**Introduction**

Access to credit remains a cornerstone for enhancing agricultural productivity, particularly in regions where farming is a primary economic activity and food security challenge. Credit serves as a catalyst for farmers, enabling them to invest in productivity-enhancing inputs such as quality seeds, fertilizers, irrigation systems, and modern machinery. However, disparities in credit access, inefficient utilization of agricultural loans, and high borrowing costs continue to undermine the transformative potential of agricultural credit. Many smallholder farmers lack access to affordable credit due to structural barriers, including insufficient collateral and bureaucratic hurdles imposed by formal financial institutions. Consequently, farmers often resort to informal credit sources with exploitative terms, further diminishing their capacity to achieve sustained productivity gains (Jimi, Nikolov, Malek, & Kumbhakar, 2019; Assouto & Houngbeme, 2023). A significant concern is the diversion of agricultural loans to non-productive uses, such as personal or household expenses. This practice, combined with the high interest rates associated with many credit facilities, reduces the net returns from borrowing and disincentivizes investments in agriculture (Samson & Obademi, 2018). Additionally, the opportunity cost of borrowing becomes a critical consideration, as farmers evaluate whether the expected return on investment (ROI) outweighs the financial burden imposed by loan repayment obligations (Nordjo & Adjasi, 2020). This study explores the multifaceted relationship between credit access and agricultural productivity. Specifically, it examines the sources and gaps in credit availability, the diversion of loans to personal uses, the opportunity of getting credit and the impact of the alternative sources and the implications of interest rates on farmers’ borrowing decisions. The study further assesses whether reducing interest rates could improve credit utilization and agricultural outcomes. Through a comprehensive analysis of these dynamics, the study aims to inform policies and strategies that enhance the accessibility, affordability, and impact of agricultural credit.

### Background to the Study

Agriculture is a fundamental sector in many economies, contributing to GDP, employment, and food security. In low-income and middle-income countries, smallholder farmers account for a substantial share of agricultural output, yet they face numerous barriers to accessing the resources needed to improve productivity. According to the International Fund for Agricultural Development (IFAD, 2019), only a fraction of small-scale farmers in developing regions have access to formal credit. Financial institutions often prioritize larger, commercially oriented agricultural enterprises, leaving smallholders reliant on informal credit sources or self-financing. Formal credit institutions, including banks and microfinance organizations, typically impose stringent collateral requirements, high-interest rates, and bureaucratic application procedures. These barriers disproportionately exclude smallholder farmers, many of whom lack land titles or other forms of acceptable collateral (World Bank, 2021; Jimi et al., 2019). On the other hand, informal credit sources, such as moneylenders and community lending groups, often provide easier access but at exorbitant interest rates that erode profitability (Zeller & Sharma, 2019; Adewale, Lawal, Aberu, & Toriola, 2022). This dual challenge of limited access and high costs underscores the need for targeted interventions to bridge the agricultural credit gap. Compounding these issues is the inefficient utilization of agricultural loans. Research shows that a significant portion of agricultural credit is diverted to non-agricultural purposes, including household consumption, medical expenses, and social obligations (Okurut et al., 2020; Samson & Obademi, 2018). This diversion reduces the effectiveness of credit in driving agricultural productivity and highlights the need for improved loan monitoring and farmer education on financial management. Interest rates play a pivotal role in shaping farmers' borrowing decisions. High-interest rates increase the cost of credit, discouraging farmers from taking loans for productive investments (Feder et al., 2020). Instead, many farmers prioritize immediate financial needs over long-term agricultural investments, thereby limiting the transformative potential of credit (Assouto & Houngbeme, 2023). The opportunity cost associated with borrowing further complicates decision-making, as farmers must weigh the financial burden of loan repayment against the expected benefits of agricultural investments.

### Problem Statement

Despite the critical role of credit in driving agricultural productivity, many farmers face significant challenges in accessing and utilizing loans effectively. Structural barriers, such as collateral requirements and bureaucratic hurdles, limited access to formal credit and informal sources that often impose high-interest rates erode profitability (Nordjo & Adjasi, 2020). The diversion of agricultural loans to personal uses further undermines the potential impact of credit on productivity (Samson & Obademi, 2018). High-interest rates exacerbate these challenges by increasing the cost of borrowing and reducing the net returns from agricultural investments. Farmers frequently struggle to justify the opportunity cost of borrowing, particularly when the expected ROI is insufficient to offset the financial burden of loan repayment (Jimi et al., 2019). These issues raise important questions about the effectiveness of existing credit mechanisms and whether policy interventions, such as interest rate reductions and improved monitoring, could enhance the accessibility and impact of agricultural loans.

**Study Objectives**

1. To identify the primary sources of agricultural credit and their accessibility to smallholder farmers.
2. To examine the utilization of agricultural loans and the extent to which they are diverted to non-productive purposes.
3. To analyze the impact of interest rates on the opportunity cost of borrowing and returns on agricultural investments.

**Research Questions**

1. What are the primary sources of agricultural credit, and how accessible are they to farmers?
2. To what extent are agricultural loans diverted to non-agricultural purposes, and what factors contribute to this diversion?
3. How do interest rates and opportunity costs influence farmers’ borrowing decisions and agricultural investments?

**Literature review**

**Credit access and agricultural productivity.**

Access to credit is a vital enabler for agricultural development, particularly in economies where smallholder farmers dominate food production. Credit facilitates the purchase of inputs such as improved seeds, fertilizers, pesticides, and irrigation systems, which directly enhance productivity. Feder et al. (2020) highlight that farmers with access to credit are significantly more likely to adopt modern agricultural technologies compared to those without. These technologies contribute to increased yields, better quality produce, and greater resilience to environmental shocks. Despite the transformative potential of credit, access remains a persistent challenge, particularly in developing regions. Studies indicate that only 20–30% of smallholder farmers in these regions can access formal credit, while the majority rely on informal sources or personal savings (Zeller & Sharma, 2019). Limited access to formal credit perpetuates a cycle of low investment, as smallholders often lack the capital needed to adopt advanced farming practices. This gap is particularly pronounced in rural areas, where financial institutions are scarce and farmers often have insufficient collateral to secure loans.

Moreover, the absence of credit reinforces reliance on traditional and subsistence farming practices, which are less productive and less profitable. For example, a study conducted in sub-Saharan Africa found that farmers with access to credit achieved 50% higher yields on average compared to those without, primarily due to their ability to invest in fertilizers and irrigation (IFAD, 2019). The lack of credit access also limits farmers’ ability to scale up their operations, reducing their competitiveness in local and international markets. Credit access is not only a driver of productivity but also a buffer against agricultural risks. In regions prone to climate variability, farmers with access to credit are better equipped to adopt risk-mitigating technologies, such as drought-resistant crops and advanced irrigation systems (World Bank, 2021). However, without adequate financial support, smallholders remain vulnerable to crop failures, income shocks, and food insecurity. Expanding access to credit is therefore critical for achieving sustainable agricultural development and improving rural livelihoods.

**Sources of agricultural credit**

Farmers access credit through a range of formal and informal channels, each offering distinct advantages and challenges. Formal credit sources include commercial banks, microfinance institutions, cooperative banks, and government-funded agricultural development programs. These institutions provide structured loans with relatively low-interest rates and longer repayment periods. However, their stringent eligibility criteria often exclude smallholder farmers, who typically lack collateral, credit histories, and formal identification documents (World Bank, 2021). Commercial banks, for instance, prioritize large-scale agribusinesses due to their lower risk profile and higher profitability. Smallholders, on the other hand, are considered high-risk borrowers, leading to their exclusion from formal financial services. Microfinance institutions have attempted to address this gap by offering smaller, unsecured loans tailored to the needs of rural farmers. Despite their accessibility, microfinance loans often come with higher interest rates compared to commercial banks, limiting their affordability for resource-poor farmers (Henry et al., 2020).

Informal credit sources, such as moneylenders, cooperatives, and family networks, play a significant role in meeting farmers’ financial needs, particularly in rural areas. These sources are often more accessible, as they do not require formal documentation or collateral. Moneylenders, for instance, provide quick loans without bureaucratic delays, enabling farmers to address urgent financial needs, such as purchasing inputs during planting season. However, the high-interest rates charged by moneylenders can erode farmers’ profits, leaving them trapped in cycles of debt (Okurut et al., 2020). Cooperatives and community-based savings groups offer an alternative to both formal and informal credit. These organizations pool resources from their members and provide low-interest loans to farmers. While they are effective in promoting financial inclusion, their limited capital often restricts the loan amounts they can offer, making them insufficient for large-scale agricultural investments. The disparities in credit access highlight the need for innovative financial models that bridge the gap between formal and informal credit systems. Value chain financing, for example, links farmers to buyers, input suppliers, and financial institutions within a single framework, reducing risks for lenders and ensuring that credit is used for productive purposes (IFAD, 2019). Expanding access to diverse credit sources is critical for enabling farmers to meet their financial needs and invest in productivity-enhancing technologies.

**Utilization of agricultural loans**

The effectiveness of agricultural credit depends not only on access but also on how loans are utilized. Studies show that a significant proportion of agricultural loans is diverted to non-agricultural purposes, such as household consumption, medical expenses, and social obligations (Henry et al., 2020). This misuse reduces the potential impact of credit on productivity and highlights the need for better monitoring and education on financial management. Loan diversion is often driven by the financial constraints faced by smallholder farmers, who must balance agricultural investments with urgent household needs. For example, farmers may use part of their loan to pay for school fees, medical bills, or social events, such as weddings and funerals. While these expenses are important, they detract from the intended purpose of the loan, limiting its effectiveness in boosting agricultural productivity (Okurut et al., 2020).

Financial literacy also plays a critical role in loan utilization. Farmers with limited knowledge of financial management are more likely to misuse credit or fail to allocate resources effectively. Studies indicate that financial literacy programs can significantly improve loan utilization by teaching farmers how to budget, plan investments, and prioritize agricultural expenditures (Feder et al., 2020). For instance, a program implemented in Kenya found that farmers who received financial training achieved 30% higher yields compared to those who did not, as they were better equipped to allocate their loans to productive activities. To address loan diversion, financial institutions must strengthen their monitoring mechanisms and provide tailored support to borrowers. Regular follow-ups, combined with clear loan agreements that specify acceptable uses of funds, can reduce misuse and improve credit impact. Additionally, integrating credit disbursement with input delivery systems can ensure that loans are used for their intended purpose. For example, financial institutions could partner with input suppliers to provide loans in the form of vouchers that can only be redeemed for seeds, fertilizers, and other agricultural inputs.

**Interest rates and opportunity costs**

Interest rates are a critical factor influencing farmers’ borrowing decisions and the overall effectiveness of agricultural credit. High-interest rates increase the cost of borrowing, reducing the profitability of agricultural investments and discouraging farmers from taking loans. Feder et al. (2020) argue that high-interest rates disproportionately affect smallholder farmers, who already face thin profit margins and high production costs. The opportunity cost of borrowing becomes a key consideration in this context. Farmers must evaluate whether the potential returns from their agricultural investments outweigh the financial burden of loan repayment. For example, if the interest rate on a loan is 15% and the expected ROI from the investment is 12%, borrowing becomes economically unviable. This dynamic explains why many farmers choose not to borrow, even when credit is available.

Reducing interest rates could significantly enhance the financial viability of agricultural loans, making them more attractive to farmers. Lower rates would reduce the cost of credit, enabling farmers to achieve higher net returns from their investments. Studies suggest that a 5% reduction in interest rates could increase loan uptake by 20–30%, leading to higher adoption of productivity-enhancing technologies (Zeller & Sharma, 2019). Interest rates also influence loan repayment behaviour. Farmers with high-interest loans are more likely to default, particularly during poor harvest seasons or periods of market volatility. By lowering interest rates, financial institutions can reduce default risks and create a more sustainable lending environment.

#### ****Return on investment in agriculture****

The return on investment (ROI) in agriculture varies depending on factors such as crop type, market conditions, and input costs. For example, cash crops like coffee and cocoa often yield higher returns compared to staple crops like maize or rice. However, high-interest rates can erode these returns, making credit less attractive for farmers. Zeller & Sharma (2019) note that when interest rates exceed 15%, the net returns from borrowing often become negligible or negative, discouraging farmers from investing in agriculture. To maximize ROI, farmers must carefully plan their investments and align them with market opportunities. For instance, investing in high-value crops or adopting precision farming techniques can significantly enhance productivity and profitability. However, these strategies often require substantial upfront capital, underscoring the importance of affordable credit. Reducing interest rates could play a transformative role in enhancing ROI. Studies show that farmers with access to low-interest loans achieve 30–40% higher returns compared to those with high-interest loans, as they can allocate more resources to productivity-enhancing inputs (Feder et al., 2020). Additionally, lowering interest rates could enable farmers to invest in long-term assets, such as irrigation systems and machinery, which yield sustained productivity gains over time.

**Project appraisal and monitoring**

Effective project appraisal is essential for ensuring that credit is allocated to viable agricultural projects. Financial institutions must assess the feasibility, sustainability, and expected ROI of proposed investments before disbursing loans. This process involves evaluating the farmer's financial history, market conditions, and production capacity to determine the likelihood of success (World Bank, 2021). Monitoring mechanisms are equally important for ensuring that loans are used effectively. Regular follow-ups and site visits can help financial institutions track progress and identify potential issues early. For example, a monitoring program implemented in India found that farmers who received regular visits from loan officers were 25% less likely to divert their loans compared to those who did not (IFAD, 2019). Farmer education programs can complement project appraisal and monitoring efforts. By providing training on financial management, market analysis, and risk assessment, these programs equip farmers with the skills needed to maximize

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