

Individual artist career patterns and the hedonic prediction of art prices at auction

J.W. Galbraith and D.J. Hodgson

Econometric analysis of realized auction prices for paintings shows that career effects as modelled by polynomial age--valuation profiles make a significant contribution to the in-sample fit in hedonic regressions of prices on a variety of explanatory characteristics. The existing research considers almost exclusively the estimation of data sets in which many artists are pooled into a single regression, with estimated age-valuation profiles representing an average over the artists included in the sample. Some attempts at disaggregation of artists, whether by birth cohort or artistic movement, have shown that important differences can occur across groups of artists. More recently, Galbraith and Hodgson (2012) have demonstrated that with the aid of recent developments in dimensionality-reduction and model averaging, such profiles can be estimated at the individual-artist level. As the hedonic prediction of possible future sale values of individual paintings is of interest to art market participants, including collectors and insurers, methods that will yield the best possible predictive power are of interest as well. We thus compare the out-of-sample predictive ability of a variety of hedonic specifications, focusing on the relative mean-squared error or linex loss of models including age effects at the pooled and individual levels, using a data set on sales for Canadian painters extending from 1968 to 2011.

Empirical-Similarity-Weighted Regression

J.W. Galbraith and O. Lieberman

Hedonic regression is the primary econometric technique for valuation of unique and infrequently-traded items such as real estate or works of art. However, the predictions from standard hedonic regressions are often poor, particularly for very valuable items. One alternative method that has been employed for such cases is empirical similarity (Gilboa, Lieberman, Schmeidler), where predictions of an unknown quantity are made as a weighted average of the values of known quantities, with weights determined by an axiomatized measure of similarity between the items, obtained from a vector of observed characteristics. This method produces forecasts, but not the parameters of a conditional model. The present study combines the empirical similarity method with a regression framework, to produce estimates of the parameters of conditional models as well as forecasts, where the contributions of different points in the data set depend upon their empirical similarity to a point of interest. The model is a type of varying-parameter model, but yields estimates of parameters at a particular point of interest by the distance-based empirical similarity criterion rather than describing the parameter surface via identifying restrictions. We apply the method to the problem of predicting prices of fine art at auction and of estimating differing conditional model parameters for the work of different artists.