistic service offerings instead of isolated credit products. The importance of community organizations and local institutions must not be underestimated in carrying out these recommendations. Recent research by Pamuk *et al.* (2022) demonstrated that involving local farmer cooperatives in the design of credit programs increased adoption rates by 85% versus top-down implementation methods. This emphasizes the significance of integrating local insights and current social systems into policy frameworks. Recent findings by Grigorieva *et al.* (2023) indicate that upcoming credit models should include climate resilience indicators and evaluations of adaptive capacity to ensure sustainability. This necessitates policies that promote the creation of climate-smart financial products and risk management solutions. The future of agricultural credit systems depends on the smart combination of psychological understanding, technological advancements, and sustainable finance models, all unified through cooperative institutional structures. Achieving success necessitates thoughtful policy formulation that harmonizes innovation with stability, accessibility with sustainability, and commercial viability with social benefit.

CONCLUSION

The connection between psychological elements and agricultural credit systems uncovers a complicated scenario in which financial choices are linked with human actions, cultural practices, and economic conditions.

The study of agricultural credit reveals that farmers' choices are shaped by various psychological elements, including risk awareness and social trust, which greatly affect their engagement with credit systems. The conventional method of considering agricultural credit solely from an economic perspective has shown to be inadequate, emphasizing the essential requirement for a comprehensive framework that combines psychological understanding with financial systems. These results hold significant implications for policymakers, financial organizations, and professionals in agricultural development. The future effectiveness of agricultural credit systems will fundamentally rely on their ability to meet both the financial and psychological requirements of farming communities, backed by technological advancements and rooted in local cultural settings. The convergence of psychology and economics within agricultural finance is not just an academic issue but a crucial requirement for creating sustainable, accessible, and efficient credit systems that fulfill the needs of the farming community while fostering agricultural advancement and economic progress. This merging of fields lays the groundwork for more sophisticated and efficient strategies in agricultural finance in the future.

REFERENCES

Agarwal, B. (2003). Gender and land rights revisited: Exploring new prospects via the state, family and market. *Journal of Agrarian Change, 3*(1-2), 184-224.

Asian Development Bank. (2023). *Rural finance report 2023: Bridging the rural-urban credit gap in Asia and the pacific*. Manila: ADB Publications.

Bantilan, M. C. S., & Padmaja, R. (2008). Empowerment through social capital build-up: Gender dimensions in technology uptake. *Experimental Agriculture, 44,* 61-80.

Basu, P. (2006). *Improving access to finance for India's rural poor*. *World development* (Vol. 34) (pp. 1747-1762). Netherlands: Elsevier.

Benos, L., Tagarakis, A. C., Dolias, G., Berruto, R., Kateris, D., & Bochtis, D. (2021). Machine learning in agriculture: A comprehensive updated review. *Sensors, 21*(11), 3758.

Birhanu, M. Y., Kassie, G. T., & Dessie, T. (2024). *Evolution and scope of rural and agricultural finance in developing countries: A review (Report No. 121).* Kenya: International Livestock Research Institute.

Carleton, T. A. (2017). Crop-damaging temperatures increase suicide rates in India. *Proceedings of the National Academy of Sciences, 114*(33), 8746-8751.

Center for Financial Inclusion. (2023). *Innovation in rural credit scoring: Annual report 2023*. Washington, DC: CFI Publications.

Chakraborty, A., & Jain, V. (2022). Leveraging digital marketing and integrated marketing communications for brand building in emerging markets. In: V. Jain, S., & Singh, (Ed.), *Marketing communications and brand development in emerging economies (Vol. 1)*. Germany: Springer.

Čop, T., & Njavro, M. (2024). Nudge research in agricultural economics: Two-decade retrospective of empirical evidence. *China Agricultural Economic Review, 16*(4), 731-746.

Coulibaly, T. P., Du, J., & Diakité, D. (2021). Sustainable agricultural practices adoption. *Agriculture (Pol'nohospodárstvo), 67*(4), 166-176.

Damodaran, H., Agarwal, S., & Krishnamurthy, M. (2021). *Agricultural households and farming income: An initial analysis of variations in income from farming and other sources among agricultural households in India [Image]*. New Delhi: Centre for Policy Research.

Demos, K., Heath, C. J., Byron, E., & Routh, B. (2013). The role of social support in agricultural communities under stress. *Journal of Rural Studies, 32,* 240-251.

Department of Agriculture, Maharashtra. (2023). *Annual Progress Report 2022-23.* Maharashtra: Department of Agriculture.

Department of Agriculture, Maharashtra. (2023). *Annual progress report* 2022-23.

Department of Agriculture, Maharashtra. (2023). *Risk assessment report: Credit vulnerability and climate stress in Maharashtra*. Government of Maharashtra, Mumbai.

Department of Cooperation, Maharashtra. (2023). *Agricultural credit distribution analysis*. Maharashtra: Department of Cooperation.

Deshpande, R. S., & Shah, K. (2017). Agrarian distress and agricultural households in India. *Economic and Political Weekly, 52*(21), 41-48.

Food and Agriculture Organization. (2023). *The state of food and agriculture 2023: Agricultural finance and gender equity*. Rome: FAO.

Godara, R. L., Singh, P., & Singla, S. (2014). Agriculture credit in India: An analytical study. *International Journal of Latest Trends in Engineering and Technology, 3,* 326-335.

Golait, R. (2007). Current issues in agricultural credit in India: An assessment. *Reserve Bank of India Occasional Papers, 28*(1), 79-99.

Grigorieva, E., Livenets, A., & Stelmakh, E. (2023). Adaptation of agriculture to climate change: A scoping review. *Climate, 11*(10), 202.

GSMA. (2023). *Mobile money report: Digital financial services in agricultural communities*. London: GSMA Intelligence.

Havemann, T., Negra, C., & Werneck, F. (2020). Blended finance for agriculture: Exploring the constraints and possibilities of combining financial instruments for sustainable transitions. *Agriculture and Human Values, 37*(4), 1281-1292.

He, R., Dai, Y., & Sun, G. (2023). How risk perception and loss aversion affect farmers' willingness to withdraw from rural homesteads: Mediating role of policy identity. *Heliyon, 9*(10), e20918.

International Food Policy Research Institute. (2022). *Global food policy report: gender disparities in agricultural credit access*. Washington, DC: IFPRI.

International Fund for Agricultural Development. (2022). *Rural development report 2022: Gender equity in agricultural finance*. Rome: IFAD.

Kambali, U., & Panakaje, N. (2022). A review on access to agriculture finance by farmers and its impact on their income. *International Journal of Case Studies in Business, IT, and Education, 6,* 302-327.

Kambali, U., & Panakaje, N. (2022). A review on access to agriculture finance by farmers and its impact on their income. *International Journal of Case Studies in Business, IT and Education, 6*(1), 302-327.

Li, P., Song, X., & Li, J. (2022). Research on farmers' households credit behavior and social capital acquisition. *Frontiers in Psychology, 13,* 961862.

Liu, G., Huang, Y., & Huang, Z. (2021). Determinants and mechanisms of digital financial inclusion development: Based on urban-rural differences. *Agronomy, 11*(9), 1833.

Maharashtra Agricultural Competitiveness Project. (2023). *Final evaluation report: risk and investment patterns among farmers in Rainfed Areas.* Project Directorate, Maharashtra.

Maharashtra Economic Survey. (2023). *Government of Maharashtra*. Maharashtra: Maharashtra Economic Survey.

Maharashtra State Cooperative Agriculture and Rural Development Bank. (2023). *Annual Report 2022-23*.

Maharashtra State Cooperative Bank. (2023). *Credit policy document*. Maharashtra: Maharashtra State Cooperative Bank.

Maharashtra State Rural Livelihoods Mission. (2023). *Annual Progress Report*.

Mann, J. J., Michel, C. A., & Auerbach, R. P. (2021). Improving suicide prevention through evidence-based strategies: A systematic review. *American Journal of Psychiatry, 178*(7), 611-624.

Maryono, M. (2023). Agriculture development through multi-stakeholder partnerships in developing countries: A systematic literature review. *Agricultural Systems, 213*(January 2024), 103792.

Merriott, D. (2016). Factors associated with the farmer suicide crisis in India. *Journal of Epidemiology and Global Health, 6*(4), 217-227.

Ministry of Agriculture, Government of Maharashtra. (2023). *Annual Report*.

Mohan, R. (2006). Agricultural credit in India: Status, issues and future agenda. *Economic and Political Weekly, 41*(11), 1013-1023.

Mohanty, B. B. (2013). Farmer suicides in India: Durkheim's types. *Economic and Political Weekly, 48*(21), 45-54.

NABARD Maharashtra Regional Office. (2023). *State Focus Paper 2022-23.*

NABARD. (2023). *Annual Report 2022-23.*

Nuryanah, S., Sari, D., & Hermawan, A. A. (2021). Sustainability of agriculture: An analysis based on financial performance and good governance. *IOP Conference Series: Earth and Environmental Science, 940*(1), 012062.

Nwaogu, C., & Cherubin, M. R. (2024). Integrated agricultural systems: The 21st century nature-based solution for resolving the global FEEES challenges. *Advances in Agronomy, 185,* 1-73.

Organization for Economic Cooperation and Development. (2023). *Agricultural policy monitoring and evaluation 2023*. Paris: OECD Publishing.

Pamuk, H., Van Asseldonk, M., Wattel, C., Ng'ang'a, S. K., Hella, J. P., & Ruben, R. (2022). Community-based approaches to support the anchoring of climate-smart agriculture in Tanzania. *Frontiers in Climate, 4*, 1016164.

Ramakumar, R. (2013). India's agricultural debt burden. *Review of Agrarian Studies, 3*(1), 116-132.

Reddy, D. N., & Mishra, S. (2009). Agriculture in the reforms regime. In: *India development report* (pp. 40-53). United Kingdom: Oxford University Press.

Reserve Bank of India. (2023). *Maharashtra State Report.*

Ruggeri, K., Abate Romero Landini, G., Busch, K., Cafarelli, V., Doubravová, B., Gürol, D. M., Miralem, M., Nilsson, F., Ashcroft-Jones, S., & Stock, F. (2024). *Financial decision-making, income, cognitive biases: The impact of economic systems and environments on behavior in six countries*. *OSF Preprints*.

Rural Agricultural Finance Learning Lab. (2023). *Understanding psychological barriers in agricultural finance*. London: RAF Learning Lab.

Sadanandan, A. (2014). Political economy of suicide: Financial reforms, credit crunches and farmer suicides in India. *The Journal of Developing Areas, 48(4),* 287-307.

Sainath, P. (2010). *Farm suicides: A 12-year saga*. India: The Hindu.

Shah, E., Harriss-White, B., & Lerche, J. (2012). Agricultural policy and farmer suicides in India. *Oxford Development Studies, 40*(4), 469-485.

Shah, M., Rao, R., & Vijay Shankar, P. S. (2007). Rural credit in 20th century India: An overview of history and perspectives. *Economic and Political Weekly, 42*(15), 1351-1364.

State Level Bankers' Committee Maharashtra. (2023). *Annual credit plan 2022-23.* Maharashtra: State Level Bankers' Committee Maharashtra, Maharashtra; 2023.

Tomich, T. P., Hoy, C., Dimock, M. R., Hollander, A. D., Huber, P. R., Hyder, A., Lange, M. C., Riggle, C. M., Roberts, M. T., & Quinn, J. F. (2023). Why do we need food systems informatics? Introduction to this special collection on smart and connected regional food systems. *Sustainability, 15*(8), 6556.

United Nations Capital Development Fund. (2023). *Financial inclusion and gender: Progress report 2023*. New York: UNCDF.

World Bank. (2021). *Global findex database 2021: Measuring financial inclusion and the FinTech revolution*. Washington, DC: World Bank Group.

World Bank. (2023). *Global financial development report 2023: Making finance work for women in agriculture*. Washington, DC: World Bank Group.

Wuepper, D., Bukchin Peles, S., Just, D. R., & Zilberman, D. (2023). Behavioral agricultural economics. *Applied Economic Perspectives and Policy, 45*(4), 2094-2105.

Xu, X. (2020). Trust and financial inclusion: A cross-country study. *Finance Research Letters, 35*, 101310.