Technical Efficiency in Wine Grapes Production: A Stochastic Frontier Analysis for San Juan, Argentina

Authors:
Andrieu, Jimena EEA San Juan – INTA. andrieu.jimena@inta.gob.ar
Gatti, Nicolás Instituto de Economía – INTA gatti.nicolas@inta.gob.ar
Miranda, Omar EEA San Juan – INTA miranda.omar@inta.gob.ar
Novello, Raúl EEA San Juan – INTA novello.raul@inta.gob.ar

Abstract
The aim of this paper is to estimate and analyze the technical efficiency (TE) component of productivity for a sample of wine grape producers in San Juan, Argentina. We focus on decisions about the use of water for irrigation, the most important input of the region because of its scarcity. A Stochastic Production Frontier (SPF) was estimated using data from a survey of grapes producers from 25 de Mayo, San Juan. The data includes 68 farms with specific input-output information. Alternative models were estimated for comparison. Finally, we use the Cobb-Douglas specification to obtain TE scores. The results suggest that the average farm level TE 50% and vary within a range of 16% and 79%. One additional finding is that the value of the marginal product is above input price. Considering the average use of water, the actual grapes price is showing that producers are paying this input at a price below market price. This preliminary evidence would support why producers in San Juan are using irrigation techniques that are not efficient in water use.

Keywords: technical efficiency, grapes, stochastic frontiers, irrigation