



FORECASTING GROSS DOMESTIC PRODUCT (GDP) IN SRI LANKA USING TIME SERIES ANALYSIS

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Gross Domestic Product (GDP) is the most comprehensive macro-economic indicator of a country and it is used by policymakers and businessmen to plan economic policies. GDP is the market value of the final goods and services produced within a country in a year, or a given period of time. Real GDP is calculated using the prices of a given ‘base year’. In Sri Lanka, it is calculated in Million Rupees. GDP is measured in three approaches namely, Income approach, Expenditure approach, and Production approach. According to the economic theories, these three types finally give the same value for the GDP. Purpose of this study is to forecast GDP using two models and compare them.

This study is based on the data of current Gross Domestic Product (Rupees in million) in Sri Lanka from 1959 to 2013 which consist of 53 observations. 95% of the total observations were used to fit the Auto Regressive Integrated Moving Average model and Vector Auto Regressive (VAR) model and 5% of the total observations were used to check the validation of the models. To fit the ARIMA model, Auto Correlation Function (ACF) and Partial Auto Correlation Function (PACF) were used to identify the AR and MA terms. ARIMA (1, 1, 0) model was selected as the best model to forecast GDP in Sri Lanka which satisfied all the assumptions. Based on the preliminary analysis, Exchange rate (Sri Lankan rupees per dollar), 91 day Treasury bill yield (per cent per annum) and reserve money (Rupees in million) were selected as the independent variables for the VAR model. The results of VAR model showed that GDP of the previous year and 91 day Treasury bill yield of the previous year have effect on the GDP in the current year. MAPE value was used to evaluate the fitted models.

ARIMA (1, 1, 0) model was fitted with 2.27% MAPE value and VAR model was fitted with 3.99% MAPE value. ARIMA model can be identified as the most suitable model to forecast GDP in Sri Lanka compared to the VAR model.

Keywords: Gross Domestic Product (GDP), Autoregressive Integrated Moving Average model (ARIMA), Vector Auto Regressive model (VAR), Mean Absolute Percentage Error (MAPE), Auto Correlation Function (ACF)