

Technical Efficiency of Broiler Farms in the Central Region of Saudi Arabia: Stochastic Frontier Approach

By

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Abstract

Broiler farms are considered one of the highest priority areas that have gained major support and incentives in the government policy. Broiler farms in Central Saudi Arabia require substantial high investment costs and competent management. These farms have recently experienced a wide range of technical and managerial problems. Some farms are operated at less than full capacity while others have ceased operations. The aim here is to determine the performance of the farms that remain, to measure their technical efficiency, and to determine if the mean technical efficiency differs between small and large farms. The stochastic frontier approach (SFA) is used to estimate the technical efficiency of broiler farms in the central region of Saudi Arabia by determining which farms are located on the production frontier and which are not. The mean technical efficiency of small farms will be compared with that of large farms to determine if policy instruments should be targeted toward small or large farms.

The technical efficiency indexes calculated from the estimated production frontiers, range from 0.53 to 0.96, with mean technical efficiency estimated to be 0.89. This implies that the broiler farms are producing chicken to about 89 percent of the potential frontier production levels, implying that the production is about 11% below the frontier.

The technical efficiency indexes calculated from the estimated production frontier for the small farms range from 0.45 to 0.99, with mean technical efficiency estimated to be 0.83. This implies that the SMALL broiler farms in the Central

Region of Saudi Arabia are producing chicken to about 83% of the potential frontier production levels, given the levels of their inputs and the technology currently being used.

technical efficiency indexes calculated from the estimated production frontiers for the large farms range from 0.57 to 0.99, with mean technical efficiency estimated to be 0.82. This implies that the broiler farms in the Central Region of Saudi Arabia are producing chicken to about 82 percent of the potential frontier production levels, implying that the production is about 18% below the frontier.

Key words: broiler farms, technical efficiency, stochastic frontier Production function, parametric model, Saudi Arabia