FORECASTING THE PRICE OF COFFEE VENDING USING PREDICTIVE MODELS FOR UNILEVER SRI LANKA LIMITED

Fahd Hassan Sheriff

A dissertation submitted in partial fulfilment of the requirement for

Master of Science (Honours) degree in Business Analytics

Department Of Computing

Informatics Institute of Technology, Sri Lanka

In collaboration with

Robert Gordon University, Aberdeen

2021

Abstract

Forecasting by definition (Oxford languages, 2019) revolves around the ability to predict the future occurrence of an event or a trend. This has gained immense popularity across various industries as they enable firms plan between priorities and allocate scares resources within initiatives to capitalize on the opportunity and help improve the firm's profitability and investor confidence. The data presented through the forecasting model, would trigger a series of planning actions which could lead towards either importing more of product or towards holding back the supply to market to stabilize the price at which its traded. Coffee imports to Sri Lanka is similar in nature and is constantly exposed to high volatility. The import prices were forecasted by using the time series data of monthly average prices for the period of 9 years (January 2013 to December 2020). The ARIMA model introduced by Box and Jenkins (1970) which is the most widely used amongst time series models, whilst the same was constructed using Exponential Smoothing. Both outcomes were used for predictions of the future 5 years and R2, RMSE, MAPE, MAE and normalized BIC parameters were used to test the reliability of model. The outcome generated were useful for the organization in decision making as it demonstrates the range in which the future price can lead to, whilst also allowing the management scenario plan with a regression model to understand at which price it needs to sell its product to maximize profits. The model can be further improved for the decision-making process through additional timeseries extensions and through the reduction of data noise.

Key words – Forecasting, Predictive model, Regression,