Chapter 7 Assignment: Time Series

# Overview

This assignment asks you to use forecasting tools to predict the price of gas based on the historical record of prices in Ottawa.

**Note:** The forecasting can be done either directly in Excel or by utilizing the built-in functionality of the Solver plugin

# Part 1: Collecting the Data

Download the SourceData.csv file from Moodle and save it as an excel file. Manipulate the data to **isolate only the data that we are interested in – the price of Regular Unleaded Gasoline in Ottawa, on or after June 6, 2005**. Place this data (copy/paste) in a separate worksheet, name this worksheet **OttawaRegGas**. This new sheet is what you will use for your forecast.

# Part 2: Creating a Forecast

Create a moving average forecast to predict gas prices for the week following the final price from the source data. Use both 4 and 10 day moving average windows.

# Part 3: Adding Trends to the Model

## 3A: Exponential Smoothing

Use exponential smoothing to develop a forecast for the next 3 weeks. Use optimization for the constant.

## 3B: Adding a Trend (Holt’s Method)

Develop an appropriate forecast using exponential smoothing with a trend (Holt’s method). Predict 3 weeks. Use optimization for the constants.

## 3C: Adding Cyclicality (Holt-Winter’s Method)

Develop an appropriate forecast using exponential smoothing with a trend and cyclicality (Holt-Winter’s - multiplicative method). Predict 3 weeks. Use optimization for the constants. Use 26 for the period. Do not utilize “update forecast each time”.

# Part 4: Choosing the Best Model

Which model, of all the forecasts performed in this assignment, is the best?

# Grading

## Deliverables

The deliverables for this assignment are:

* **Answers to the question set posted on Moodle. Each person must individually answer the quiz!**
* Your spreadsheet(s) submitted in the Moodle dropbox. One per group.

**Note:** The answers to all the Moodle questions can be pulled directly from your spreadsheet once you’ve completed the above parts.