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ACCESSING FINANCE TO INVEST IN AGRIFOOD A REVIEW OF EXPERIMENTAL EVIDENCE



This brief focuses on the impacts of access to finance on farmers' investments and how it can enable investments in farms and businesses. It examines experimental and quasi-experimental evidence around farmers' and small and medium-sized enterprises' (SMEs) access to finance, the economic impacts of accessing financial services on investments, and the constraints of accessing finance in lower-middle-income countries (LMICs). The evidence presented can help policymakers enhance investment and agricultural productivity by providing them with insights into agricultural finance and credit, risk, and savings interventions.

A few caveats on data and methodology are necessary. Savings products have been designed to help users accumulate capital for investments or as collateral to get credit. Risk products can serve to help farmers smooth incomes, however, evidence shows mixed results *vis-à-vis* risk-taking behaviours. Positive outcomes can fluctuate from year to year, and consequently, farmers who receive a one-time payout are reluctant to continue subscribing to insurance. SMEs may not have the cash to invest, and the

lack of formal financial services in rural areas and the limited facilities for credit and savings can inhibit investment.

This brief summarizes evidence from 43 experimental studies that were conducted in LMICs to analyse the ways in which access to finance and its services affect productivity and profitability. The evidence presented demonstrates how access to finance through channels such as Village Savings and Loan Associations (VSLAs) can effectively help increase savings and allow for easy access to credit, especially for women farmers and entrepreneurs in LMICs. That said, experimental or quasi-experimental studies are context specific, and only a few assess the impacts on households. Risk products like agricultural insurance can protect farmers from shocks and help them manage risks. This brief presents findings and policy implications on access to financial products and services and their effect on the livelihoods of farmers and SMEs. Based on this framework, the review addresses key challenges facing policymakers seeking to provide better access to finance in agriculture.

Access to finance studies by topic

The brief includes evidence from 43 experimental studies on agricultural finance and credit, risk, and savings interventions in the context of LMICs. We analysed the ways in which access to finance and uptake of financial products and services affect smallholder farmers and SMEs' productivity, investments, and profitability, and highlight important trends.

Of the 17 studies reviewed on credit products, nine found outright positive economic impacts on farm and SME productivity, income, labour, profit, and investments. Ten out of 14 risk studies demonstrated outright positive impacts, as was the case for seven out of nine savings studies. The remaining three studies provided broad insights from experimental interventions addressing issues within access to finance.



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Access to credit has the potential to increase investment, market access, and smooth income.

In general, experimental and quasi-experimental evidence highlights that access to credit provides farmers and SMEs with opportunities to invest in new technologies and produc-

tive inputs, access working capital, and tap into new markets. At the same time, it suggests that borrowers experience heterogeneous economic outcomes from using credit.

Credit can stimulate input and technology investment and livelihood opportunities, but economic returns vary.

Evidence from Asia and sub-Saharan Africa indicates that farmers and SMEs use credit to invest in productive technologies that may otherwise be unaffordable. Studies suggest that credit can improve smallholders' bargaining power and farm productivity through increased technology use. To assess whether credit increases loan take-up and technology adoption, Jack *et al.* (2016) offered collateralized loans to smallholder dairy farmers to take-up harvesting tanks in Kenya. They found that loan take-up increased by almost

forty percentage points (from 2.4 percent to 41.9 percent) when farmers could collateralize their loans with the water tanks. Looser borrowing requirements increased credit take-up and investment.

In Nepal, Mukherji *et al.* (2017) provided Nepalese farmers with financing through grant-loans (60 percent grants and 20 percent loans of the total cost) to encourage them to take up environmentally beneficial – but expensive – solar-powered irrigation pumps. The cost of the solar

pumps remained too high for smallholders even with access to finance. Solar pumps were mostly taken up by wealthier farmers with more land who already practised irrigation because they could afford it.

Along with stimulating technology adoption, credit availability can encourage farmers to invest in productive inputs like hybrid seeds and fertilizers. In Uganda, Matsumoto *et al.* (2013) found that credit increased significantly the purchase of chemical fertilizer and hybrid seeds. Crop yields doubled when farmers adopted these inputs. Hossain *et al.* (2018) offered microcredit to landless and tenant farmers in Bangladesh to assess how it improved their livelihoods and stimulated investment. Farmers receiving microcredit were more likely to adopt high yield and hybrid seed varieties, year-round. Their crop income increased by USD 56 from USD 169, and wage income decreased by USD 64 from USD 571 to USD 507 compared to those who did not receive microcredit.

Beyond facilitating investment in productive agricultural inputs, credit access can also play a role in users' employment though socioeconomic outcomes vary. In rural Morocco, Crépon *et al.* (2015) found that access to microcredit expanded borrowers' self-employment activities like animal husbandry and farming. Self-employment income

also increased, but employment income decreased due to a drop in outside labour. In addition, business profits for entrepreneurs increased, on average, by 140 percent, but 25 percent of complying microcredit entrepreneurs experienced negative profits. The heterogeneity suggested that farmers were uncertain about expected returns which contributed to the low take-up of credit. In Ethiopia, Tarozzi *et al.* (2015) introduced group microcredit to farming communities. They found that microcredit recipients borrowed substantially more than non-recipients, the effect being significantly concentrated on first-time borrowers. Revenues from farming and animal husbandry for some users increased by USD 34, on average, from USD 9.2. Credit had no impact on new business creation or changes in hours spent on off-farm self-employment activities for adults.

Attanasio (2015) examined the impacts of flexible group lending and individual lending on employment decisions and poverty outcomes among entrepreneurs in Mongolia. While there were no impacts of access to credit on the enterprises' profitability, individual loans led to an eight-percentage point increase in self-employment, group loans increased the probability of female entrepreneurship by nine percentage points (39 percent to 48 percent), and hours worked increased in household businesses run by women.

Farmers can smooth income and increase resilience better with post-harvest credit access.

Several studies investigate the link between seasonal storage credit and improved market outcomes for farmers. Burke *et al.* (2019) provided Kenyan maize farmers with post-harvest loans and assessed their impacts on storage and selling behaviour. They found that farmers who were offered loans had shifted maize purchases into low price periods, put more maize in storage, and sold maize at higher prices later in the season, the latter for which profits and return on investment increased by 28 percent. Channa *et al.* (2022) offered Tanzanian farmers with harvest loans and storage bags to store their maize. Farmers who received harvest loans had 201 kg more maize on average in storage than farmers who did not receive loans. In Sierra Leone, Casaburi *et al.* (2014) provided loans and community storage support and containers for palm oil. The storage containers served as collateral for the loan. The credit and

containers increased farmer revenues by 10.2 percent, and farmer profits increased on average by 41.1 percent per container stored.

Access to credit can also help smooth income during non-harvest seasons. Fink *et al.* (2020) provided Zambian maize farmers with interest-free loans to be repaid after harvest. In the villages where all households were eligible for the loans, at the village level, off-farm labour wage increased by 50 percent immediately following the loan transfer, and between 25 and 35 percent during the intervention period. The probability that a household reported off-farm labour over a two-week period during the lean season fell by 11.8 percent. Overall, seasonal credit expansion allowed farmers to optimize labour allocation off the farm, and subsequently benefit from local wage increases.



Product design shapes credit take-up, leading to variable investment outcomes.

Onerous documentation and other loan access requirements and frequent repayment intervals often discourage credit take-up due to lack of a steady income (Bridle *et al.*, 2020). To increase credit take-up, Masood *et al.* (2021) introduced credit with less frequent quarterly and biannual repayment options rather than monthly ones to farmers in Afghanistan. They found that longer repayment intervals increased the likelihood of take-up by 13.9 percent and 14.8 percent respectively over the status quo, because those options allowed greater flexibility for a group of people without steady incomes, enabling them to make monthly payments.

Two other studies investigated the effects of easing loan access requirements. Karlan and Zinman (2010) eased screening requirements for loans to South African farmers. They found that recipients took out more loans from all sources than those without loans. Recipients frequently used the loans to pay off existing debt rather than invest so that they could access credit elsewhere. Households also maintained employment by smoothing or avoiding shocks that prevented them from working, making credit like an insurance substitute. However, researchers hypothesized that credit scores may have been a factor in determining who benefited from the loans: females and applicants with low credit scores carried significant default risk, while households with relatively high income had better credit than the average user and access to more favourable loans.

In contrast with easing access to credit through looser screening, Giné *et al.* (2010) introduced a new fingerprinting identification technology to Malawi's smallholder paprika farmers as an accountability and identification measure. Farmers who were fingerprinted chose smaller loan amounts from USD 7.44 to USD 2.63 compared to loan amounts of farmers who were not fingerprinted. High-default-risk fingerprinted farmers diverted fewer inputs away from paprika, signalling a reduction in moral hazard, while there was no effect on farmers with low ex ante default risk.

In many cases, a credit product can be tailored to address the context of the locality where it is introduced to

encourage take-up and stimulate investments based on the farmers' needs. In India, Maitra *et al.* (2017) offered identical loans from two different sources to potato farmers via: i) an individual trader that comes to the village who buys the farmers' goods and sells them at markets; or ii) the Gram Panchayat, the local village governing council. Trader-loan recipients increased their potato profits by 40 percent and income by 21 percent compared to Gram Panchayat-loan recipients, as they produced more output at lower costs. While there was evidence of selection bias – traders targeted more productive farmers – the effects appeared to be due to the farmers' interaction with the trader or Gram Panchayat agent serving them. Traders (possibly seeking to lower their own risk) offered the loans and advice to help productive farmers become more profitable, whereas Gram Panchayat agents offered loans and advice to help high-risk farmers. Ultimately, repayment rates were equal, as the more productive farmers were already less likely to default, and the less productive farmers were monitored intensively to reduce default risk.

Just as farmers may face capital constraints after harvest, prompting them to sell their stock as soon as possible, they can also contend with capital constraints in the lead up to harvest. Cash at this point can provide them the means to make the necessary input investments into their farms. Beaman *et al.* (2015) offered farmers loans with balloon payments (i.e. a larger-than-usual lump sum payment at the end of the loan term) due after harvest. Compared to farmers who did not receive loans, in the first year, farmers receiving these loans increased their input expenses by USD 21.9 from USD 186.2 (an 11.8 percent increase). In addition, they increased their value of agricultural output by USD 37.3 from USD 500.5 (a 7.5 percent increase), increased their days of family labour from 134 days to 142 days, and increased their gross profits by USD 19.6 from USD 315.4 (a 6.2 percent increase). More productive farmers were more likely to apply and be approved for the loans and experienced greater returns, again suggesting a selection effect.



Risk products can stimulate farmers to take more risk and invest more, but take-up depends on price, geography, availability, and farmer perceptions.

Agricultural risk products aim to protect farmers from shocks (e.g. rainfall, floods, asset loss from disease, and drought) that are likely to hurt them economically (e.g. through reduced livestock, crops, or inputs). Products to manage and mitigate risk include agricultural insurance – index-based, weather, or microinsurance, risk contingent credit or flexible repayment schedules for loans to smooth production. These products help farmers manage risks from

uncertainties related to production, prices/markets, finance. Rigorous evidence highlights that while farmers are willing to adopt these products, they mostly do so in anticipation of a shock, rather than as an ordinary precautionary measure. Take-up fluctuates based on price, farmer perceptions, applicability to local conditions, and distance to insurance stations that would activate a payout.

Demand for agricultural risk products depends on product design and liquidity.

Less frequent repayment intervals encouraged risk product take-up. Casaburi and Willis (2018) introduced insurance contracts to Kenyan smallholder farmers with different premium payment schedules. They found that the timing of premium payments shaped demand for insurance. Contracts with delayed-until-harvest payments were exceedingly more popular than upfront payments (72 percent take-up versus 5 percent take-up), meaning that liquidity constraints shaped demand. The results emphasized that timing matters and ensuring enforceable pay-at-harvest repayment can boost demand for crop insurance.

Olson (2018) examined the impact of risk contingent credit (RCC) in Kenya. RCC is a type of loan that offers insurance protection to offset the farmer's loan payment should an event trigger the insurance payout. Many targeted farmers were first time borrowers. The greater the acreage of their farms and productive assets, the more likely farmers were to offer them up as collateral in credit contracts. Similarly, Ndegwa *et al.* (2020) distributed RCC to Kenyan farmers and found that 41 percent of households were hesitant to take-up credit due to the risk involved of losing crops or being unable to pay back their loans, indicating that risk is

a significant impediment to accepting credit. They also found that the RCC loans were significantly more popular than traditional loans and not price sensitive, suggesting that liquidity constraints reduced loan take-up.

However, in other cases, risk product take-up remained low and did not discernibly shape investment or enhance resilience. For example, Cole *et al.* (2013) offered index insurance to Indian farmers at the start of monsoon. Despite the low price of insurance and its endorsement by community financial agents, demand was low. Low trust, low financial literacy, and liquidity constraints were barriers for farmers. Similarly, Ahmed *et al.* (2020) sought to reduce drought-prone Ethiopian farmers' vulnerability through insurance provided by the private sector. Insurance take-up was low because many villages were not drought exposed and the firm's insurance marketing did not alleviate farmers' risk aversion. The authors highlighted that food and capital insecure farmers may be unwilling to pay for insurance if government social safety nets covered them already, concluding that private demand could not drive widespread adoption of index insurance.



Agricultural risk products and services, where they exist, help farmers smooth incomes and withstand shocks.

Shocks such as floods or lean seasons can affect production, labour allocation, consumption, and food security negatively. If households do not have the finances to cope with adverse situations, they may face difficult circumstances that worsen their lot. Risk management products and services offer opportunities to prepare for and potentially withstand such events.

In India, Mobarak *et al.* (2012) looked at the dynamics of offering formal index insurance. They found that farm households in subcaste groups with greater informal risk sharing relative to formal risk sharing were more likely to reduce risk after experiencing a severe shock. However, insurance increased risk-taking and generally improved average incomes and welfare, especially in areas where rainfall stations were near and where informal risk sharing networks were capable of offsetting household losses.

Hill *et al.* (2019) offered drought and rainfall insurance to Bangladeshi rice farmers for the monsoon season, with the option to purchase the insurance with discounts or rebates. Overall, discounts were more effective at stimulating the demand for insurance than rebates. However, risk-averse

farmers were more likely to purchase insurance with a rebate because of the assured future compensation. Insurance increased investment in modern rice inputs and area farmed during the monsoons and more intensive rice production through greater fertilizer and irrigation use in the dry season, leading to higher yields and production.

During lean season in Northern Bangladesh — when agricultural income is low and prompts labour migration — Shonchoy (2014) distributed microloans with flexible repayment schedules to smallholder farmers living in flood areas. While the loans had no immediate impact on food consumption or income-generating activities, loan repayment behaviour was strong. Also in Bangladesh, Lane (2020) provided guaranteed credit to farmers likely to experience flood shocks. For farmers who were informed about their guaranteed credit access, the loans increased investment in productive activities, which led to higher production levels before the shock. However, many farmers who generally took up loans chose to hold off on borrowing until after the shock, which allowed them to preserve their consumption and maintain their assets after the income shock.

Risk products shaped input investment in different ways depending on the context, but there is little observed effect on returns.

Access to risk products can enable smallholder farmers to invest in new inputs or increase spending on inputs in anticipation of or following a payout. This increased investment can in turn increase the probability of higher revenue and profitability. However, as seen throughout Africa, even in the cases of input insurance, economic returns did not always extend further due to factors such as farmers' decision making.

In some cases, there were no measurable effects on input investments. Ahmed *et al.* (2020) found that in Ethiopia, farmers who took up insurance experienced no improvements in input use, yields, or income. In Ghana, Karlan *et al.* (2011) offered farmers a loan with a 50 percent indemnity if the crop price fell below a certain level. They found that although the indemnified loans increased investment in chemical fertilizer by 23 percent, they did not affect other inputs. Loan recipients were more likely to sell their goods to traders and shifted towards farming garden eggs, which is a more profitable (but riskier) crop, but again there was little significant broader impact on farmer decision making. In addition, 58 percent of the farmers defaulted on the loans, suggesting to the researchers that the lending bank may have already had a flexible loan forgiveness programme in place, so the added indemnification had little significant impact on farmer decision making.

In other cases, take-up of risk products increased investments. Elabed and Carter (2014) distributed micro insurance contracts to cotton cooperatives in Mali and found that farmers who took up insurance increased the cultivated area of cotton by 15 percent. Seed spending per hectare increased by fourteen percent and input loans increased by fifty percent. Meanwhile, Berhane *et al.* (2015) found that insurance increased fertilizer investment and the number of households investing in fertilizer.

In contrast, Delavallade *et al.* (2015) were able to find a link between investment and increased economic returns following take-up of index insurance among groundnut farmers in Senegal and maize farmers in Burkina Faso. Input expenditure and usage increased as did crop yields and production. However, women were less likely to take up insurance, although they faced equal risk to agricultural shocks as men. The researchers attributed this to women's role as primary childcare givers, exposing them more to their children's health risks which were not covered by agricultural insurance. In Northern Ghana, Karlan *et al.* (2014) found that insurance catalysed investment in inputs that were covered by the insurance. They found that demand increased when someone in a farmer's network received a payout and decreased when a network member received no payout in a season with good rainfall.

Access to savings can increase investment opportunities and improve livelihoods, but actual investment impacts remain unknown.

Commitment savings programmes incentivize savings behaviour, providing users with accumulated capital for emergencies or investments (Suri and Udry, 2022). Barriers such as limited resources, alternative uses of money, seasonal production cycles, and fluctuating agricultural prices can

however hamper savings, (Bridle et al., 2020). Evidence shows that although savings behaviour is quite varied, farmers who use savings actively can benefit from them greatly with respect to investing more.

Providing savings accounts and information about them encourages more investment.

Savings accounts help farmers and SMEs accumulate capital and overcome liquidity constraints that could prevent them from investing. Brune et al. (2016) offered Malawian farmers bank accounts to receive proceeds from harvest cash crops. Promoting these accounts led to higher savings in the accounts immediately prior to the next planting season. In turn, during that season, input expenditure increased by 13.3 percent and the value of crops increased by 15.4 percent. In the subsequent harvest, output increased by 21.4 percent. Because savings accounts increased eligibility for loans, the researchers hypothesized that the farmers may have taken out loans to purchase more inputs, which could explain the increase in the total value of inputs.

In Mozambique, Batista and Vicente (2020) introduced incentives to motivate farmers and their networks promote fertilizer use by saving money in their mobile money savings accounts by offering 20 percent interest on the ave-

rage account balance held by an individual – the average interest rate paid by Mozambican banks was nearly 10 percent. They found higher fertilizer investments by 34 to 36 percentage points, higher savings (mobile money and household aggregate) by 76 percent, and higher non-frequent expenditures by over 50 percent. However, the savings increased only while the 20 percent interest rate was active.

Also in Mozambique, Carter et al. (2015) offered savings accounts and information sessions to increase usage and investment. Savings increased between 75 and 144 percent on average relative to farmers not offered savings accounts, and users spent on different purposes such as fertilizer and buffer stocks. The increase in savings was mostly experienced among users at other banks in the region rather than the partner bank, indicating that the sessions had positive spillovers in reducing information barriers.

When savings are made available, they can generate positive impacts on investment, returns, and opportunities for users, but the magnitude of impact depends on their intended nature as well as the context.

Dupas et al. (2015) provided free savings accounts to farming households in western Kenya that were previously unbanked. Savings increased when both spouses had separate accounts but stayed the same when only one spouse possessed an account. Meanwhile, there was no effect on private expenditures or transfers between spouses. Regular usage was low, but for those who actively used the accounts, on average, men saved more than women. Households in which the man was offered the sole account had higher account usage compared to when the woman had the sole account. Overall, the savings earned in these accounts had no impact on agricultural and non-agricultural investment and expenditures.

While VSLAs have been popular lending mechanisms for strengthening financial infrastructure in remote rural regions; only a few experimental or quasi-experimental studies assess their impact on households. Ksoll et al. (2016) found that VSLAs increased food security, fertilizer usage, output, and total business income for households with an existing business in Malawi. Additionally, the VSLAs increased the access to credit and credit usage significantly, as the raw share of households with loans more than quadrupled from 6 percent to 26 percent. However, the VSLAs did not have much of an impact for households with newly established businesses or an impact on agricultural outcomes beyond investment like profit or revenue in the short term. Karlan et al. (2017) introduced flexible VSLAs in Ghana,

Malawi, and Uganda. They found that farmers increased their savings by 34.5 percent over those that did not belong to VSLAs (USD 53.54 versus USD 39.81). Females experienced higher access to credit, with an 11-percentage point increase in receiving loans (from 31 percent to 42 percent) and a 17.4-percentage point higher informal savings group participation relative to females not involved in VSLAs.

Beaman *et al.* (2014) found informal savings groups enabled greater decision-making flexibility for women, including access to finance, food security, assets, and busi-

ness and farming activities. In these groups, women's savings increased by thirty percent and credit access increased by three percent, with increases in output, sales, livestock value and expenditures, and expenditures and sales for SMEs as well.

It is important to note that due to the local nature of savings groups, the barriers, markets, and experiences faced in the studied communities were context-specific, which can discourage generalizable results.

Savings have the potential to enhance resilience, including by acting as a gateway to other financial products.

Savings can help enhance resilience by allowing users to use their accumulated funds to buffer against hardships without credit. Aggarwal *et al.* (2020) evaluated the impacts of mobile money savings accounts for small entrepreneurs (less than two employees) in Malawi and found that mobile money allowed entrepreneurs to save. As such, entrepreneurs worked more on their farms than on their businesses because they could overcome farming constraints such as bad weather or the delay in earning revenue after harvest. These results indicated that mobile money accounts could be used as legitimate savings mechanisms to grant access to more comprehensive financial products in the future.

Mukherjee *et al.* (2021) attempted to show how Kenyan farmers use savings lockboxes alongside harvest

loans to unlock the benefits of credit. Farmers first received loans – with the amount proportional to the number of grain bags they had in storage – to be used for productive investments and then received lockboxes to encourage savings. Loan recipient farmers with lockboxes increased farm investment by 11 percent and total household consumption by 7 percent relative to farmers only offered the loan but not the lockbox. In the first year, farmers saved USD 7.75, and USD 3.60 in the second year (relative to an unconditional loan amount of USD 57 in the first year and USD 79 in the second year). Savings allowed farmers to move funds between seasons without worrying about reinvestment or consumption strains and shielded farmers from kin tax (i.e. demands from relatives and friends), leaving more funds to use.



Main takeaways

Access to finance in agriculture remains an important issue for policymakers as they grapple with questions around enhancing investment and agricultural productivity. The experimental and quasi-experimental evidence highlights the positive impact of credit, risk products, and savings on

farmers' investment and economic returns, though many of these effects remain context specific. The review highlights findings and policy implications around how access to financial products and services affect farmer and SME profits and investment behaviour.

1	Capital constraints, limited information and lack of risk products such as insurance prevent farmers from investing in agriculture.	2	Access to credit generally led to greater investment opportunities and opened markets that were previously inaccessible to capital-constrained smallholders. However, economic returns from credit use varied.
3	A selection effect appears to exist with agricultural credit take-up: farmers and SME owners who are more likely to benefit from the loan product are more likely to apply and be accepted for it.	4	Repayment structures of financial products are crucial for welfare and investment decisions, especially for those operating on a seasonal basis and facing variable cash flows, prices, and weather.
5	Village risk sharing networks and savings and loans associations are popular financial sources because of their availability in rural and remote areas and context-specificity. As digital financial inclusion becomes more widespread, formal financial institutions have an opportunity to integrate with informal lending networks.	6	While insurance generally encouraged people to take more risks, invest in inputs, and improve livelihoods from payouts, take-up of insurance was dependent on farmers' beliefs around the product, product characteristics, and location (e.g. geographic region and distance to nearest rainfall station).
7	Savings products can ease capital constraints for farmers and SMEs and in turn increase investment opportunities.	8	Informal savings networks such as VSLAs allowed female-led SMEs and farmers to take advantage of credit markets, increase savings and incomes, and allocate more time to entrepreneurial activities.



Policy Implications

1	Given the importance of repayment structures, policymakers can support the development of more flexible repayment structure for financial products such as loans.	2	The impacts of mobile money on household welfare and investment can sometimes be contradictory.
3	The contradictory findings of the effect of mobile money on investment present an opportunity for future research on whether there are mechanisms to generate consistent impacts of digital technology on investment decisions and welfare.	4	Policymakers could benefit from better evidence and data collection to tailor policies to enhance access to finance, especially around whether and why farmers view certain financial products as beneficial and approaches to measure profitability. More research is needed on the long-run effects of interventions around access to finance, which can then provide greater insight into whether these interventions improve households' economic livelihoods in a sustained manner.

The literature does not extensively cover several areas of access to finance that provide an opportunity for future research. These areas include the provision of financial services by large financial institutions to smallholders and

SMEs, the long-term impacts of financial interventions on investment outcomes and the role of interest rates on take-up of financial products and services.



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References

- Aggarwal, S., Brailovskaya, V. & Robinson, J.** 2020. Cashing In (and Out): Experimental Evidence on the Effects of Mobile Money in Malawi. *AEA Papers and Proceedings*, 110: 599-604.
- Ahmed, S., McIntosh, C. & Sarris, A.** 2020. The Impact of Commercial Rainfall Index Insurance: Experimental Evidence from Ethiopia. *American Journal of Agricultural Economics*, 102(4): 1154-1176.
- Attanasio, O., Augsburg, B., De Haas, R., Fitzsimons, E. & Harmgart, H.** 2015. The Impacts of Microfinance: Evidence from Joint-Liability Lending in Mongolia. *American Economic Journal: Applied Economics*, 7(1): 90-122.
- Batista, C. & Vicente, P.C.** 2020. Improving access to savings through mobile money: Experimental evidence from African smallholder farmers. *World Development* 129(1): 104905.
- Beaman, L., Karlan, D. & Thuysbaert, B.** 2014. *Saving for a (not so) Rainy Day: A Randomized Evaluation of Savings Groups in Mali*. NBER Working Paper 20600. Cambridge, National Bureau for Economic Research (NBER).
- Beaman, L., Karlan, D., Thuysbaert, B. & Udry, C.** 2015. *Self-Selection into Credit Markets: Evidence from Agriculture in Mali*. NBER Working Paper 20387. Cambridge, National Bureau for Economic Research (NBER).
- Berhane, G., Dercon, S., Hill, R.V. & Taffesse, A.S.** 2015. *Formal and informal insurance: experimental evidence from Ethiopia*. Conference Paper, 9-14 August 2015, Milan, International Association for Agricultural Economists.
- Bridle, L., Magruder, J., McIntosh, C. & Suri, T.** 2020. *Experimental Insights on the Constraints to Agricultural Technology Adoption*. UC Berkeley CEGA White Papers.
- Brune, L., Giné, X., Goldberg, J. & Yang, D.** 2016. Facilitating Savings for Agriculture: Field Experimental Evidence from Malawi. *Economic Development and Cultural Change*, 64(2): 187-220.
- Burke, M., Bergquist, L.F. & Miguel, E.** 2019. Sell low and buy high: An arbitrage puzzle in Kenyan villages. *The Quarterly Journal of Economics*, 134(2):745-842.
- Carter, M.R., Laajaj, R. & Yang, D.** 2015. *Savings and Subsidies, Separately and Together: Decomposing Effects of a Bundled Anti-Poverty Program*. Working Paper
- Casaburi, L., Glennerster, R., Suri, T. & Kamara, S.** 2014. *Providing collateral and improving product market access for smallholder farmers*. 3ie Impact Evaluation Report 14, Washington, DC, International Initiative for Impact Evaluation (3ie).
- Casaburi, L. & Willis, J.** 2018. Time vs. State in Insurance: Experimental Evidence from Contract Farming in Kenya. *American Economic Review*, 108(12):3778-3813
- Channa, H., Ricker-Gilbert, J., Fileke, S. & Abdoulaye, T.** 2022. Overcoming smallholder farmers' post-harvest constraints through harvest loans and storage technology: Insights from a randomized controlled trial in Tanzania. *Journal of Development Economics*, Vol. 157.
- Cole, S., Giné, X., Tobacman, J., Topalova, P., Townsend, R. & Vickery, J.** 2013. Barriers to Household Risk Management: Evidence from India. *American Economic Journal: Applied Economics*, 5(1): 104-135.
- Crépon, B., Duflo E. & Parienté, W.** 2015. Estimating the Impact of Microcredit on Those Who Take It Up: Evidence from a Randomized Experiment in Morocco. *American Economic Journal: Applied Economics*, 7(1):123-150.
- Delavallade, C., Dizon, F., Hill, R.V. & Petraud, J.P.** 2015. *Managing Risk with Insurance and Savings: Experimental Evidence for Male and Female Farm Managers in the Sahel*. World Bank Policy Research Working Paper 7176, Washington, DC, World Bank Group.
- Dupas, P., Keats, A. & Robinson, J.** 2015. *The Effect of Savings Accounts on Interpersonal Financial Relationships: Evidence from a Field Experiment in Rural Kenya*. NBER Working Paper 21339, Cambridge, National Bureau for Economic Research (NBER).
- Elabed, G. & Carter, M.** 2014. Ex-ante Impacts of Agricultural Insurance: Evidence from a Field Experiment in Mali.
- Fink, G, Jack., B.K. & Masiye, F.** 2020. Seasonal Liquidity, Rural Labor Markets, and Agricultural Production. *American Economic Review* 110(11): 3351-92.
- Fletschner, D. & Kenney, L.** 2011. *Rural women's access to financial services Credit, savings and insurance*. FAO ESA Working Paper No. 11-07. Rome, FAO. 30 pp. <https://www.fao.org/3/am312e/am312e.pdf>
- Giné, X., Goldberg, J. & Yang, D.** 2010. *Identification Strategy: A Field Experiment on Dynamic Incentives in Rural Credit Markets*, World Bank Working Paper 5438, Washington, DC, World Bank Group.

- Hill, R.V., Kumar, N., Magnan, N., Makhija, S., de Nicola, F., Spielman & Ward, P.S. 2019. Ex ante and ex post effects of hybrid index insurance in Bangladesh. *Journal of Development Economics*, 136: 1-17.
- Hossain, M., Malek, M.A., Hossain, M.A., Reza, M.H. & Ahmed, M.S. 2018. Agricultural Microcredit for Tenant Farmers: Evidence from a Field Experiment in Bangladesh, *American Journal of Agricultural Economics*, 101(3): 692-709.
- Jack, W., Kremer, M., de Laat, J., & Suri, T. 2016. *Borrowing Requirements, Credit Access, and Adverse Selection: Evidence from Kenya*. NBER Working Paper 22686. Cambridge, National Bureau of Economic Research (NBER).
- Karlan, D., Kutsoati, E., McMillan, M. & Udry, C. 2011. Crop Price Indemnified Loans for Farmers: A Pilot Experiment in Rural Ghana, *Journal of Risk and Insurance*, 78(1): 37-55.
- Karlan, D., Osei, R., Osei-Akoto, I. & Udry, C. 2014. Agricultural Decisions After Relaxing Credit and Risk Constraints. *The Quarterly Journal of Economics*, 129(2) 597-652.
- Karlan, D., Savonitto, B., Thuysbaert, B. & Udry, C. 2017. Impact of savings groups on the lives of the poor, *PNAS*, 114(12): 3079-3084.
- Karlan, D. & Zinman, J. 2010. Expanding Credit Access: Using Randomized Supply Decisions to Estimate the Impacts, *The Review of Financial Studies*, 23(1): 433-464.
- Ksoll, C., Lilleør, H.B., Lønborg, J.H. & Rasmussen, O.D. 2016. Impact of Village Savings and Loan Associations: Evidence from a cluster randomized trial, *Journal of Development Economics*, 120(C): 70-85.
- Lane, G. 2020. *Credit Lines as Insurance: Evidence from Bangladesh*. Working Paper.
- Maitra, P., Mitra, S., Mookherjee, D., Motta, A., & Visaria, S. 2017. Decentralized Targeting of Agricultural Credit Programs: Private Versus Political Intermediaries. *Journal of Development Economics*, 127: 306-337.
- Masood, M., Khan, G.D., Yoshida, Y., Maharjan, K.L. & Wafa, I. K. 2021. What farmers expect from the proposed formal agricultural credit policy: evidence from a randomized conjoint experiment in Nangarhar Province, Afghanistan, *Agricultural Finance Review*, 81(4): 578-594.
- Matsumoto T., Yamano T. & Sserunkuuma D. 2013. *Technology Adoption in Agriculture: Evidence from Experimental Intervention in Maize Production in Uganda*. GRIPS Discussion Papers 13-14, Tokyo, National Graduate Institute for Policy Studies (GRIPS).
- Mobarak, A.M. & Rosenzweig, M. 2012. *Selling Formal Insurance to the Informally Insured*. Economic Growth Center Working Paper 1007, New Haven, Economic Growth Center at Yale University.
- Mukherjee, S.W., Bergquist, L.F., Burke, M. & Miguel, E. 2021. *Unlocking the Benefits of Credit Through Saving*, NBER Working Paper 29542, Cambridge, National Bureau of Economic Research (NBER).
- Mukherji, A., Chowdhury, D.R., Fishman, R., Lamichhane, N., Khadgi, V. & Bajracharya, S. 2017. Sustainable financial solutions for the adoption of solar powered irrigation pumps in Nepal's Terai. Brief prepared for CGIAR Research Program on Water, Land and Ecosystems.
- Ndegwa, M. K., Shee, A., Turvey, C. G. & You, L. 2020. Uptake of insurance-embedded credit in presence of credit rationing: evidence from a randomized controlled trial in Kenya. *Agricultural Finance Review*, 80(5): 745-766.
- Olson, S. 2018. *Credit Rationing in Kenyan Agricultural Households and Uptake of Risk Contingent Credit: Evidence from the Field*. Conference Paper prepared for the SCC-76 Meeting, 5-7 April 2018, Kansas City, Economics and Management of Risk in Agriculture and Natural Resources.
- Suri, T. & Udry, C. 2022. Agricultural Technology in Africa. *Journal of Economic Perspectives*, 36(1): 33-56.
- Shonchoy, A.S., ed. 2014. *Seasonality and Microcredit: The Case of Northern Bangladesh*. SpringerBriefs in Economics. Springer Tokyo.
- Tarozzi, A., Desai, J. & Johnson, K. 2015. The Impacts of Microcredit: Evidence from Ethiopia, *American Economic Journal: Applied Economics*, 7(1): 54-89.

Abbreviations

LMICs	lower middle income countries	SMEs	small and medium-sized enterprises
RCC	Risk Contingent Credit	VSLAs	Village Savings and Loan Associations

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FAO & IPA. 2024. *Accessing finance to invest in agrifood – A review of experimental evidence*. Investment Brief. Rome.



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