The Effect of Soil Erosion to Calorie Intakes of Children among Corn-Producing Households in Davao Region, Philippines: Structural Equation Modelling

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Abstract

Soil erosion is a constant challenge to farm productivity and profitability. However, extending the effect to food expenditure and children's nutrition is yet to be explored. In this research, we attempted to establish the path linking soil erosion to children's calorie intake levels. Using the geo-coordinates of Mindanao soil erosion areas from the Department of Agriculture-Bureau of Agricultural Research (DA-BAR), we used geographic information system to identify the research sites for corn producing households in Davao Region. A total of 125 samples were analyzed. A 24-hour food-frequency recall survey was conducted, and conversion of food consumption to calorie equivalent was performed using the USDA National Nutrient Database for Standard Reference. An analysis of variance was used to compare the mean difference of varying degrees of soil erosion in terms of productivity, food expenditure, and calorie intake. To perform the path analysis, structural equation modelling was used. The results indicate that corn farms in severe and moderately eroded areas have lower yield relative to no apparent/low erosion level. The results also suggest direct and indirect negative effect of soil erosion to farm productivity, food expenditure, and children's calorie intake. Finally, the effect of soil erosion can be mitigated through adoption of soil conservation practices, providing opportunity for nonfarm livelihood, and empowering women head of household to improve access to nutritious food.