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Interrelationship Between Soil Conservation Decision and Farm Income: Evidence from Eastern Highlands of Ethiopia

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Abstract

Ethiopia is among developing countries that are reported to suffer severe land degradation problem. Land degradation is among the major problems creating a formidable threat to food security goals of the country. About 26% of the land area in Ethiopia has been degrading over the years 1981–2003, directly affecting the livelihoods of 29% of the population. It is estimated to reduce food production by at least 2% and the national economy by about 1.0 billion US\$ per year.

Land conservation investments are necessary to increase crop yields, prevent degradation, and improve income. Conversely, improvement in income is believed to enhance investments on conservation activities indicating a reciprocal causation between the two. This causal link is related to the controversial notion of ‘downward spiral’ where poverty leads to degradation, and degradation to further poverty. Contrary to this notion, there is also an argument that the poor are not always to be blamed for land degradation.

This study uses data collected from a total of 211 households in Eastern highlands of Ethiopia and employed a Two-Stage Probit Least Squares to analyse how per capita income and adoption of stone terraces are interrelated. Whereas adoption of stone terraces positively affects per capita income, per capita income is not significant in affecting adoption of terraces. This means, there is no adequate evidence that the income reach is better in adopting land conservation practices as compared to the poor. Furthermore, per capita income is positively affected by fertility index of the plots, farm size, livestock holding, and proportion of perennial crops; and negatively by number of crops grown, age of the household head, dependency ratio, and involvement in off-/non-farm activities. Adoption of stone terraces, on the other hand, is affected positively by slope index, involvement in training, and level of education of the household head; and negatively by soil fertility index, land fragmentation, and proportion of female members of the household. Among important implications is that the issue of land conservation investment requires due attention in an effort to increase farm income and thereby ensure food security in the country.

Keywords: Ethiopian, Land degradation, Per capita income, terraces, Two-stage Probit Least Squares