TIME SERIES ANALYSIS OF TOURISTS' ARRIVALS IN SRI LANKA

(2017-2019)

Content

INTRODUCTION

The tourism industry provides an important impetus to growth in every sectors of country. This analysis consider about the monthly tourists' arrivals in Sri Lanka from 2017 to 2019.

OBJECTIVES

- Estimate the trend of tourists' arrivals.
- Identifying the seasonal components of the trend.
- Identifying the main components of the time series.
- Forecasting the trend values of tourist arrivals.
- Figure out the time series type.
- Give suggestions to improvement of the industry.

SIGNIFICANCE

1. Accommodation service producers.
2. Government sector.
3. Travel agencies.
4. Event organizing firms.
5. Other interesting parties.

METHODOLOGY

- Statistical techniques.
  - Method.
    - Additive/Multiplicative model
  - Models.
    - Moving average
    - Least square method
  - Measuring forecast accuracy. (MAPE/MSD/MAD)
  - Component analysis.
  - Correlogram.

DATA PRESENTATION & ANALYSIS

Time series plot of tourist arrivals

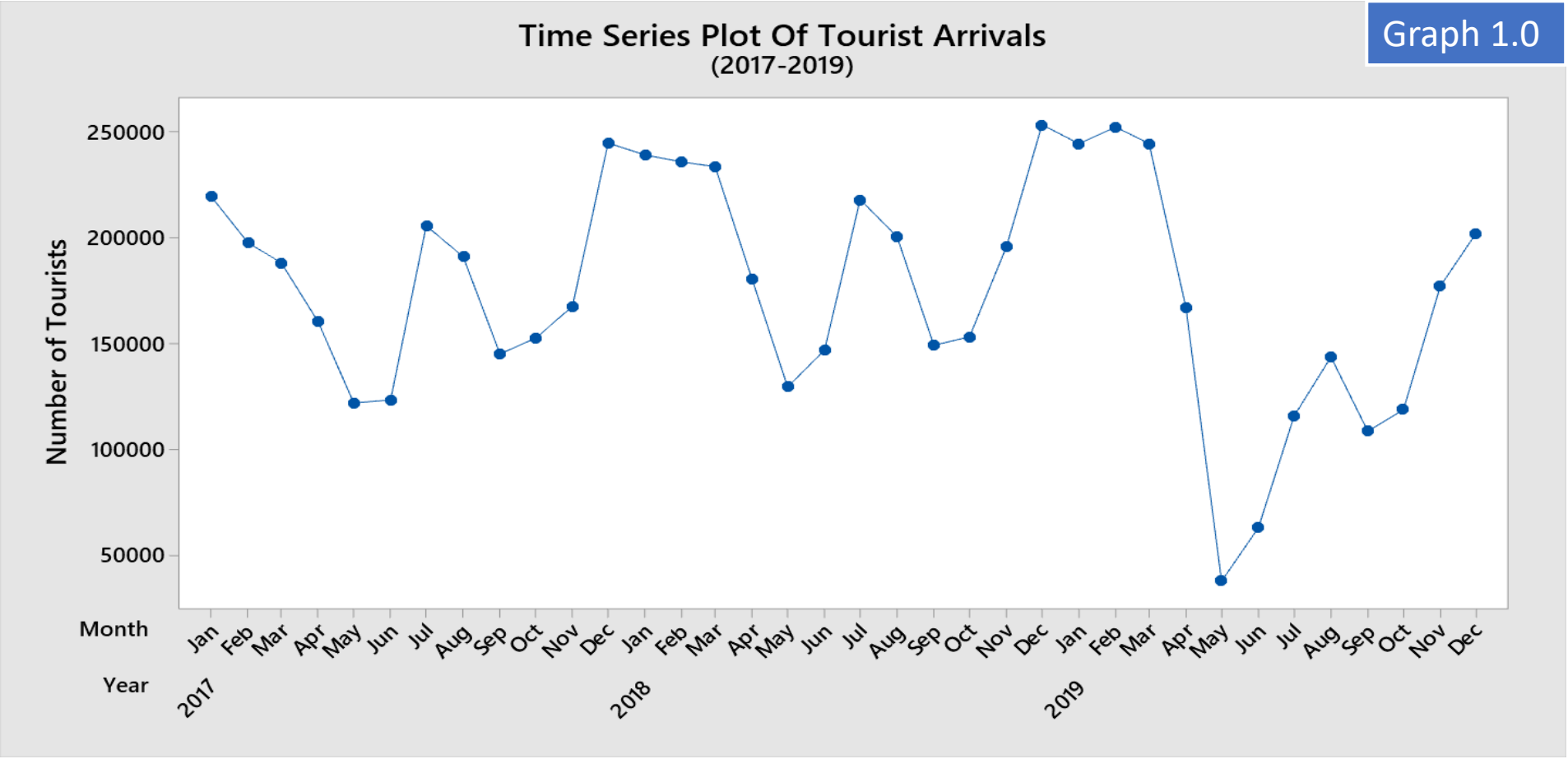

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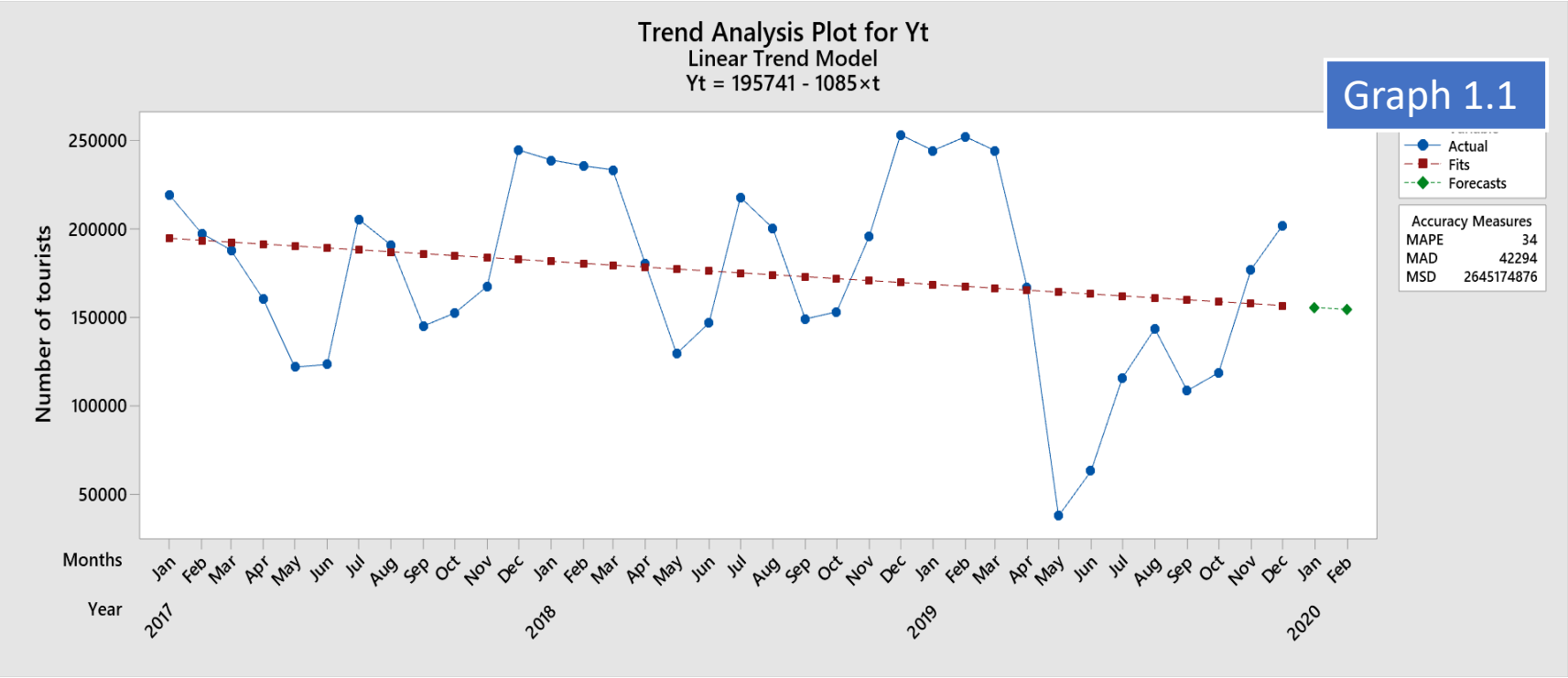
Figure 01

Trend analysis

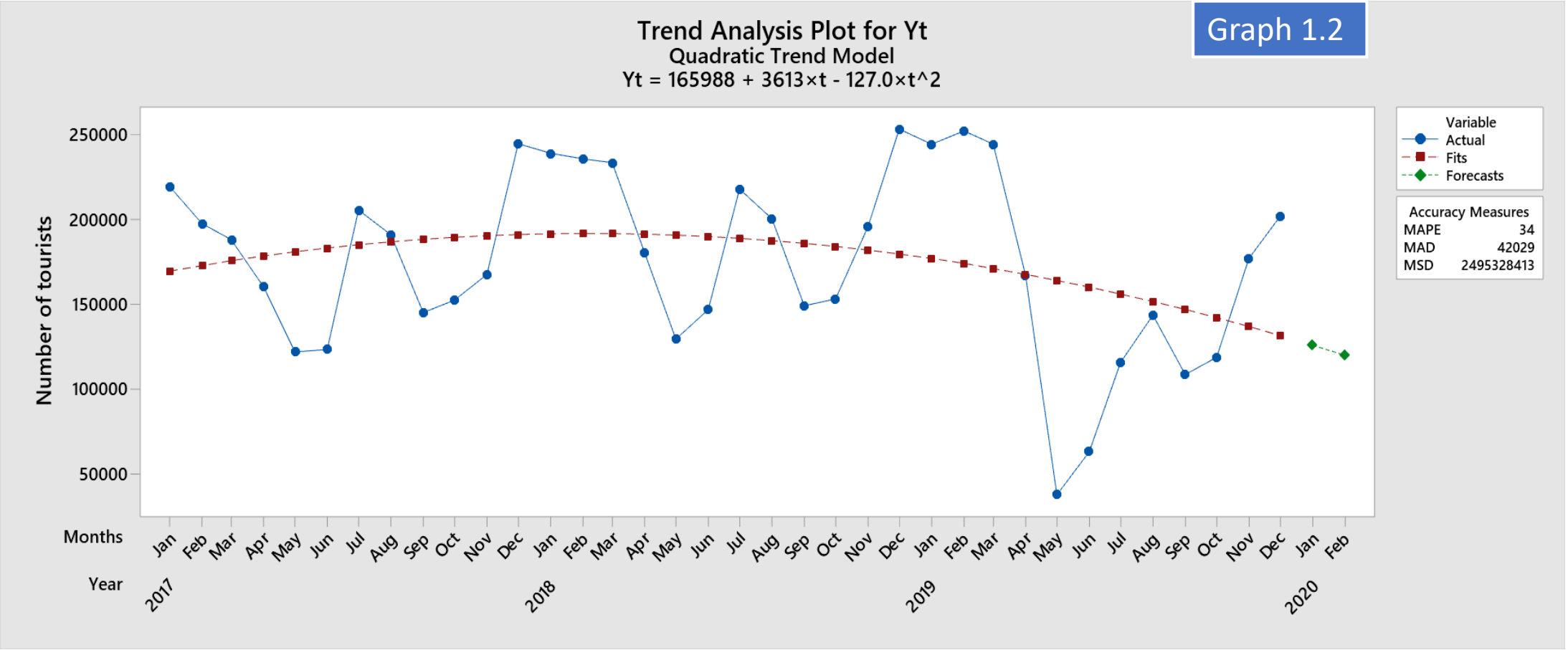
1. Linear trend model



Source: - http://www.sAltda.lk/node/757

Figure 02

2. Quadratic trend model



Source: - http://www.sAltda.lk/node/757

Figure 03

Summery about the accuracy of forecasting

Model	MAPE	MAD	MSD
Linear Trend model	34	42294	2645174876
Quadratic Trend Model	34	42029	2495328413
Growth Curve model	This model doesn't match to plot.		
S-Curve method	This model doesn't match to plot.		

Source: - http://www.sAltda.lk/node/757

Figure 04

Time series decomposition

- Multiplicative model

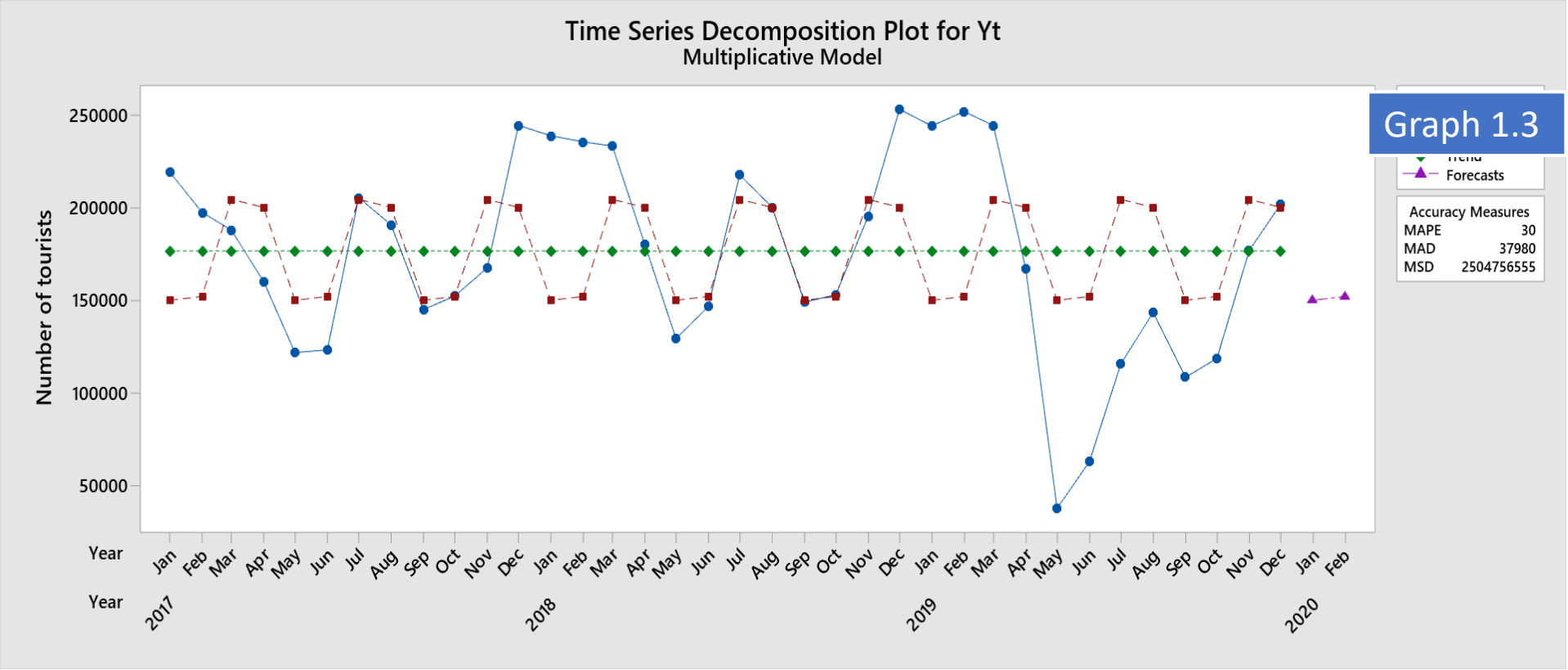


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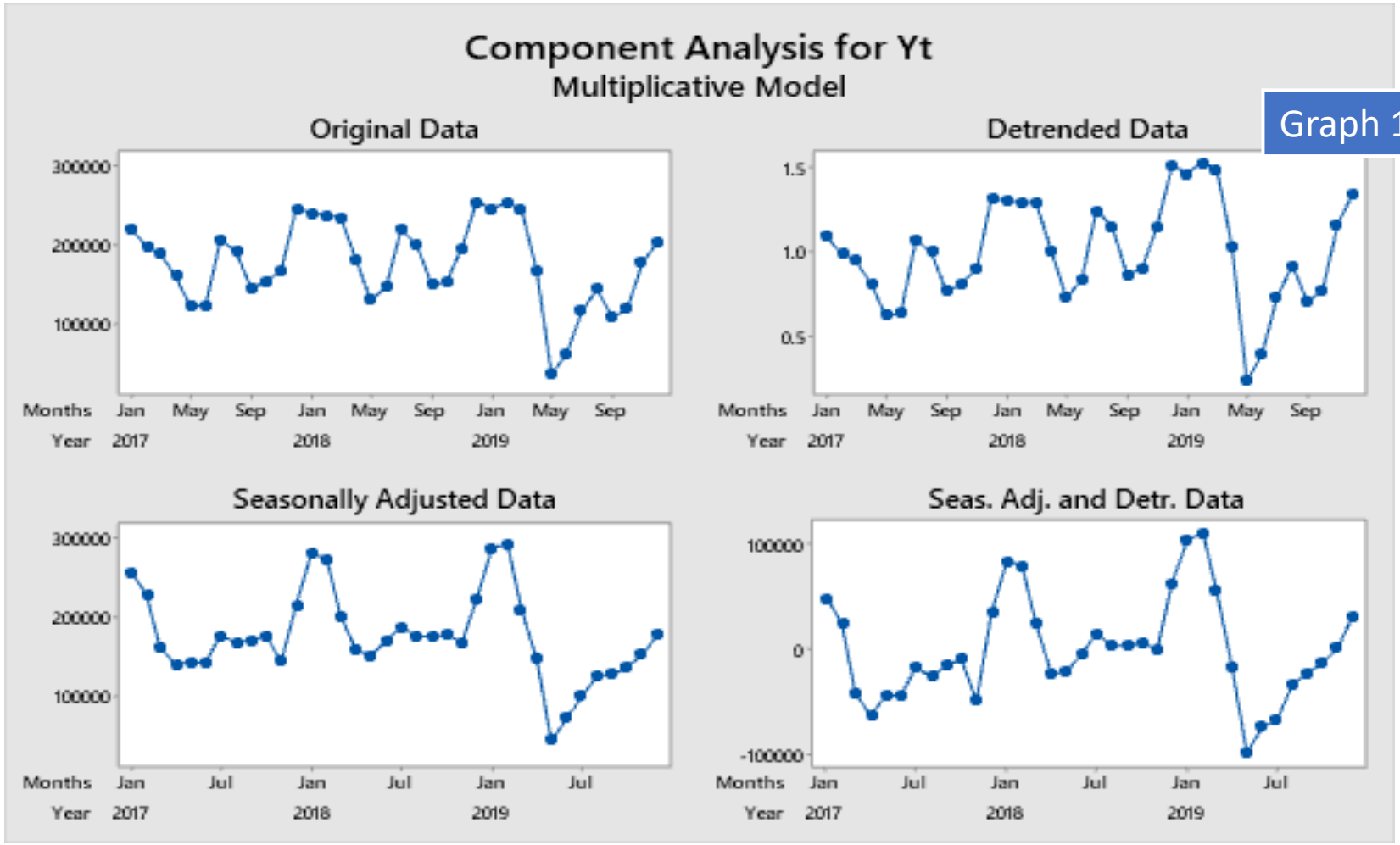
Figure 05

Component analysis for Yt

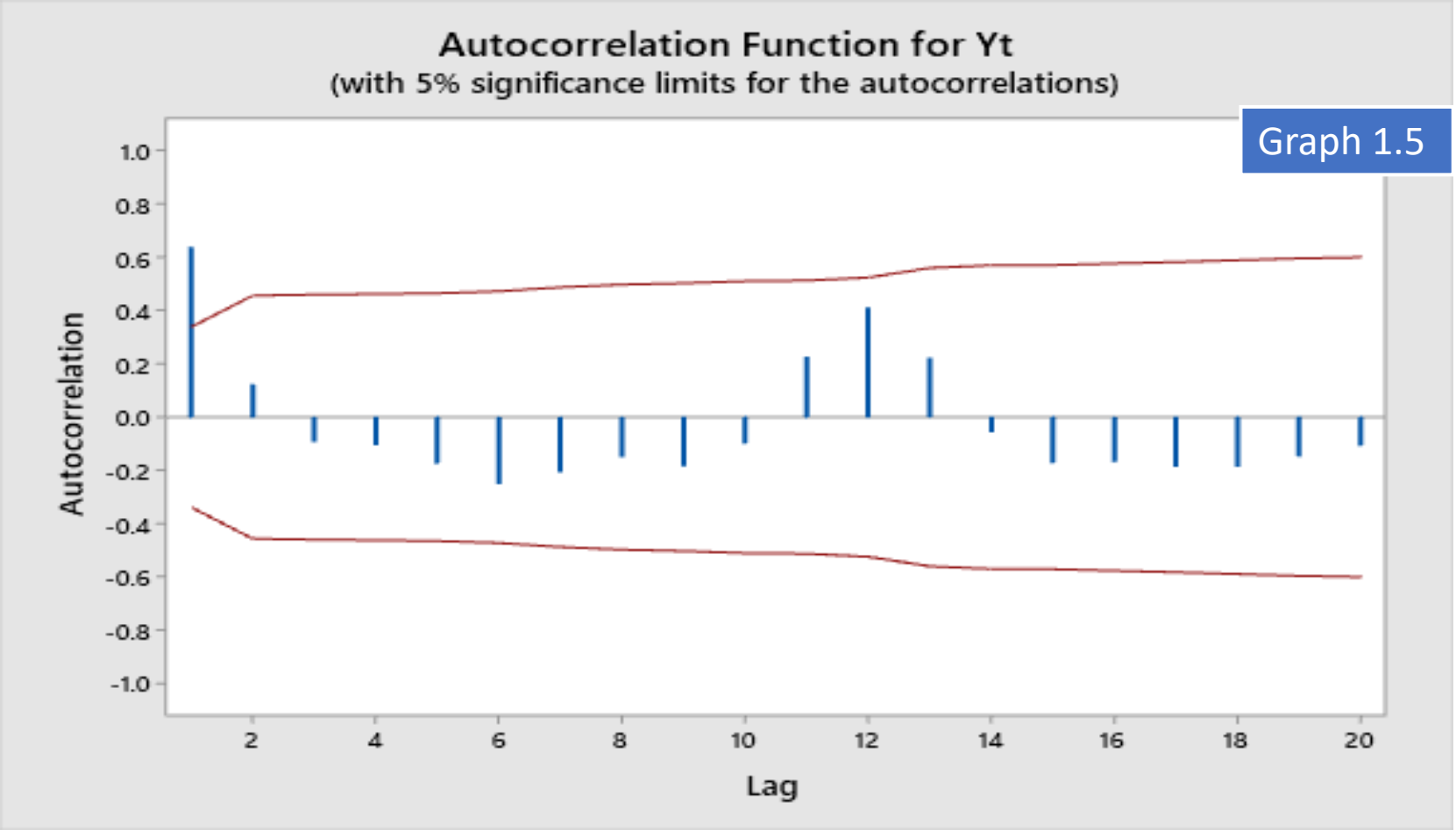


Graph 1.4

Source: - http://www.sAltda.lk/node/757

Figure 06

Auto Correlation Function



Source: - http://www.sAltda.lk/node/757

Figure 07

CONCLUTION

- Forecasted months are based on a decline in behavior of previous years by using quadratic trend model.
  - Trend line Function

$$Y_t=165988+3613X_t-127.0*T^2$$

- We able to figure out seasonal components in months between May to September.
- And as per the objectives we suppose to identify the trend, seasonal variation, irregular variation and cyclical variance through this analysis.
- Forecasted values are,
  - 125,847 → January 2020
  - 119,938 → February 2020
- According to the forecast we can suggest several suggestions to the people who interested this analysis.
  - Government sector
  - Private sector
  - People who live in this country

It's time Q&A

Thank you