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Ethiopia's Smallholders' Willingness to Use Mechanisation

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Abstract

Employing currently more than 70 % of the population, agriculture is crucial to the state of food security and the overall economy in Ethiopia. Ethiopia's population has more than doubled in less than 30 years, to now over 106 Mio. There are indications that the land frontier is already exploited. Ethiopia's agricultural sector is facing significant challenges. Since the 1990s Ethiopia's government has tried to transform the agricultural sector to cope with upcoming challenges and create an engine for economic growth. However, the mechanisation rate in the agricultural sector and the use of modern inputs remain below the African average. In 2014, the government formulated a national strategy for agricultural mechanisation. The starting point shall be a needs assessment.

Based on socio-economic household data collected by IFPRI for the Agricultural Transformation Agency in so far unmechanised, but high-potential areas, an analysis of wheat and teff farmers' mechanisation desire is carried out over the individual steps of the cropping period. It is the first time, that sufficiently detailed data is available for this disaggregated analysis. Considering Ethiopia's diverse agro-ecology, geographic challenges, and unique farming systems, the question arises as to how Ethiopian smallholders' mechanisation desires align with the general theories of agricultural mechanisation formulated by H.P. Binswanger and others since the 1970s. The assessment in this study identifies smallholders' priorities and contextualizes them with academic literature.

Agricultural machinery typically requires up-front investment capital which subsistence farmers and smallholders are often not able to access. Considering Ethiopia's small average farm size, economies of scale are not a strong selling point for mechanisation. However, rentable mechanisation service providers could offer an alternative to overcome both thresholds. Using conclusions from the needs assessment as a starting point, determinants of willingness to use specific mechanised agricultural rental services are explored by means of econometric analysis. Intuitively, one might expect wealthier farmers to be the first ones to adopt. But are topography and land size hindering factors? The role of education, technology awareness and extension services is to be explored. The results will be useful for future policy formulation and for designing appropriate rental services.

Keywords: Ethiopia, Mechanisation, Mechanisation Services, Smallholders, Willingness to Use