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A contingent valuation of non-market ecosystem services of agricultural land in Bahir Dar, Ethiopia

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Abstract

A contingent valuation of ecosystem services of agricultural land in Bahir Dar, Ethiopia

Ethiopian urban centres, such as Bahir Dar, are expanding rapidly as a result of the country's rising population and the significant rural to urban migration trend. In order to meet the demand for urban land, the government predominantly expropriates smallholder farmers located around the cities. Besides losing their main source of income, the farmers appear to be inadequately compensated. In fact, local jurisdictions are using formulas that do not include the total economic value of land. One of the shortcomings of the estimations is that they do not consider the non-market indirect ecosystem services that crop land provides farmers with. Given that these play a crucial role in supporting and regulating a farmer's agricultural activities, they should be accounted for when estimating the compensation. However, in order to be useful for policymakers, these services need to be represented by a monetary value. The aim of this research was therefore to provide such quantitative data by conducting a double-bounded dichotomous choice contingent valuation survey, in which respondents would have to state their willingness to pay for considered ecosystem services in a hypothetical market. A total of 524 smallholder farmers were questioned in 4 different zones in the periphery of Bahir Dar, where expropriation of land is common. With the help of a bivariate probit regression, an estimated mean willingness to pay of 275.64 ETB per hectare per year for a period of 10 years was obtained. Additionally, the impact of farmers characteristics on the willingness to pay was analysed. This showed that age, family size and having a recent expropriation experience, are negatively related with the willingness to pay. In contrast, both having a higher income and larger land size positively affects the willingness to pay. It was concluded that indirectly used ecosystem services of agricultural land are valuable for farmers in peri-urban Bahir Dar. The recommendation is that they should therefore be compensated in case of expropriation.