

Assessment of Tractor Use Efficiency among Smallholder Farmers in Nigeria

Achoja Roland Onomu

*Department of Agricultural Economics and Extension, University of Fort Hare,
Alice, P. B x1314, Eastern Cape, 5700, South Africa
E-mail: roland.onomu@gmail.com*

KEYWORDS Determinant. Comparison. Frontier. Hire. Income. Sources

ABSTRACT Smallholder tractor use is being promoted, which is necessary. However, the efficiency of smallholder tractor users and the pull factor that could stagnate or impact the smallholder tractor user's efficiency are left uninvestigated. This study investigates the efficiency of the tractor users, the contribution of tractor service providers to smallholder farmers' efficiency, the determinant of smallholder tractor users' efficiency, and the challenges smallholders face when accessing tractor service in Benue and Delta States of Nigeria. Multistage sampling technique was used to collect data from 280 smallholders. Descriptive statistics and one-step stochastic frontier model (SFM) of truncated normal distribution were employed to analyse the results. Fewer smallholders (78 out of 280 sampled smallholders) used tractors. On average, smallholder tractor users operate twenty-eight percent below their maximum technical efficiency portfolio and production frontier level, but their income was double that of non-tractor users. Tractor user output shows decreasing return to scale, with an elasticity of production that is less than one. Involvement of the smallholders in other occupations, marital status, long-distance travel to access tractor service providers, and the type of tractor service providers used by the smallholders significantly influence their efficiency. Smallholders who used private tractor service providers were fourteen percent more efficient than those who used government tractor services. Entrepreneurial attributes displayed to smallholders by SME tractor service providers could be why smallholders who use SME tractors are more efficient. Smallholder tractor users' challenges in accessing tractor services include delayed service delivery, lack of professionalism, and limited tractor service providers. Stakeholders should promote market-driven hire tractor service that is constantly available.