Case Study: Predicting Egg Prices Using Time Series Modeling

Motivation

In the last few months, egg prices have continued to increase rapidly after setting a record with an average of $4.95 per dozen in February 2025. The average price has since reached $6.23 despite predictions that it would begin to drop. These growing prices are mainly due to the outbreaks of bird flu across the U.S. as millions of chickens have been killed to prevent spreading the disease. While many farms are restarting their flocks and the rates of bird flu are declining, it can take six months for chickens to begin producing eggs. It may be some time before a reduction in egg prices is possible.

With Easter on the horizon, the craft store Michaels needs to know whether they should stock more plastic egg decorating kits in preparation for a lower demand of real eggs at holiday celebrations. They have hired you as a data analyst to predict the future of egg prices so they can determine the likelihood of consumers switching to plastic eggs for Easter. Eggs are an important part of Easter celebrations with many activities centering around the food item. While the store has always stocked plastic alternatives, in previous years real eggs have remained popular. If prices continue to rise, they can assume their customers will be less likely to purchase decorating kits for real eggs so they would like to coordinate with their suppliers accordingly. Knowing this information will prevent Michaels from selling out of the plastic egg kits and losing any potential revenue.

Deliverable

Your task is to create a detailed report with your findings and any important insights on your recommendations for Michaels. You have been provided with monthly historical egg prices dating from January 1980 until present in order to make these predictions. It is expected that you will produce this report by using time series analysis on these historical prices in order to determine the future egg prices.

https://github.com/KAdH12/DS4002_CS3