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Crop Diversification, Household Decision-Making, and Dietary Diversity: A Panel Data Analysis of Ethiopian Rural Households

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Abstract

Sub-Saharan Africa is home to most of the ultra-poor population. Many of whom experience alarmingly high nutritional deficiencies. Considering that most of the ultra-poor are subsistence farmers, the importance of production diversity for better nutrition seems obvious. Both on-farm diversification and dietary diversity are determined by different demographic, socioeconomic and institutional factors. In this regard, we employ panel data analyses of 363 Ethiopian smallholders surveyed in 2014 and 2016. The objectives are (i) to identify the main determinants of crop diversity captured by the Simpsons Index of Diversity and simple crop count, (ii) to estimate the effect of crop diversification on household dietary diversity, and (iii) to determine the effect of women’s participation in decision-making on both crop and dietary diversity.

With regard to the first objective of the study, we employ the quasi-maximum likelihood estimation method for a fractional response with correlated random effects and Poisson fixed-effects models for SID and crop count, respectively. A Poisson regression model is employed to capture the effects of crop diversity indicators on dietary diversity. Furthermore, regarding the third objective, we capture women’s participation in decision-making processes regarding the type of crop produced and food purchased and identify their association with the respective outcomes in the estimations.

We find a positive effect of farm size and adoption of crop rotation and/or intercropping practices on crop diversity, while an increase in non-farm income contributes negatively. Female participation in decision-making regarding crop production positively contributes to the number of crops produced. Results also show that, for smallholders with no or very little non-farm income, crop diversity is important to achieve better dietary diversity irrespective of the distance to the market. On the other hand, households with some non-farm income are observed to have no significant gain from further crop diversification. Moreover, female participation in decision-making regarding food purchases results in higher dietary diversity. Our analyses contribute to the growing literature on the linkage between crop diversification and dietary diversity and shows a significant positive association between women’s decision-making and both aspects of household livelihood.

Keywords: Crop diversification, decision-making, dietary diversity, Ethiopia