A farm household model for agri-food policy analysis in developing countries: Application to smallholder farmers in Sierra Leone

Abstract:
This paper presents a generic farm-household model for use in the context of developing countries to gain knowledge on food security and rural poverty alleviation under different policy options. It is a static positive programming model which simultaneously solves a set of microeconomic farm models reproducing the behavior of representative farm households. This model is designed to capture key features of developing countries agriculture such as the non-separability of production and consumption decisions due to market imperfections, the inter-linkage between transaction costs and market participation decision, the interaction among farm households for factor markets and the seasonality of farming activities and resource use. Model use is illustrated in this paper by simulating the impact of rice seed policy on the livelihood of representative smallholder farmers in Sierra Leone and, more specifically, on land use, production and consumption of basic food commodities, farm-household’s welfare and poverty level. Results show that the seed policy would improve farm productivity and boost household income but it is sufficient to fight poverty since 90% of the surveyed farm households would continue to live below the extreme poverty line of 1 USD-equivalent per day.

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