

The Impact of Fertilizer Subsidy on Fertilizer Use and Productivity of Small-Scale Rice Farmers in Tanzania

Abstract

This study uses a two-wave household level panel data from three major rice-producing regions in Tanzania, to analyze the impact of the fertilizer subsidy on fertilizer use and productivity of small scale-rice farmers in both rain-fed and irrigated agro-ecological zones. Using both difference-in-difference estimator and fixed effects model, we examine the net impact of the fertilizer subsidy program by controlling for endogeneity due to the non-random distribution of targeted fertilizer subsidy. Our empirical findings reveal that the fertilizer subsidy significantly increases chemical fertilizer use but this effect is mainly significant in the rain-fed area. Strikingly, the fertilizer subsidy has no significant impact on yield and profit. Evidence in our study suggests that chemical fertilizer use increases yield in general but the effect is only positive and significant in the irrigated area. Majority of the beneficiaries are in the rain-fed area where we do not observe significant effect of fertilizer use on yield, which could account for the insignificant impact of the fertilizer subsidy on yield. We argue that the fertilizer subsidy has positive impact on profitability mainly through increased production. In addition, while the subsidy encourages adoption of fertilizer, yield response depends on efficiency of input use and on weather conditions, and profit significantly depends on paddy price and total production cost. We recommend that; – investments in irrigation schemes targeting especially smallholders in the rain-fed area, should be accorded high priority and made a key component of the national budget for agricultural development; – complementary interventions that further strengthen farmers' long-term fertilizer demand, and that raise the technical efficiency of fertilizer use to maximize productivity should be considered.