Research Title: Technical Efficiency Analysis of Wheat Farms In Punjab, Pakistan: A Comparison of SFA and DEA Approaches

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Abstract: Technical efficiency of wheat farms is analyzed using Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA). Technical efficiency is calculated and socioeconomic factors responsible for inefficiency were analyzed using a Tobit Regression model. The SFA accommodates statistical noise such as random shocks beyond the control of farmers while DEA does not account for random shocks. However, technical efficiency of wheat farms is estimated using both SFA and DEA approaches. Farm level panel survey data were used pertaining to 17 districts of the province of Punjab for the period of 2005-06 to 2007-08. The mean technical efficiency estimate obtained using SFA is about 84 percent showing considerable room for efficiency improvement. The analysis implies that mean technical efficiency estimated through variable return to scale (VRS) was 99.5 percent and constant return to scale (CRS) was 92 percent. The mean scale efficiency was 92.6 percent. The estimated technical efficiency through SFA application is lower than the estimates using DEA. The results of analyses are supported by the literature. The technical efficiency could be improved by educating the younger farmers, building road infrastructure and farmers access to essential inputs. The study supports the argument that SFA technique yields better estimates for technical efficiency.