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Assessing the impact of farm diversification on household nutrition: evidence of four sub-Saharan African countries

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Abstract

Farm production diversity by farmers can be identified as a key strategy for improving dietary diversity. Yet, little empirical research has assessed the linkages of farm diversification and on-farm diet. This study aimed to quantify the impact of the farm production diversity on household nutrition and analyse factors affecting the farm production diversity and household nutrition. Two nutrition indicators were considered in this study: Household Dietary Diversity Score (HDDS) and Farm Diversity. Instrumental Variable Poisson regression was used to analyse the data to account for the count nature of the outcome variable. This model also allowed measuring both the determinants of farm production diversification and the linkages of farm production diversification and dietary diversity within the rice farming households. A total of 795 households were surveyed in four countries (Madagascar, Nigeria, Senegal and Rwanda). Results showed that positive and significant relationship between farm production diversification and dietary diversity in general. One-unit increase in farm production diversity, the household dietary diversity score increased by 0.05 ($p < 0.05$) in Madagascar; 0.08 ($p < 0.10$) in Nigeria; 0.07 ($p < 0.01$) in Rwanda; and 0.08 ($p < 0.05$) in Senegal. Higher level of education, engaged in self-employment, farming training, and sex of household were the key drivers of dietary diversity in the households of smallholder farmers. Similarly, higher levels of education, household size, total cropped area, and engaged in self-employment were the main factors affecting household agricultural diversification. The findings suggested that encouraging farming households to produce various crop and animal species can be an effective strategy to improve dietary diversity among smallholder farmers. However, this relationship is complex; it may be influenced by demographics and socioeconomic characteristics; institutional characteristics, and farm characteristics of households.

Keywords: Crop diversification, dietary diversity, food consumption, SSA