Association of agricultural diversity and children’s dietary diversity in Vietnam and Ethiopia.

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INTRODUCTION/BACKGROUND

Background:
- Poor diet quality persisted among children from small-holder farmers households in low- and middle-income countries.  
- Dietary diversity serves as an indicator of diet quality and nutrition.  
- Increasing household crop biodiversity has been proposed as a development strategy to improve nutrition among small-holder farmers.  
- Small body of literature supports the hypothesis that there is a positive association between household-level farm diversity and household- and individual-level dietary diversity.  

RESEARCH APPROACHES

Research aims:  
- Examine at two time points among children aged 5 and 8 among households that grow crops in Ethiopia and Vietnam:  
  1) if household-level agricultural biodiversity is associated with dietary diversity  
  2) effect modification from household wealth and subsistence levels  
- mediation from market orientation (sales versus subsistence)  
- Interaction terms: Generalized Estimating Equations clustered on child (to account for correlation over multiple data rounds) land, value of harvest sold in the last year, household nonfood and food expenditures in the last 15 days, harvest, head of household gender and age, household size, ownership of any animal, total agricultural production in the last 12 months (4 groups)  
- Covariates: child gender, agricultural sales in the last year, proportion of food consumed from own harvest, head of household gender and age, household size, ownership of any animal, total agricultural land, value of harvest sold in the last year, household nonfood and food expenditures in the last 15 days.

Study Population
- Children from Ethiopia and Vietnam at age 5 and 8 from rural households who grew any crops in 2006 and 2009  
- Data source: Young Lives, a longitudinal dataset from Oxford University

Methods

Indepedent Variable: Agricultural biodiversity measured two ways:
1. Crop Species Richness: count of total crop species grown by the household in the last 12 months
2. Crop Nutritional Functional Richness: count of total nutritional food groups consumed by the household in the last 12 months (4 groups)  

Dependent Variable: Children’s Dietary Diversity Scores (DDS)

Continuous: counts of the total number of food groups consumed in the last 24 hours (7 groups)  

Covariates: child gender, agricultural sales in the last year, proportion of food consumed from own harvest, head of household gender and age, household size, ownership of any animal, total agricultural land, value of harvest sold in the last year, household nonfood and food expenditures in the last 15 days.

Statistical Analysis

Generalized Estimating Equations clustered on child (to account for correlation over multiple data rounds)

RESULTS

Children’s dietary diversity scores and household wealth higher in Vietnam. Crop diversity indicators and consumption of food from own harvest higher in Ethiopia.

Positive associations of crop diversity and children’s dietary diversity in Ethiopia. Associations of crop diversity and children’s dietary diversity in Vietnam

DISCUSSION AND CONCLUSION

This study provides evidence that crop diversity is associated with small increases in dietary diversity in pre-adolescent school-aged children in some contexts, especially those from poor and subsistence-oriented households. Modest mediation from agricultural sales indicates that diversification may provide a route to market engagement in some settings with potential implications for children’s dietary diversity.

ACKNOWLEDGEMENTS

The data used in this publication come from Young Lives, a 15-year study of the changing nature of childhood poverty in Ethiopia, India, Peru and Vietnam (www.younglives.org.uk). Young Lives is funded by UK aid from the Department for International Development (DFID). The views expressed here are those of the authors. They are not necessarily those of Young Lives, the University of Oxford, DFID or other funders.

This work was funded by the University of Michigan Graham Sustainability Institute as part of the Entry Points to Advance Transitions towards Sustainable diets (EATS) initiative, a research collaboration between the University of Michigan and the International Center for Tropical Agriculture (CIAT), and by the University of California Research and Innovation Fellowships in Agriculture.

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