

BIT 5474

This assignment centers on the "Forecasting Colas" case found at the end of chapter 11 in the SMDA text. The data for the case is available for download from the Blackboard website.

Read the case and answer the following questions (which are *not* the same as the questions in the book for this case!).

1. Prepare an XY scatter plot of the data. (Set the minimum value on the Y-axis of this and all subsequent charts to 110.)
2. Fit the data with a linear trend model (as discussed in section 11.16 of SMDA).
 - a. What is the equation of the model you estimated?
 - b. For each value in the sample data, plot the estimated CPI values produced by this model against the actual CPI values.
 - c. What is the value of the R^2 statistic for this model? Interpret this value.
 - d. Forecast the next 12 CPI values using this model.
3. Fit the data with a second order polynomial (or quadratic) trend model (as discussed in section 11.17 of SMDA).
 - a. What is the equation of the model you estimated?
 - b. For each value in the sample data, plot the estimated CPI values produced by this model against the actual CPI values.
 - c. What is the value of the R^2 statistic for this model? Interpret this value.
 - d. Forecast the next 12 CPI values using this model.
4. Fit the data with an additive seasonal regression model with second order polynomial trend component. (This process is described in section 11.20 of SMDA for quarterly data (where $p=4$). In this case, the data is monthly so you'd need to use $p=12$.)
 - a. What is the equation of the model you estimated?
 - b. For each value in the sample data, plot the estimated CPI values produced by this model against the actual CPI values.
 - c. What is the value of the R^2 statistic for this model? Interpret this value.
 - d. Forecast the next 12 CPI values using this model.
5. Which of the three previous models would you have greatest confidence in using? Why?