

Application of Time Series Analysis Technique of Box and Jenkins in Forecasting Future Sales of Nigerian Exported Crude Oil.

BY

Sirajo Abdullahi

surajoabdullahi@ymail.com

Department of Mathematics and Statistics, Abdu Gusau Polytechnic, Talata Mafara, Zamfara state Nigeria.

Abstract

This research paper was carried out in order to find out the hidden nature of revenue generated from crude oil sales abroad by Nigerian government and to forecast 12 months (January 2018 to December 2018) sales of the crude oil using crude oil sales data for January 2006 to Decembrr 2017. Crude oil is mainly the significant natural resources of the industrialized and developed economy. It can generate heat, drive machinery and fuel vehicles and airplanes. Its components are used in manufacturing chemicals as well. This was why this research paper was carried out to investigate the hidden nature of revenue generated from crude oil by Nigerian government using fox and Jenkins (1976) auto regressive integrated moving average (ARIMA) model and to forecast 12 months expected monthly sales of crude oil for the year 2018. At the end of this research, five (5) SARIMA model were developed out of which two were found te be the best and with precise forecasting power. The models are $(2,1,2)$ $(3,1,0) \times 12$, $(1,1,3)$ $(4,1,4) \times 12$ and were fish out with the help of three information criteria namely Akaike information criteria (AIC), Schwarz information critoria (SIC) and Hannan Quinn informntion criteria (HQC). the forecart of the two models mentioned above intimately forecast sales very close to the actual revenue. This means that the models absolutely understand the nature of exported crude oil revenue generated by Nigeria and as such it can be used to forecast future sales of exported crude oil by Nigeria Government with smallest amount of error, finally recommendations are offered.

Keywords: Time Series Crude Oil Fdrecasting.