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Title: Does agricultural input use impact household food security? Evidence from Tanzania



Food insecurity, one of the persistent problems of the 21st century, is most acute in Sub-Saharan Africa (SSA). Stagnant agricultural productivity has been linked to food insecurity. In Tanzania, one of the largest countries in East Africa, yields of primary crops such as maize, has been consistently less than the regional average for most years in the past few decades. Remarkably low levels of input use such as hybrid seeds and fertilizer is one of the primary reasons for poor productivity. Since the early 2000s several African, countries including Tanzania, have introduced Input Subsidy Packages (ISPs) to incentivize hybrid and fertilizer use. Agricultural input adoption can impact food security directly via greater availability of food, and indirectly via higher disposable income that can either be spent on better quality calories or on health or educational needs of family members. This study is an impact evaluation of the hybrid and fertilizer adoption in Tanzania on 3 indicators of food security i.e. expenditure on different food groups, Household Diet Diversity Score (HDDS) and Household Food Insecurity Access Scale (HFIAS). The methodology is a combination of Quadratic Almost Ideal Demand System (QUAIDS) adjusted for zero consumption, Endogenous Switching Regression (ESR) and Propensity Score Matching (PSM) with continuous treatment to control for potential endogeneity arising from self-selection. The preliminary results from the QUAIDS estimation show marginally higher expenditure elasticity of better-off households on better quality calories. Further analysis will focus on HFIAS and HDDS. This study makes three major contributions. First, it is one of the early empirical applications of the HDDS and HFIAS indicators of food security which captures its multi-dimensional nature. Second, previous studies have focused on binary adoption decisions. This research will model input combinations (of hybrid seeds and fertilizer) with continuous treatment of fertilizer intensity. Third, this study contributes to the growing literature on impact evaluation of ISPs, particularly in case of Tanzania where empirical evidence is relatively limited. Broadly, this study evaluates whether input subsidy policies lead to alleviation of food insecurity in pursuit of the second Sustainable Development Goal – ‘Zero Hunger’.