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The role of credit in the uptake and productivity of improved dairy technologies in sub-Saharan Africa

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In Ethiopia and Kenya, a unit of credit given to a credit-constrained farmer has twice as much effect on agricultural productivity as a unit of credit given to a farmer with adequate access to financial resources, according to a recent ILRI study. The study also found that giving farmers agricultural training can significantly increase farm productivity, but only if the farm is not facing a credit constraint.

The study looked at both the supply of credit from financial institutions in Ethiopia, Nigeria and Uganda, particularly the bank’s credit allocation policies, and at demand for credit in households in the same three countries plus Kenya. The household-level study examined the effects of credit on uptake of improved dairy technology, particularly improved cows and better feeding, in smallholder dairying.

**Formal lending not tailored to smallholder livestock farmers**

All the banks covered by the study—the Agricultural and Industrial Development Bank (AIDB) in Ethiopia, the Nigerian Agricultural and Co-operative bank and the Uganda Commercial Bank—had a stated aim of increasing the flow of institutional credit to large numbers of smallholder livestock producers. However, the study showed that few smallholder livestock producers obtained formal credit in these three countries. Often, smallholder producers were screened out of formal credit markets because of the criteria banks used to screen applicants. For example, the Uganda Commercial Bank requires potential borrowers to show that they have the infrastructure for keeping livestock before it will approve loans. In essence, this restricts credit to relatively well-off farmers who can afford to build the infrastructure before they apply for a loan.

The banks generally did not demand collateral security for the loans, relying instead on the personal characteristics of potential borrowers to determine their credit-worthiness. While well-intentioned, this tended to exclude poorer, less influential smallholders, as bank officials tended to allocate credit on observable characteristics such as wealth or influence in the community.

All three institutions provided subsidised loans, with funds from the central government or from donors. This limited the amount of money available for loans, and credit was rationed.

Another major problem was that the main operations of the banks in Uganda and Nigeria are short-term loans with fixed repayment patterns. These are not ideal for
agricultural operations, especially investments in livestock. Only the AIDB in Ethiopia had the majority of its portfolio in long-term loans. As the study notes, there is no ideal loan term; what is important is to maintain flexibility by relating loan terms to factors such as the cash flow of the associated activity, the availability and demand for inputs and risk.

The study made a number of recommendations, including the need for the credit institutions to re-examine their delivery systems, loan policies and loan-term structures. It also recommended policies to mobilise savings, rather than relying on central government funds or donors to provide credit.

**Not all who borrow...**

Studies on the role of credit in technology uptake commonly look at differences between borrowers and non-borrowers. But not all borrowers are able to borrow as much as they might wish, and not all those who do not borrow money actually need to borrow money—they may have enough funds of their own to finance what they want to do.

What ILRI’s study did was to try to assess the true ‘credit constraint’ on households, i.e. those who did not invest because they could not get the funds rather than those who chose not to invest but had funds available.

The study defined credit-constrained farmers as:

- those who had borrowed money and expressed willingness to borrow more at the current interest rate
- those who had not borrowed money because:
  - their loan request had been rejected
  - they did not have access to a formal or informal lender
  - they did not have access to animals to buy.

Based on these criteria, the study found both credit-constrained and credit non-constrained farmers among both borrowing and non-borrowing households, highlighting the importance of looking at credit constraints rather than borrowing per se.

The study found that farmers who had adequate access to funds (and hence were not credit-constrained) had a larger proportion of crossbred cows, used more inputs—especially feed—and tended to have more profitable dairy operations than did credit-constrained farmers.

The main determinant of milk output per farm was the number of crossbred cows the farmer had. In most cases, credit-constrained farmers who borrowed money invested it in crossbred milking cows. Interestingly, however, herd size did not affect milk production per farm, probably because of the large number of non-milking animals—draft oxen, follower animals etc—in herds. Thus, farmers could reduce the number of animals they keep without reducing milk production. For example, replacing draft oxen with dual purpose, dairy–draft, cows could help increase farm productivity.
Additional expenditure on inputs such as feed had less effect on productivity than additional investments in crossbred milking cows. Few of the farmers used credit to purchase variable inputs such as feed. Farmers who did buy feed generally used too little to have much effect on the productivity of their cows, largely because of lack of credit for working capital. Nevertheless, the study notes that providing credit to farmers to fund operations could encourage higher variable input use and substantially increase smallholder dairy productivity.

The study clearly showed that the contribution of credit to milk output differs between credit-constrained and credit non-constrained farms. Using investments in crossbred cows as a proxy for the impact of credit, the study showed that the marginal contribution of crossbred milking cows to milk output is relatively high on credit-constrained farms. In Ethiopia and Kenya, an additional crossbred cow on a credit-constrained farm contributes about twice as much to milk output (in litres) per farm as it would on a credit non-constrained farm. A 1% increase in credit to purchase crossbred dairy cows lead to 0.6% increase in milk productivity on credit constrained farms and 0.4% increase on credit non-constrained farms in Ethiopia. In Kenya 1% increase in credit for investment in crossbred dairy cows leads to 1.6% in milk productivity on credit-constrained farms and 0.9% increase on credit non-constrained farms. This suggests that credit should be targeted at credit-constrained farms to achieve the greatest impact.

In Ethiopia, the study found that training farmers in livestock management skills lead to increased milk output on credit non-constrained farms but not on credit-constrained farms. Efforts to increase milk production through training farmers should, therefore, be targeted at farmers who are not constrained by lack of credit, the study suggests.

The study provided additional evidence on the importance of accurately assessing farmers’ demand for credit. To do this, the study concludes, policy makers and financial institutions need to go beyond whether farmers are borrowers or non-borrowers to take account of the farmers’ resource endowments and household characteristics. Only by doing this can scarce credit resources be targeted accurately to those who will make greatest use of them.

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