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Technical Efficiency Analysis of Tobacco Farming in Southeastern Anatolia

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Abstract: The technical efficiencies of tobacco farms in Southeastern Anatolia were estimated with parametric and non-parametric methods. Data obtained from 149 tobacco farms were used in the empirical analysis. Results obtained with an output oriented Data Envelopment Analysis (DEA) were compared to those obtained from Stochastic Frontier Analysis (SFA) and the differences are discussed. According to the results of the DEA model, mean efficiency of tobacco farmers was found to be 0.45 and 0.56 for Constant and Variable Returns to Scale (CRS and VRS) assumptions, respectively. Mean technical efficiency obtained with the SFA model was found to be 0.54. A strong correlation was found between the results obtained with output oriented VRS-DEA and SFA models. Based on these results, it was concluded that the sample tobacco farms would be able to increase their technical efficiency by 45% through better use of the available resources, while applying current technology. However, further studies are required in order to determine the causes of the observed inefficiencies.

Key Words: Technical efficiency, tobacco, Turkey, Data Envelopment Analysis, Stochastic Frontier Analysis