ARIMA Modelling in Time Series Forecasting – A Case Study on Car Sales Data Set

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ABSTRACT

Time Series, defined as a set of observations measured sequentially through time, can be said to have two main goals at the core of its analysis, namely, identifying the nature of the phenomenon represented by the sequence of observations and forecasting (predicting future values of the time series variables). Both these goals require that the pattern of observed time series data is identified and more or less formally described. Once the pattern is established, we can interpret and integrate it with other data. This study involves making use of a technique called as ARIMA (Auto Regressive Integrative Moving Average) modelling which not only uncovers the hidden patterns in the data but also generates forecasts. Data used in the study is a classic example of seasonal variation in time series namely car sales data. The step by step deductions, the iterative approach in arriving at an appropriate model and the subsequent generation of forecasts for future time periods has been systematically dealt with in this study. The goal of the study has been to provide a detailed example of ARIMA modelling in the form of a case study that could be used for teaching and learning purposes. Teachers and students of Econometrics or Statistics can use this case study as a practical and accessible example of ARIMA model.

Key Words : Auto Regressive Integrative Moving Average, Decomposition, Auto Correlation function.