

Some Properties of Measure of Goodness of Fit in Regression Models

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Abstract—The Regression is well known technique for deriving a relationship between study variable and group of independent variables. The efficiency of the regression model depends on its explanatory power. The R-square & its adjusted version are well known measures of goodness of fit under regression models. The sampling distribution of sample coefficient and its properties were studied in literature, see Cramer (1987). Further, the alternative results were derived by using the large sample asymptotic approximations; see also Smith (1996), Ullah et al. (1994) and Srivastava et al. (1995).

In this paper, the means, variances of R-Square and its adjusted version is derived along with Pearson's measure of skewness and kurtosis by using the large sample asymptotic theory. The expectation of error term along with other defined terms is derived in order to find expectation using algebraic operations. Using computer tools the comparison of R-square and its adjusted version is also tabled for skewness and kurtosis.

Keywords: Regression models, Coefficient of determination and adjusted version, Skewness, Kurtosis and Mathematical Expectation.

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