

# The Effects of Soil Erosion on Rice Productivity and Its Impact on Household Welfare Levels

Sitti Hairol, Pedro A. Alviola IV\*, Harvey M. Niere, Nikko L. Laorden,  
Jon Marx P. Sarmiento, and Nilo B. Oponda

University of the Philippines Mindanao

## \*Correspondence

School of Management,  
University of the Philippines  
Mindanao, Mintal, Tugbok District,  
Davao City 8022, Philippines

T +63 82 295 2188

E paalviola1@up.edu.ph

## Keywords

- child nutrition intake
- geographic information system
- household expenditure
- rice productivity
- soil erosion

## Abstract

Soil erosion is one of the major problems of agriculture, especially in rice production. With the critical role of irrigated rice production in the country's supply of rice and the negative effects of soil erosion on rice farming, there is a need to measure the effect of soil erosion on the productivity as well as its impact on household welfare levels. We compared farm productivity, household income and expenditure levels, and children's food and nutritional intakes of irrigated rice farming in areas with no and slight erosion in General Santos City. Utilizing the Bureau of Agricultural Research geo-coordinates of Mindanao's soil erosion areas, we used the geographic information system to identify irrigated rice areas with varying erosion levels. The results of the Cobb-Douglas production estimates show that the presence of slight erosion in irrigated rice farms has no statistically significant effect on farm productivity relative to the farms in no erosion areas. Comparison of yield, income, expenditure, and food and nutritional intakes of children showed no statistical difference as well. Thus, the presence of slight erosion is not a threat to the household rice production, income, and consumption relative to no erosion irrigated rice farms. However, in this context, varying erosion levels (i.e., high erosion versus no erosion) must be investigated further in order to provide more comprehensive information regarding the effect of soil erosion on productivity, expenditure, and food and nutritional intakes in irrigated rice farming.