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**Timeline**

2014-2015

**Sample Size**

39 villages in two provinces

**Research Implemented by IPA**

Yes

# The Impact of Inventory Credit on Food Security and Rural Livelihoods in Burkina Faso

## Key Finding Lead Phrase

This study with farming communities in Burkina Faso found that inventory credit, or warrantage communautaire significantly increased consumption and savings as well as and investment in agricultural inputs and education, though impacts on food security were only short-lived.

## Key Finding Summary

While existing microcredit models have shown limited capacity to increase profitability for these farmers, improved approaches may address the behavioral constraints that farmers face, such as the temptation to sell when cash is needed but prices for crops are low. This study with farming communities in Burkina Faso found that inventory credit, or warrantage communautaire significantly increased consumption and savings as well as investment in agricultural inputs and education, though impacts on food security were only short-lived. The results suggest that inventory credit is an effective way of boosting agricultural and non-agricultural investment for farmers in places with weak financial markets.

## Abstract

Access to rural finance is considered a key tool to reduce poverty among farmers, yet existing microcredit models have shown limited capacity to increase profitability for these farmers. Improved approaches may address the behavioral constraints that farmers face, such as the temptation to sell when cash is needed but prices for crops are low. This study with farming communities in Burkina Faso found that inventory credit, or *warrantage communautaire*, significantly increased consumption and savings as well as investment in agricultural inputs and education, though impacts on food security were only short-lived. The results suggest that inventory credit is an effective way of boosting agricultural and non-agricultural investment for farmers in places with weak financial markets.

## Policy Issue

Small-scale farmers in Africa often have little cash at hand and have difficulty accessing credit to invest in their farms. They typically sell their crops en masse right after harvest to meet their immediate cash needs – either to pay for school fees, medical expenses, or to reimburse informal high-interest rate loans taken from traders to invest in inputs in the early agricultural season. A few months later, supply shrinks and prices rise, but farmers typically lack enough grain to sell at that point and have little income to invest in agricultural inputs for the following season. An inventory credit system, or *warrantage*, which allows farmers to stock part of their harvest in a warehouse for several months, and use the bags as collateral for a loan if they choose, may give the smallholders the means to buy essential inputs for the next planting season and to hold on to their food until the lean season, when food stocks start to run low and prices climb. Storing grain for several months also has the potential to smooth yearly food consumption and improve food security. This research complements existing work in the small but growing evidence base on inventory credit.

## Context of the Evaluation

In southwestern Burkina Faso, grain production is high and the region has high agricultural potential, but acute malnutrition and household debt remains common. To improve livelihoods, three large farming cooperative unions and their partners organized an inventory credit system in 2007 as part of a European Union “Food Facility” project, which has since grown into a large agricultural cooperative, COPSA-C, which is the main implementing partner in this study.

The rural credit system, or *warrantage communautaire*, offers an innovative way for farmers not only to access credit but also to mitigate risk (and social pressure) through a commitment savings device whereby farmers store their crop for a fixed duration between harvest and lean season. *Warrantage communautaire* was introduced into Niger, Madagascar, Tanzania, as well as Ghana in the 1990s to improve food security, increase group marketing and stimulate fertilizer use. It has since spread through much of francophone West Africa.

## Details of the Intervention

Innovations for Poverty Action worked with researchers to conduct a randomized evaluation, measuring the impact of inventory credit on small-scale farmers' income and crop decisions in two provinces of Burkina Faso (Tuy and Ioba) as well as impacts on consumption, food security, and savings and credit behavior.

Through a public lottery, researchers randomly assigned 38 villages interested in taking part in *warrantage* to either the program or to a comparison group that was not offered the program.

Three days after the lottery, which took place in December, households who won were given the opportunity to deposit the number of bags they had previously declared interest in storing. The warehouses were located outside of their villages, and bags were picked and brought to the warehouse by a transporter. (In one community, all households lost interest at this point and decided not to store their crops, hence only 37 communities actually stored crops.)

Storage of bags was coupled with access to credit. Participants were offered loans up to 80 percent of the value of the crops stored. The interest rate was 7 percent. In addition, a fee of 600 FCFA (\$1.14) per bag stored was paid to cooperative at the time of destorage.

Loans could be paid back to COPSA-C at the farmers' convenience, but no later than the time of destorage, which took place six months later, in May. To prevent default and promote investment in income-generating activities, the cooperative advised producers during the storage period.

Community representatives were present at the opening of the warehouses, during which bags were loaded and brought to the communities. Farmers were invited to gather in the village to collect their bags. If farmers still had to repay their loans at the time of destorage, they had to either bring a buyer or negotiate with the buyer accompanying COPSA-C so that bags could be sold and the loan repaid in full.

## Results and Policy Lessons

Overall, *warrantage* appears to be an effective way of boosting agricultural and non-agricultural investment for farmers in places with weak financial markets.

*Take-up and repayment:* Thirty-six percent of those offered the program chose to store grain (mainly maize, sorghum, and rice). Among them, 39 percent took out a *warrantage* loan and 99 percent of those who took out loans repaid them by the time of destorage; only one household had an outstanding loan which was repaid by selling crops to a buyer who the household brought to the destorage meeting.

*Spending and consumption:* Households with access to inventory credit spent significantly more than households in the comparison group: Treated households spend on average

13,449 FCFA (about US \$26) more than comparison households per year. This effect seems to be driven by increased spending on non-food items. In the 30 days preceding the endline survey, treated households spent on average 25 percent more than households in the comparison group.

*Food security:* The program had a short-lived positive impact on food security (two months after storage), but the impact was not detectable by the time of the lean season.

*Savings and investment:* The program had no impact on savings behavior. It significantly increased investment in livestock, however. Households with access to *warrantage* saw a 24 percent increase in the total value of livestock they purchased compared to households in the comparison group; Households in the program group were 70 percent (5 percentage points) more likely to purchase pigs, and purchase on average 0.16 more pigs than households in the comparison group.

*Credit:* No impact was found on the value of loans farmers took out between harvest and destorage, their outstanding loan amount, or on the number of loans they took out during this period.

*Inputs:* The program increased the level of expenditures on all agricultural inputs by 107 percent (about 5076 FCFA, or about US\$10) relative to the comparison group, including a sizable effect on the amount of seeds purchased by program households--it was 66 percent higher than that of the comparison group. There were some smaller effects on non-hired labor and pesticides. These results reveal increased agricultural investments through input expenditures. However, greater *usage* of these inputs was not detected by the beginning of the planting season, but were probably going to be used later.

*Other investments:* The program had a significant impact on households' investment in education.

Further analysis will examine how access to *warrantage* impacted households living in communities where their neighbors had access to the program.

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