



Tropentag, September 17-19, 2013, Stuttgart-Hohenheim
“Agricultural development within the rural-urban continuum”

Weather Risk, Agricultural Investment Decisions and Farm Profits

KATHARINA LEHMANN

German Institute for Economic Research (DIW), Development and Security, Germany

Abstract

This paper aims to analyse the impact of weather risk on farm profits in the context of a developing country. Weather risk can impact farm profits both directly through its contemporary effect on crop growth and indirectly through its influence on the farmer's investment decision. In an extension to the existing literature, this paper seeks to separate the two effects and analyse their different policy implications. Therefore, both a measure of total contemporaneous rain in the respective cropping season and the first three moments of the rainfall distribution prior to the farmer's investment decision are included in the analysis. For empirical investigation, this paper uses six rounds from the Ethiopian Rural Household Survey and combines them with detailed geocoded monthly rainfall data. Testing for separability between the farmer's production and consumption decision confirms that risk considerations should enter the profit function. The farmer's profit function is then estimated by a benchmark fixed effects regression according to the Mundlak procedure to account for farmer-specific fixed effects. In a second step, the model is extended and estimated by a quantile regression to allow for varying effects of rainfall on different conditional quantiles of the profit distribution. Finally, also a dynamic panel model specification is used to take dynamic effects of profits into consideration. Results suggest that smaller low-profit farms are most affected by the direct impact of rain on crop yield and thus profits, whereas rainfall risk prior to the investment decision is most relevant in determining current profits of high-profit farms.

Keywords: Farm households, risk and uncertainty