Providing Agricultural Inputs in the Democratic Republic of Congo

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Sector(s): Agriculture

Location: Democratic Republic of Congo

Sample: 2365 households in 201 villages

Target group: Farmers

Outcome of interest: Earnings and income Technology adoption Productivity

Intervention type: Fertilizer and agricultural inputs Improved seeds Subsidies

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Partner organization(s): World Bank, Government of the Democratic Republic of the Congo

One reason for stagnant agricultural productivity in Sub-Saharan Africa may be the region's slow adoption of modern agricultural technologies, which have been major drivers of increased agricultural output and profitability in other contexts. In partnership with the Ministry of Agriculture of the Democratic Republic of Congo and the World Bank, researchers are investigating how subsidizing the cost of and access to improved seeds affects smallholder farmers' take-up of improved seeds, their short-term agricultural productivity, and household welfare.

Policy issue

From 1960 to 2000, Sub Saharan Africa recorded the smallest increase in agricultural yields across all regions of the world. This may be, in part, due to the region's slow adoption of modern agricultural technologies—modern fertilizer and improved seeds in particular— which have been major drivers of increased agricultural output and profitability in other developing contexts.[1, 2, 3] Subsidizing modern agricultural technologies may be a useful tool to promote the adoption of these technologies and increase farm yields and profits.

Context of the evaluation

Agriculture is the foundation of the Democratic Republic of Congo's (DRC) economy, employing 70 percent of the total work force.[4] Despite the country's heavy reliance on agriculture, agricultural yields remain low in many regions. This is the case for the Equator province, where most farmers rely on slash-and-burnagriculture, a subsistence farming method that burns and clears forests to create planting fields. Many of these farmers suffer from food insecurity and extreme poverty.

In recent years, the Congolese government has tried to increase the use of modern inputs by subsidizing the production of improved seeds among selected local farmers to improve the availability of such seeds in region. However, a sustainable private

seed market will only develop if farmers in the region are willing and able to purchase these improved seeds.



Farmers cleaning berries in the DRC.

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Details of the intervention

In partnership with the DRC Ministry of Agriculture and the World Bank, researchers are investigating how subsidizing improved seeds affects smallholder farmers' take-up of these products, their short-term agricultural productivity, and household welfare.

From a sample of 92 villages in the Equator province, researchers randomly assigned villages to one of three groups:

1. **Seed vouchers:** In 25 villages, researchers organized public lotteries to distribute seed vouchers that allowed recipients to purchase improved seeds at a discounted price; all households in a village were eligible to enter the lottery. Vouchers offered a 30, 60, 90 or 100 percent discount and could be used to buy a maximum of 10 kg of improved cereal or legume seeds (or improved cassava cuttings). Voucher recipients had to redeem their vouchers at the seed store, generally located in nearby towns.
2. **Seed vouchers and seed delivery:** In 35 villages, researchers conducted seed voucher lotteries as described above and additionally directly distributed the seeds in the villages by truck. Farmers could either redeem their vouchers when the truck passed through their village or could go to the seed store in the closest town.
3. **Comparison group:** The remaining 32 villages did not receive improved-seed vouchers or seed delivery.

The 92 villages were a subsample of a larger group of 201 villages that took part in a larger extension experiment. The extension intervention was implemented by local NGOs who organized a group of farmers from a targeted village around a demonstration

plot. An extension agent was in charge of the introduction of the new seeds and adapted practices, and the group works in common on the field, following the indications given by the agent. Here again there are 3 groups:

1. **Extension targeting men**: In a first set of 67 randomly chosen villages most members of the group are men
2. **Extension targeting women:** In the second randomly chosen 67 villages the extension agents had to organize groups around the demonstration plots with a majority of women.
3. **Comparison group**: Finally the remaining 67 villages did not receive extension

The seed voucher experiment was randomized orthogonally on the extension experiment.

Researchers conducted three follow-up surveys (four, eleven, and eighteen months after the beginning of the program) to assess seed take-up, farm yields and profits, household welfare, and child nutrition and mortality.

Results and policy lessons

Evaluation ongoing, results forthcoming.

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1. World Bank, 2007. Agriculture for Development. World Development Report 2008. World Bank. Washington DC

2. Macours, Karen, 2019. Farmers' demand and the traits and diffusion of agricultural innovations in developing countries,Annual Review of Resource Economics, 11

3. Foreign Agricultural Organization. 2012. Foreign Agricultural Investment Country Profile: Democratic Republic of the Congo (DRC). Rome: Foreign Agricultural Organization.

4. Carter, Michael R., Rachid Laajaj, and Dean Yang. "Subsidies and the Persistence of technology adoption: field experimental evidence from Mozambique," NBER Working Paper #20465, September 2014.