

## Effect of Agricultural Extension Services on Technical Efficiency of Smallholder Cassava Farmers in Ghana: A Stochastic Meta-Frontier Analysis

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**Abstract :** In Ghana, rural dwellers who depend primarily on agriculture for their livelihood constitute about 60% of the country's population. This shows the critical role and potentials of the agricultural sector in helping to achieve Ghana's vision 2030. With the current threat of climate change and advancements in technology, agricultural extension is not just about technology transfer and improvements in productivity, but it is also about improving the managerial and technical skills of farmers. In Ghana, the government of Ghana as well as other players in the sector like; non-governmental organizations, NGOs, local and international funding agencies, for decades now, have made capacity-building-investments in smallholder farmers by way of extension services delivery. This study sought to compare the technical efficiency of farmers who have access to agricultural extension and farmers who do not in Ghana. The study employed the stochastic meta-frontier model to analyze household survey data comprising 300 smallholder cassava farmers from the Fanteakwa district of Ghana. The farmers were selected through a two-stage sampling technique where 5 communities were purposively selected in the first stage and then 60 smallholder cassava farmers were randomly selected from each of the 5 communities. Semi-structured questionnaires were used to collect data on farmers' socioeconomic and farm-level characteristics. The results showed that farmers who have access to agricultural extensions services have higher technical efficiencies (TE) and produce much closer to their meta-production frontiers (higher technology gap ratios (TGR) than farmers who do not have access to such extension services. Furthermore, experience in cassava cultivation and formal education significantly improves the technical efficiencies of farmers. The study recommends that the mode and scope of agricultural extension service delivery in the country should be enhanced to ensure that smallholder farmers have easy access to extension agents.

**Keywords :** agricultural extension, Ghana, smallholder farmers, stochastic meta-frontier model, technical efficiency

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