Maziwa Zaidi (More Milk) in Tanzania
Determinants of technical efficiency among smallholder dairy farmers in Tanzania

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Key messages
• Identifying the determinants of technical efficiency helps to determine policy options to enhance dairy production efficiency and inform investments in Tanzanian dairy value chains.
• Considerable scope is identified to improve dairy production in Tanzania, and targeting is enabled by the differential results across districts.
• The proportion of dairy farmers scoring more than 90% technical efficiency is higher in Kilosa (27%) and Lushoto (24%). The modal technical efficiency score is in the range of 80 to 90% in Handeni district and 70 to 80% in the districts of Kilosa, Mvomero and Lushoto. The overall average technical efficiency is about 80%.
• Credit access, training, group membership and female household labor would improve technical efficiency (reduce inefficiency).
• Recommended policy actions are: improve access to credit and relevant training, promote establishment and growth of farmer organizations; and encourage women farmers to engage in dairy production.

Objectives and approach
• Current investments in commercial dairy production are mostly restricted to high density population areas in highland and peri-urban locations.
• It is not clear the extent to which pre-commercial dairy farmers living in less intensive marginal areas can be targeted to become more commercial.
• The main objective of this study is to identify the determinant factors that affect the technical efficiency of smallholder dairy farms in Tanzania.
• This study uses household data collected from randomly selected households (from mostly pre-commercial to more commercial production systems in four districts in Morogoro and Tanga regions) and employs stochastic frontier analysis (SFA) approach to derive a statistical measure of technical efficiency and efficiency drivers.

Key results
Farm level investments that increase the number of cattle, cows and cross breeds and increase veterinary and feed input use, raise productivity until the stage of diminishing marginal returns where marginal output starts to decrease with every additional unit of the inputs and subsequent decrease in total output.

Opportunities to invest and scale
• Make dairy production inputs accessible by smallholder farmers
• Improve access to credit and strengthening Savings and Credit Cooperative Society (SACCOs).
• Provide dairy production specific training to farmers.
• Help establish and grow producer organizations.
• Provide incentives to encourage women participation in dairy production.

Figure 1: Kernel density of technical efficiency scores by Districts
Figure 2: Kernel density of technical efficiency, overall average TE= 80%
Figure 3. Proportion of dairy producers by district and technical efficiency class