

Homework 4

December 9, 2024; due December 16, 2024

1. Consider the time series A3349335T in `retail.xlsx`, available on Moodle.
 - (a) Apply the Holt-Winters' multiplicative method to the data. Why is multiplicative seasonality necessary for this series? Experiment with making the trend damped.
 - (b) Compare the RMSE of the one-step forecasts from the two methods, computed via cross-validation. Which do you prefer? [When implementing cross-validation, use a minimum number of observations equal to 200, in order to avoid a too long computing time.]
 - (c) Do the residuals from the best method look like white noise?
 - (d) Now find the test set RMSE of the (non-damped) Holt-Winters method, while training the model to the end of 2010. Can you beat the seasonal naïve approach? Explain.