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Impact of Large-Scale Bioethanol Investments on Food Production: Insights from Sugarcane Outgrower Schemes in Malawi

RAOUL HERRMANN¹, CHARLES JUMBE², EVANS OSABUOHEN³

¹*German Development Institute, Germany*

²*Lilongwe University of Agriculture and Natural Resources,*

³*Covenant University, Economics and Development Studies, Nigeria*

Abstract

In the last decade, numerous Sub-Saharan African economies experienced an unprecedented rise in private foreign investment interests in their agricultural sector, many of which focused on biofuel production. The implications of such investments for food security and rural development have been debated controversially. We address this issues by studying the household-level food production effects of participating in such investments through outgrower schemes. The data comes from a household survey conducted in the vicinity of a major sugar and ethanol production cluster in Malawi, one of the very countries in Sub-Saharan Africa with an established biofuels industry. We estimate effects on food crop inputs purchases, labour hire, land expansions and investments in agricultural assets econometrically. In order to address sample-selection problems when estimating net effects on staple food production and productivity, we apply endogenous switching regression and propensity score matching. We find that participating in sugarcane outgrower schemes increases the likelihood for households to expand their land holdings under food crops, to hire more labour for agriculture production, and spend more on food crop inputs. The coefficient in the food production regression is positive but not significant. Instead we find negative and significant effects on staple crop yields among participating farmers. We conclude that biofuel outgrower expansions not necessarily leads to declining food production and that there are potentials in the context of low access to credit services and high input costs to address smallholder constraints in food production.

Keywords: Biofuels, cash crops, food production, impact evaluation, linkages, Malawi, outgrower schemes, sugarcane