Hwk 07 Solutions L10

Due on Oct 30, 2020

Applications

Question 1

Part (a)

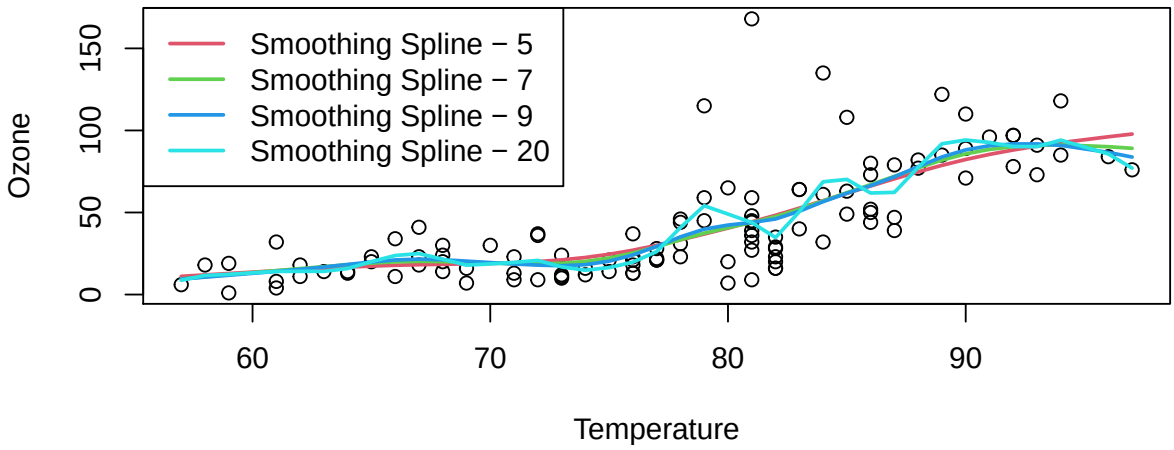

Figure 1: Smoothing Splines

(i) See Figure 1 for a comparison of smoothing splines with various degrees of freedom. (ii)If we had to choose one model, it would be the one with 5 degrees of freedom (red), because this model does a pretty good job of following the overall trend of the data without being too wiggly. However, 7 and 9 df are pretty similar. 20Df seems too sensitive to local wiggles.

Part (b)

(i) See Figure 2 for a comparison of smoothing splines with degrees of freedom chosen by tuning.
(ii) Both choose 5 DF.
(iii)The two models seem identical, and both fit the data quite well.

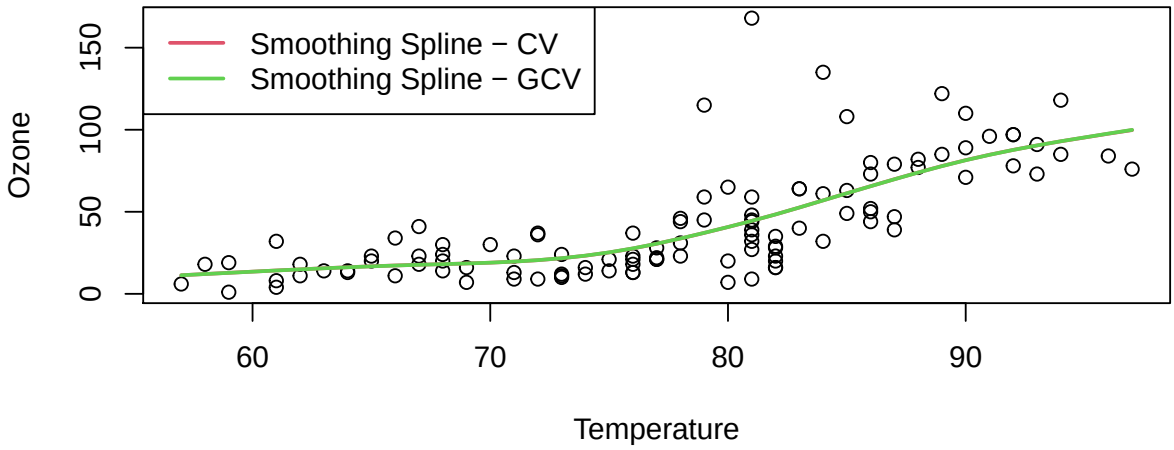

Figure 2: Tuned Smoothing Splines

Question 2

(i) See Figure 3 for a comparison of loess models with various degrees of freedom.

(ii) We especially prefer the model with 5 degrees of freedom here, because the other models all curve down dramatically at the end and we don't think that the little data available there should have such a dramatic impact on the fit.

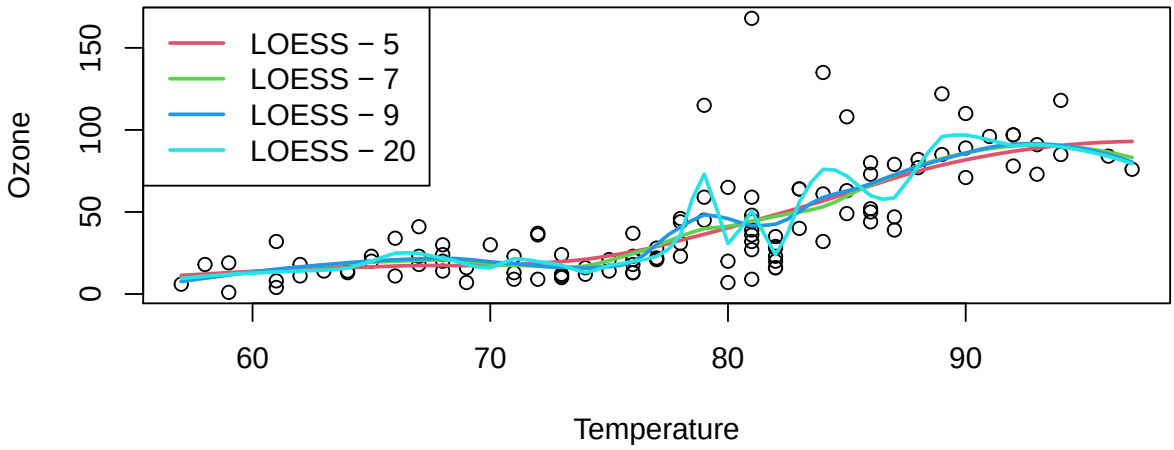

Figure 3: LOESS