Description: Attached Files: Time Series and Forecasting Data Sets.xlsx (35.489 KB)

CRITICAL THINKING ASSIGNMENT (50 Points) Time Series and Forecasting Data Sets You have available three-time series data sets (not adjusted for seasonality):

* Monthly Retail Sales in Millions of Dollars of Auto, other Motor vehicles from January 1992 until Jan 2017.
* Monthly Retail Sales in Millions of Dollars of Department Stores (excl. leased depts.) from January 1992 until Jan 2017.
* Monthly Retail Sales in Millions of Dollars of Electronics and Appliance Stores from January 1992 until Jan 2017. and a data set with information regarding the New Era Organic Foods Stores Franchise Annual net sales (in thousands) Store sq. ft. (in thousands), inventory (in thousands) Dollars spent in advertising Size of the sales district (in thousands of households) Number of competing stores in the district.

**Part I (Use time series data sets) Choose one data set.**

Graph the data and briefly discuss the behavior. Which forecasting method do you think will perform better? Why? Use the data from Jan’92 to Dec’16 to run three forecasting methods:

* MA (choose the number of periods you consider adequate),
* exponential smoothing (choose the alpha you consider adequate), and
* a simple regression (with X representing the month).

What model performs better? Why?

**Next task**: Split your data in two: from Jan’92 to Dec’07 and from Jan’10 to Jan’17. Run a regression analysis for both data sets. What can you conclude? What do the parameters tell you? If a regression model for the data from Jan’08 to Dec’09 were run, how will the parameters look?

**Part II (Use the New Era Organic Foods Stores Franchise data set)**

Using the franchise data for New Era Organic Foods Stores, to produce a model to predict the annual net sales from the other variables.

Please discuss the significance of the model and the predictors.

Make any additional observations that you consider pertinent regarding the model you run.

**Deliverable: Provide your answers in a 2- to 4-page response, including your Excel Files.**