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Marginal Productivity of Small Scale Yam and Cassava Farmers in Kogi State, Nigeria: Data Envelopment Analysis as a Complement

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Abstract : The study examined marginal productivity analysis of small scale yam and cassava farmers in Kogi State, Nigeria. Data used for the study were obtained from primary source using a multi-stage sampling technique with structured questionnaires administered to 150 randomly selected yam and cassava farmers from three Local Government Areas of the State. Description statistics, data envelopment analysis and Cobb-Douglas production function were used to analyze the data. The DEA result on the overall technical efficiency of the farmers showed that 40% of the sampled yam and cassava farmers in the study area were operating at frontier and optimum level of production with mean technical efficiency of 1.00. This implies that 60% of the yam and cassava farmers in the study area can still improve their level of efficiency through better utilization of available resources, given the current state of technology. The results of the Cobb-Douglas analysis of factors affecting the output of yam and cassava farmers showed that labour, planting materials, fertilizer and capital inputs positively and significantly affected the output of the yam and cassava farmers in the study area. The study further revealed that yam and cassava farms in the study area operated under increasing returns to scale. This result of marginal productivity analysis further showed that relatively efficient farms were more marginally productive in resource utilization This study also shows that estimating production functions without separating the farms to efficient and inefficient farms bias the parameter values obtained from such production function. It is therefore recommended that yam and cassava farmers in the study area should form cooperative societies so as to enable them have access to productive inputs that will enable them expand. Also, since using a single equation model for production function produces a bias parameter estimates as confirmed above, farms should, therefore, be decomposed into efficient and inefficient ones before production function estimation is done.

Keywords : marginal productivity, DEA, production function, Kogi state
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