



Tropentag, September 17-19, 2014, Prague, Czech Republic

“Bridging the gap between increasing knowledge and decreasing resources”

Modelling Farmers’ Credit Allocation Decisions and Impacts on Farms Technical Efficiency in Benin, West Africa

COMLAN HERVÉ SOSSOU¹, FREDDY NOMA², AFOUDA JACOB YABI³, SIEGFRIED BAUER¹

¹*University of Liege, Unit of Economy and Rural Development, Gembloux Agro-Bio-Tech, Belgium*

²*Justus-Liebig University Giessen, Inst. of Farm and Agribusiness Management, Germany*

³*University of Parakou, Dept. of Agricultural Economics and Rural Sociology, Benin*

Abstract

This paper models farmers’ credit allocation behaviours in schemes and analyses effects of the schemes on farms technical efficiency. Data were collected from 476 farmers using the multistage sampling procedure. The stochastic frontier truncated-normal with conditional mean model was used to assess allocation schemes effects on farms technical efficiency. A Tobit model reveals the impact of farmers’ socio-demographic characteristics on efficiency scores. Results revealed that the revenue of 2,262,566 FCFA is positively correlated with acreage, quantity of labour and costs of fertilisers, insecticides, fertilisers. The average technical efficiency score is 0.675 (± 0.137). The scores are diversely distributed across farms, with a median score equal to 0.713. Farmers’ behaviour responds to six credit investments schemes, which are categorised in two allocation contexts: in-farm and out-farm allocations. In the latter credit is invested towards social needs (weddings, traditional festivals, etc.) and household needs (health, education, housing, etc.). Credit in-farm allocations are towards production inputs (land, labour, capital). The model showed that only one scheme impacted positively farms’ technical efficiency: scheme (e). It is the decision to invest the credit to purchase better quality of pesticides, herbicides, fertilisers, etc. The positive effect of the scheme (c) may be significant under conditions of farmers’ education level improvement. Then, scheme (e) is a better investment for all farmers; either they have a high or low level of education. But the credit allocation to buy agricultural materials is positive only for the educated farmers who were 53.5 % of the surveyed farmers. The scores of efficiency are reduced by household size and gender of the household head. Therefore, households with less than 10 members and an educated man as head are likely to improve their farms’ technical efficiency through two credit investments schemes: Credit \times Capital and Credit \times Intermediary-inputs.

Keywords: Credit allocation schemes, stochastic frontier model, technical efficiency