Wine Grape Price Variability as an Indicator of Fruit Quality: Evidence from a Sample of Chilean Vineyards

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Abstract:

The determination of the factors that influence wine grape quality is an important concern for vineyard managers seeking to maximize the success of their operations. In this paper we argue that grape quality is reflected in the market price paid by wineries to farmers and can be explained by various vineyard production factors, as well as certain unobserved vineyard characteristics or heterogeneity, sometimes referred to as the terroir. The objective of this study is to quantify the relative importance of alternative production factors that significantly influence wine grape quality and thus prices. Because these factors are subject to managerial control, their identification can provide important insights for vineyard operators.

Cross-sectional data by vineyard blocks collected for the 2008 growing season are used in the analysis. A total of 103 block-level observations are included in the dataset coming from a total of 27 vineyards in 11 producing regions (valleys) in Chile. Observable production factors include vineyard size, type of grape, planting characteristics, vine training system, irrigation, pruning systems, labor, machinery, chemical and overhead costs, as well as geographical location.

The analysis is done using two estimating procedures, a standard OLS model and a Tobit model, and two functional forms, linear and Cobb-Douglass, resulting in a total of four sets of estimates. Tobit estimation is used in order limit the distribution of wine grape quality to non-negative values; specifically it is truncated at a lower-bound of 0. Both models indicate that the parameters associated with several of the variables are statistical significant significance. In particular, the parameters for labor, yield, plant density, irrigation and grape color are statistically significant and exhibit the expected sign. However, as might be expected, some of the results are sensitive to model specification and estimation approach. The results are generally consistent with the literature and thus provide additional relevant information to the field of vineyard management.

Keywords: wine grape prices, Chile, vineyard management, regression analysis