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Evaluating Kenya's National Fertilizer Subsidy Program: Implementation, Crowding-out, and Benefit-Cost Analysis

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INTRODUCTION

The current National Fertilizer Subsidy Program (NFSP) in Kenya was introduced in 2023 in response to rising global food and fertilizer prices, with the goal of enhancing food production and improving national food security. This study evaluates the NFSP's effectiveness by examining key outcomes at the farm level and its broader economic impacts.

BACKGROUND

The government of Kenya began to dramatically scale up NFSP prior to the 2023 long rains (LR), procuring 472,500 metric tons of fertilizer at an estimated cost of KSh 54.3 billion (approximately $543 million USD). By June 30, 2024, about 175,060 metric tons of subsidized fertilizer had been sold to farmers, with the remaining stock sold over the subsequent 2023/24 short rains (SR) and 2024 LR. NFSP provides subsidized fertilizer to Kenyan farmers through government-run distribution channels, selling it at prices significantly below market rates (42% lower in 2023 LR, 55% lower after that). Unlike the National Value Chain Support Program (NVSP) launched in 2017 – but then scaled down in 2023 - NFSP does not distribute and retail subsidized fertilizer through existing private sector distributors and agrodealers.

DATA

The analysis in the study is based on primary farm household survey data collected through a phone survey conducted in Kenya between September and October 2023, at the end of the long rains season. We surveyed a randomly selected sample of farmers from 38 out of 47 counties in Kenya. Secondary data on NFSP fertilizer quantities and costs was used[1] as well as data on fertilizer and maize prices from MoALI/AMIS and AfricaFertilizer.

Key Findings

1. **Access and Timing:** Though 46% of households registered for NFSP in 2023, only 32% received an SMS notification and just 19% obtained subsidized fertilizer.
2. **Crowding Out of Commercial Fertilizer:** The program caused a 22% crowding-out effect. For every 100 kilograms of subsidized fertilizer distributed by NFSP, the program added 78 new kilograms to total fertilizer use, because the other 22 kg displaced commercial fertilizer the average farmer would have purchased in the absence of the program.
3. **Cost-effectiveness:** The benefit-cost ratio (BCR) for NFSP was 1.11, indicating that the benefits outweighed the costs. However, if the government had allowed the private sector to distribute and retail subsidized fertilizer over the past three seasons, the BCR would have increased to 1.22, generating a higher return with reduced financial losses for private-sector fertilizer suppliers.

Recommendations

1. The government should allow the private sector to distribute and retail NFSP fertilizer.
2. The government should target NFSP fertilizer to small-scale farmers.
3. Efforts should be made to integrate subsidized fertilizer programs with efforts to train farmers on better crop and soil management practices to maximize the fertilizer response and increase resilience.

RESULTS

Inorganic Fertilizer Use: Three-quarters of Kenyan farmers (76%) used inorganic fertilizer in 2023 long rains (LR) – commercial or subsidized - primarily on

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maize. Fifty-seven percent of farmers purchased commercial fertilizer, while 25 percent acquired subsidized fertilizer (19% from NFSP, 8% from county programs).

Access: Though 46% of households registered to obtain subsidized fertilizer from NFSP in 2023, only 32% received an SMS notification and just 19% obtained the subsidized fertilizer. Farmers traveled farther to obtain NFSP (at NCPB depots or KNTC sale points), an average of 16 km, compared with the average distance to commercial fertilizer from an agro-dealer (9 km). This is likely due to the fewer and more dispersed NCPB and KNTC depots for NFSP fertilizer, compared to local agro-dealers.

Timeliness: Farmers typically acquired NFSP fertilizer in first week of April 2023, two weeks later than commercial fertilizer, on average, though 80% of NFSP recipients said they received fertilizer in time for planting (87% of commercial fertilizer recipients said the same).

Equity of subsidy distribution: The evaluation revealed disparities in access, with larger-scale, wealthier farmers benefitting more than smallholders, raising concerns about equity in program delivery. Furthermore, the untargeted nature of the NFSP limited its effectiveness in reaching resource-constrained farmers who would have otherwise not used fertilizer, reducing the program's overall impact on total fertilizer use and productivity.

Crowding-out of commercial fertilizer: The program caused a 22% crowding-out effect, where subsidized fertilizer displaced commercial purchases. This meant that for every 100 kilograms of subsidized fertilizer distributed by the NFSP, the program added 78 new kilograms to total fertilizer use because the other 22 kg displaced commercial fertilizer the average farmer would have purchased in the absence of the program.

Cost-effectiveness: The study also conducted a benefit-cost analysis (BCA) to determine whether the NFSP's economic benefits, defined as the value of increased maize production, justify the program's costs, thereby assessing its cost-effectiveness of increasing national maize production in 2023. While NFSP's BCR of 1.11 exceeds the threshold of 1.0 where benefits are larger than costs, had the government allowed the private sector to distribute and retail subsidized fertilizer over the past three seasons, the BCR would have increased to 1.22. Furthermore, studies show that investments in public goods, such as agricultural research and development (R&D), road infrastructure, and policy improvements, typically yield much higher returns than input subsidies (EIU, 2008; Fan et al., 2008). Similarly, a review of 30 studies across sub-Saharan Africa found a median BCR of 11.0 for agricultural R&D, more than 10 times higher than NFSP's BCR (Pardey et al., 2016).

CONCLUSION

While the NFSP in 2023 met the minimum expectations of a public investment, its untargeted approach and reliance on government-run distribution limited its overall impact. A shift toward private-sector involvement in the fertilizer distribution and targeted subsidy could better enhance agricultural productivity and provide better economic returns for Kenyan farmers and the economy at large.

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