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Climatic Risk and Farm Planning: a Mathematical Programming Model for Typical Farms Households in the Mountainous Upland of Thua Thien Hue Province, Viet Nam

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Abstract

Weather calamities partly attributable to global climate change are increasingly affecting the central part of Vietnam. Such shocks add to adversities like pest outbreaks and the Avian Flu. In addition, the recent hike in food prices adds additional burden to the often food-deficit farm households in the mountainous areas of the province of Thua Thien Hue in Vietnam. Hue is one of three Vietnamese provinces where a large scale household panel survey was undertaken in the context of the DFG research project “Impact of Shocks on the Vulnerability to poverty: Consequences for Development of Emerging Southeast Asian Economies”. Data were collected in a panel survey from some 250 households in the mountain stratum of Hue province.

Using a mathematical programming model including risk following the concept of typical farm households the effect of risks on household food security and the probability to fall into poverty is analyzed. The model represents the main economic components of rural households in the mountainous upland of Thua Thien Hue province such as farm and forest based income generating activities. External shocks are incorporated in the model by means of a Monte Carlo based simulation of random events. Extensions of the model will allow capturing the dynamic nature of changes in natural resources such as forest land and soil fertility. Furthermore demographic changes and household dynamics as well as changes in asset positions will be included in future versions of the model. Results are expected to be useful for the design of policies which aim at reducing vulnerability to poverty while taking into consideration households’ medium- and long-term economic development.

Keywords: Climatic risk, farm planning, mathematical programming, Viet Nam