

The Profit Trend of Cosmetics Products Using Bootstrap Edgeworth Approximation

Authors : Edlira Donefski, Lorenc Ekonomi, Tina Donefski

Abstract : Edgeworth approximation is one of the most important statistical methods that has a considered contribution in the reduction of the sum of standard deviation of the independent variables' coefficients in a Quantile Regression Model. This model estimates the conditional median or other quantiles. In this paper, we have applied approximating statistical methods in an economical problem. We have created and generated a quantile regression model to see how the profit gained is connected with the realized sales of the cosmetic products in a real data, taken from a local business. The Linear Regression of the generated profit and the realized sales was not free of autocorrelation and heteroscedasticity, so this is the reason that we have used this model instead of Linear Regression. Our aim is to analyze in more details the relation between the variables taken into study: the profit and the finalized sales and how to minimize the standard errors of the independent variable involved in this study, the level of realized sales. The statistical methods that we have applied in our work are Edgeworth Approximation for Independent and Identical distributed (IID) cases, Bootstrap version of the Model and the Edgeworth approximation for Bootstrap Quantile Regression Model. The graphics and the results that we have presented here identify the best approximating model of our study.

Keywords : bootstrap, edgeworth approximation, IID, quantile

Conference Title : ICEMS 2021 : International Conference on Economics, Mathematics and Statistics

Conference Location : Venice, Italy

Conference Dates : April 12-13, 2021