From Seed to Sale - Understanding Financial Constraints in Northern Sri Lanka's Paddy Sector

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Abstract

This study examines the financial challenges faced by small paddy farmers in Killinochchi, a district in Northern Sri Lanka that is recovering from war conflict. Although these farmers play an important role in ensuring the country's food supply, they struggle to get loans from banks, store their harvests properly and connect with better markets. The study is based on interviews with twenty farmers and uses thematic analysis to understand their experiences. Five main issues were found, which are a lack of access to formal credit, dependence on informal loans, the need to sell crops quickly after harvest, poor financial knowledge, risks from floods and droughts, and limited awareness of better market options. These problems keep farmers stuck in a cycle of debt and low profits. The study suggests that improving access to affordable credit, building better storage facilities, offering financial training and linking farmers to export markets can help strengthen their income and improve rural development.

Keywords: Climate risk, financial exclusion, Informal credit, post-harvest constraints, Rural finance

Introduction

Rice cultivation is central to Sri Lanka's food security, economy, and rural livelihoods. In the year 2022/23, paddy farming spanned approximately 1.32 million hectares, with 812,601 hectares cultivated during the Maha season and 505,076 hectares during the Yala season (Department of Census and Statistics (DCS), 2024). This land use represents about 29% of the country's total cultivated area, producing 4.16 million metric tons of paddy, which was sufficient to meet the annual domestic rice requirement. On average, 3.61 tons per hectare were harvested, indicating the system's resilience despite facing economic and climatic disruptions. (Department of Agriculture, 2023)

Paddy farming supports around 2.1 million farmer families island-wide, reinforcing its significance in sustaining rural incomes. However, the cost of production is estimated at Rs. 81.73 per kilogram in irrigated systems and Rs. 84.61 in rain-fed areas, is rising, with major expenses attributed to agricultural inputs (38%), machinery (30%), and labour (32%) (Department of Agriculture, 2023). These rising costs disproportionately affect smallholder farmers, especially those in Killinochchi District, where the majority of the 23,345 farm households cultivate plots ranging between 1 and 2 hectares (Rajan & Tharshini, 2019).

Despite their contribution to national food security, smallholders in Killinochchi face deep-rooted financial and operational barriers. Access to institutional credit is limited by collateral requirements, procedural burdens, and low financial literacy. As a result, farmers often resort to informal lenders and pawning, facing interest rates that may exceed 35% per annum, which perpetuates a cycle of high-cost debt and repayment stress (Central Bank of Sri Lanka, 2019).

Financial constraints also influence post-harvest behaviour. Without access to drying pads or storage facilities, farmers are forced to sell their paddy immediately after harvesting at depressed market prices, just to settle debts. This liquidity-driven behaviour erodes long-term profitability and undermines reinvestment potential. Additionally, farmers lack awareness of available subsidy schemes, low-interest credit programs, and export market opportunities, further limiting their ability to escape subsistence-level production cycles.

Climate risks such as floods, prolonged dry spells, and erratic rainfall continue to intensify the vulnerability of smallholder farmers. Addressing these challenges requires more than agronomic interventions. It calls for a fundamental transformation in how farmers access financial resources, manage production risks, and respond effectively to shifting market dynamics.

Objective of the Study

The objective of the study is to explore how financial exclusion, informal lending, post-harvest practices, and environmental shocks constrain the economic viability of rural agriculture. Through a financial lens, the findings contribute to the discourse on inclusive rural finance, agricultural sustainability, and post-conflict development policy in Sri Lanka.

Literature Review

Theoretical Foundations

Financial Constraint Theory

The seminal work by Stiglitz and Weiss (1981) outlines how credit markets, particularly in rural and developing settings, are often characterised by credit rationing due to asymmetric information and collateral scarcity. Smallholder farmers, like those in Killinochchi, typically lack formal credit histories or tangible assets to offer as security, making them inherently riskier clients in the eyes of formal lenders. This leads to persistent underinvestment in agriculture despite high marginal returns.

Behavioural Economics in Agricultural Finance

As shown in behavioural economics literature (Thaler & Sunstein, 2008), decision-making is often shaped by heuristics and biases such as present bias. These concepts help explain why smallholder farmers may favour immediate liquidity (e.g., distress sales) over longer-term financial planning in high-risk environments.

Post-Harvest Loss and Value Chain Theory

The Food and Agriculture Organization (FAO) (2020), emphasises that lack of access to drying, storage, and aggregation infrastructure causes significant post-harvest losses and value leakage in smallholder supply chains. These gaps limit farmers' ability to capture price premiums or delay sales until market conditions improve, locking them into low-margin cycles.

Empirical Evidence

Financial exclusion remains a persistent barrier for smallholder farmers across South and Southeast Asia, particularly in post-conflict and rural regions like Killinochchi. Structural challenges such as a lack of collateral, complex documentation procedures, and limited financial literacy often prevent farmers from accessing formal credit facilities. As a result, many resort to informal lending channels, including pawning, moneylenders, and family-based borrowing, which, while more accessible, often impose high interest rates and limited repayment flexibility. Odari et al. (2025) observed that informal lending networks serve as critical financial lifelines in marginalised agricultural communities, supporting household consumption and agricultural continuity in the absence of institutional alternatives. However, reliance on such informal systems also perpetuates cycles of short-term debt and inhibits long-term investment. Further, Deyshappriya et al. (2024) found that only a minority of Sri Lankan smallholders access formal credit. Farmers often rely on pawn brokers and village lenders, with interest rates exceeding 30 - 40% annually.

In post-conflict regions like Killinochchi, the enduring effects of Sri Lanka's civil war continue to shape the agricultural and financial realities of rural farming communities. Many smallholder farmers have experienced long-term disruptions to land access and irrigation networks, both vital for sustaining paddy cultivation. As Williams et al. (2023) note, the protracted nature of the conflict has exacerbated the vulnerability of rural ethnic minority populations by fundamentally reshaping their access to critical natural resources, including arable land and water. In many cases, farmers have lost legal documentation or secure tenure over ancestral lands, making them ineligible for formal credit or government assistance programs. Simultaneously, the destruction or abandonment of small tank systems and canal infrastructure during the conflict has impaired reliable irrigation access, increasing dependency on erratic rainfall. These compounding challenges have deepened financial exclusion and hindered recovery, leaving many Northern farmers locked in subsistence farming cycles with limited institutional support.

While Sri Lanka has a growing body of quantitative research on agricultural credit, there is limited qualitative work that centres on the lived financial experiences of smallholder farmers in post-conflict regions. This study addresses the gap using thematic analysis to unpack how financial exclusion, post-harvest behaviour, and climate risk combine to shape the financial strategies of Killinochchi's paddy farmers.

Methodology

A qualitative, exploratory design was adopted, using semi-structured interviews with twenty small-sized farmers in Killinochchi. Participants were selected through purposive sampling, with criteria including experience in both Maha and Yala seasons and landholdings between one and two hectares. Interviews were conducted in Tamil between January and March 2024 and later transcribed and translated into English. The data were analysed using Clarke's thematic analysis method. Initial descriptive first-order codes were developed based on farmers' expressions, which were then grouped into interpretive second-order codes and synthesised into five emergent themes. The rigours of the study were ensured through member checking, field observation and triangulation with extension officers.

Theme	**Second-Order Codes (Concepts)**	**First-Order Codes (Farmer Insights)**
1. Financial Exclusion & Informal Credit Dependence	**-** Barriers to formal credit**-** High reliance on pawning	"Bank needs too many papers", "Pawn shop is easy"
2. Post-Harvest Liquidity Pressure	**-** Immediate sale after harvest**-** No drying or storage options	"Sold paddy next day to pay debt"; "No place to store – use the road"
3. Poor Financial Literacy & Planning	**-** No record-keeping**-** No savings culture	"Don't write expenses"; "Spend as it comes, start again"
4. Environmental Vulnerability	**-** Floods and erratic rainfall**-** Crop failure and input loss	"Last season's crop went underwater", "No harvest in dry year"
5. Limited Market Orientation & Export Disconnect	**-** Local demand focus**-** Lack of awareness of export standards	"We plant what traders ask", "Don't know how to export"

Findings and Thematic Analysis

Thematic analysis of the interviews revealed five major interrelated themes that capture the financial and post-harvest challenges experienced by smallholder paddy farmers in Killinochchi.

Source: Collected from interviewees

Theme 1 - Financial Exclusion and Dependence on Informal Credit

Many farmers expressed a strong reluctance to engage with formal banking institutions. Common reasons included excessive documentation requirements, lack of guarantors, and previous rejection of loan applications. As a result, the majority relied on pawning jewellery or borrowing from informal lenders. These alternatives, though quick and less bureaucratic, often carried interest rates exceeding 35%, creating long-term repayment burdens and deepening dependency. Farmers described these financial choices as necessary, particularly to purchase inputs during the cultivation cycle. This finding aligns with Akram and Hussain (2008), who documented similar credit avoidance behaviour in India.

Theme 2 - Post-Harvest Liquidity Pressures and Infrastructure Deficits

Interviewees consistently highlighted the absence of adequate storage and drying facilities, which compelled them to sell paddy immediately after harvest. In many cases, drying was done on roadside pavements or open fields, exposing the grain to contamination and loss. The urgency to settle debts, particularly from informal lenders, further pushed farmers to accept low market prices at harvest time, even when they were aware that prices would rise in the weeks that followed. These post-harvest constraints are consistent with findings by Gummert (2019), who noted that inadequate infrastructure severely limits income retention among smallholders in Southeast Asia.

Theme 3 - Limited Financial Literacy and Absence of Record-Keeping

A striking pattern among participants was the near-total absence of financial planning. Most farmers did not track expenses, profits, or borrowing patterns. Several admitted they "spend as they go" and "start fresh with new loans each season." This lack of documentation and forward planning prevents savings, hinders loan eligibility, and makes them vulnerable to exploitative lenders. These insights echo the findings of Zins and Weill (2016), who showed that low financial literacy directly contributes to persistent poverty among rural populations.

Theme 4 - Environmental Vulnerability and Production Risk

Farmers reported increasing exposure to climatic irregularities, especially floods and inconsistent rainfall, which disrupt planting schedules and destroy crops. One farmer noted that “last season in January 2025, everything drowned.” Most had no crop insurance or savings buffer to recover from such events. This climatic vulnerability, coupled with debt obligations, significantly heightens financial distress. Zagre et al. (2024) emphasised that without climate-adaptive tools, smallholders face disproportionate economic shocks in the face of weather variability.

Theme 5 - Narrow Market Orientation and Lack of Export Awareness

Most participants reported cultivating only the varieties demanded by local traders, with little knowledge of the quality requirements for export or higher-value urban markets. Farmers expressed interest in exploring these opportunities but lacked the necessary support and information. This short-term, price-driven production behaviour reflects a broader disconnect from organised value chains. Jayalath and Perera (2021) argue that smallholders must be integrated into formal market structures and trained on post-harvest handling and certification to move beyond subsistence.

Discussion

This study sheds light on the multifaceted financial and post-harvest challenges faced by smallholder paddy farmers in Killinochchi. The themes emerging from the data, ranging from financial exclusion to climate vulnerability, reveal a systemic cycle of instability rooted in both institutional and behavioural factors. Drawing on the theoretical frameworks of financial constraint theory and behavioural economics, these findings offer important insights into the structural transformation needed to support smallholder agriculture in post-conflict regions.

The first theme, financial exclusion and informal credit dependence, reinforces the core premise of Stiglitz and Weiss's (1981) model of credit rationing, wherein information asymmetry and collateral scarcity limit access to formal credit. This is further supported by Mutambara (2016), who explained how smallholder farmers' lack of collateral and formal land titles in Zimbabwe limits their access to institutional credit, forcing them into informal lending arrangements with unfavourable terms. In Killinochchi, this is compounded by residual effects of civil conflict, such as loss of documentation or legal land titles, which continue to hinder banking access. As a result, farmers turn to informal lenders despite high interest rates, entering a debt trap that erodes net income and undermines long-term viability.

The second theme, post-harvest liquidity pressures and lack of infrastructure, highlights a bottleneck in the value chain that leads to premature sales and suppressed prices. Despite being aware of seasonal price cycles, most farmers are forced to liquidate their harvest immediately due to loan obligations and lack of safe storage which is supported by Aheeyar et al. (2023) finding of inadequate post-harvest infrastructure. This behaviour is not simply a rational economic decision, but rather one constrained by external debt stress and internal liquidity needs.

The third theme, poor financial literacy and absence of record-keeping, reflects a critical behavioural constraint. The lack of even basic bookkeeping among farmers indicates that most operate without visibility over their income and expenses, making it difficult to evaluate profitability, plan for reinvestment, or build credit histories. According to Thaler and Sunstein (2008), such behaviour can stem from present bias and low trust in future outcomes, both common in economically insecure environments. Interventions in financial literacy, tailored to rural farming contexts, are essential for enabling long-term financial planning (Abeyrathna, 2024).

Environmental vulnerability, as shown in Theme 4, adds an unpredictable dimension to financial risk. Floods and prolonged dry spells were frequently mentioned by farmers as causes of total crop failure, yet none of the interviewees had crop insurance or access to emergency finance. Greatrex et al. (2015) emphasised that without index-based climate insurance or climate-resilient financing instruments, smallholders bear the full weight of natural shocks, leading to a compounding of debt and distress sales.

Finally, theme 5 identifies a market disconnect, where production is driven solely by local trader demand, with no awareness or support for quality standards, value addition, or export requirements. This finding is aligned with Jayalath and Perera (2021), who argue that integrating smallholders into structured value chains is critical for sustainable rural transformation. Without coordinated linkages to higher-value markets or buyers, smallholders remain locked into low-margin trading systems that reward volume over quality.

In sum, the findings highlight a vicious cycle of undercapitalisation, reactive financial behaviour, and limited market orientation, all of which are worsened by environmental risk. A strategic response requires not only expanding rural finance infrastructure but also transforming the informational and behavioural systems that shape decision-making among smallholders.

Policy Implications and Recommendations

The thematic findings of this study suggest that smallholder paddy farmers in Killinochchi operate within a fragile ecosystem shaped by financial exclusion, infrastructure deficits, environmental vulnerability, and market isolation. Addressing these interconnected issues requires an integrated set of policy responses that target both structural reforms and behavioural change.

Expand Inclusive Agricultural Finance

A primary recommendation is to enhance access to formal, low-interest credit mechanisms tailored to the needs of smallholders. This includes simplifying documentation procedures, offering non-collateralised microcredit, and leveraging digital identity systems for verification. Revitalising cooperative rural banks and farmer organisations as financial intermediaries could increase reach and reduce default risk. Financial institutions should also consider flexible repayment structures synchronized with the crop cycle to avoid forcing premature sales.

Promote Financial Literacy and Record-Keeping

Government agencies and NGOs should introduce localised financial literacy programs, delivered in Tamil, that focus on budgeting, expense tracking, understanding interest rates, and distinguishing between formal and informal credit options. Encouraging farmers to maintain basic ledger books or adopt mobile-based bookkeeping apps (where digital literacy permits) could support better financial decision-making and credit eligibility.

Invest in Post-Harvest Infrastructure

Immediate attention should be given to improving drying and storage facilities at the village or divisional level. This includes the construction of community-level paddy storage units, solar drying pads, and the promotion of improved post-harvest handling practices. Public–private partnerships can play a role in financing and maintaining such facilities. Enabling farmers to store grain and wait for favourable prices would significantly enhance profit margins and reduce distress sales.

Introduce Climate-Resilient Financial Tools

Given the exposure to floods and unpredictable rainfall, the introduction of index-based weather insurance could provide a safety net during bad seasons. Bundling insurance products with seasonal loans, subsidised fertilisers, or extension services would incentivise uptake. Additionally, climate forecasting and disaster early-warning systems should be decentralised to ensure timely access at the community level.

Strengthen Market Linkages and Value Chain Integration

To overcome narrow market orientation, government extension services must collaborate with export promotion agencies, chambers of commerce, and private buyers to connect Killinochchi's farmers with higher-value and export-oriented markets. Training on Good Agricultural Practices (GAP), quality certification, and packaging standards can position farmers to participate in more profitable segments of the rice value chain. Strengthening farmerproducer organisations could also improve bargaining power and facilitate collective marketing.

Revive Agricultural Extension and Advisory Services

Many farmers interviewed were unaware of available subsidies, government credit schemes, or export prospects. This indicates a gap in last-mile communication. Reactivating and resourcing the agricultural extension service with regular field visits, mobile advisory units, and helplines can ensure that farmers receive up-to-date information on schemes, inputs, and market trends.

Conclusion

This study explored the financial, post-harvest, and market-related challenges faced by smallholder paddy farmers in Killinochchi, Sri Lanka, through a thematic analysis of 20 in-depth interviews. The findings reveal a web of interconnected issues rooted in financial exclusion, infrastructural gaps, low financial literacy, climatic vulnerability, and market disconnection that constrain the economic viability of paddy farming in this post-conflict region.

Farmers in Killinochchi are not merely engaged in agricultural production but are navigating survival under systemic constraints. Their exclusion from formal credit channels pushes them toward high-cost, informal lending arrangements, perpetuating debt cycles. Meanwhile, the absence of drying and storage infrastructure compels premature sales at low prices, limiting income potential and reinforcing short-term thinking. The lack of record-keeping and financial planning compounds this fragility, while exposure to unpredictable weather patterns introduces further risk without insurance or state-backed safety nets. Additionally, the focus on cultivating for local demand, without awareness of export standards, illustrates a lack of integration into higher-value chains.

Through a financial lens, the study underscores the urgent need to rethink rural development strategies, especially in post-conflict districts like Killinochchi. Smallholder farmers require more than subsidies or one-time grants; they need inclusive financial systems, reliable infrastructure, climate-adaptive tools, and strategic market integration. The evidence calls for coordinated policy interventions and grassroots-level reforms that can support long-term resilience and upward mobility for rural farming households.

By situating the voices of smallholder farmers within broader financial and policy debates, this research contributes to the academic literature on rural finance, agricultural livelihoods, and development in frontier economies. It also offers practical recommendations for policymakers, development practitioners, and financial institutions seeking to transform Sri Lanka's agricultural landscape in a more equitable and sustainable direction.

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