

Economic Efficiency of Cassava Production in Nimba County, Liberia: An Output-Oriented Approach

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Abstract : In Liberia, many of the agricultural households cultivate cassava for either sustenance purposes, or to generate farm income. Many of the concentrated cassava farmers reside in Nimba, a north-eastern County that borders two other economies: the Republics of Cote D'Ivoire and Guinea. With a high demand for cassava output and products in emerging Asian markets coupled with an objective of the Liberia agriculture policies to increase the competitiveness of valued agriculture crops; there is a need to examine the level of resource-use efficiency for many agriculture crops. However, there is a scarcity of information on the efficiency of many agriculture crops, including cassava. Hence the study applying an output-oriented method seeks to assess the economic efficiency of cassava farmers in Nimba County, Liberia. A multi-stage sampling technique was employed to generate a sample for the study. From 216 cassava farmers, data related to on-farm attributes, socio-economic and institutional factors were collected. The stochastic frontier models, using the Translog functional forms, of production and revenue, were used to determine the level of revenue efficiency and its determinants. The result showed that most of the cassava farmers are male (60%). Many of the farmers are either married, engaged or living together with a spouse (83%), with a mean household size of nine persons. Farmland is prevalently obtained by inheritance (95%), average farm size is 1.34 hectares, and most cassava farmers did not access agriculture credits (76%) and extension services (91%). The mean cassava output per hectare is 1,506.02 kg, which estimates average revenue of L\$23,551.16 (Liberian dollars). Empirical results showed that the revenue efficiency of cassava farmers varies from 0.1% to 73.5%; with the mean revenue efficiency of 12.9%. This indicates that on average, there is a vast potential of 87.1% to increase the economic efficiency of cassava farmers in Nimba by improving technical and allocative efficiencies. For the significant determinants of revenue efficiency, age and group membership had negative effects on revenue efficiency of cassava production; while farming experience, access to extension, formal education, and average wage rate have positive effects. The study recommends the setting-up and incentivizing of farmer field schools for cassava farmers to primarily share their farming experiences with others and to learn robust cultivation techniques of sustainable agriculture. Also, farm managers and farmers should consider a fix wage rate in labor contracts for all stages of cassava farming.

Keywords : economic efficiency, frontier production and revenue functions, Nimba County, Liberia, output-oriented approach, revenue efficiency, sustainable agriculture

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