Times Series Analysis Using SAS

Evaluation

You must solve all the exercises in a Word or PDF document and provide all the SAS codes used aside. The deadline for this evaluation is the **Sunday 19th January 2020 @ Midnight**.

PART 1: Exercises

1. You receive the SAS data set E1 from a colleague. Represent with a graph the timeseries and identify and estimate an appropriate model to fit the data. Justify your choice. (2 points)

2. Identify and estimate a relevant model for the variable Y in the SAS data set E2. You will use the Maximum Likelihood estimation method to obtain your model. Explain how you have decided which model to select. (2 points)

3. Perform the Ljung-Box White Noise Probability test on the variable PercentUnemployed in the SAS data set E3. You should give the null and alternative hypothesis. What can you conclude from this test? (2 points)

4. Using the PROC ESM in SAS, generate a forecast for the next 12 periods for the variable Biscuits in the SAS data set E4 with the model of your choice. Justify your choice. (2 points)

PART 2: Case Study

The Sales department asked you to provide a statistical forecast for 3 key products for the next 16 months (last forecast in December 2019). You managed to extract the relevant data in the file DSTI_SAS_ETS_Evaluation_Part2.csv.

Using all what you have learned in Times Series in SAS, generate a forecast for the 3 different products. You will explain all the steps you have followed to choose the models and you will write a quick report for the Sales department to understand the sales evolution of these products.