Homework 6

1. Consider again the file railtrailproperty.mpj.
   (a) Something of interest to a homeowner is of course the long-term appreciation of their home. We will define that here as the percentage change in home price from 1998 to 2014 (note that 1998 price is given in 2014 dollars, so inflation has been adjusted for here). Build regression models exploring the relationships between price appreciation (the response variable) and lot size, price appreciation and living space, and price appreciation and both lot size and living space, respectively. Is there evidence of relationships here? How much variability in price appreciation is accounted for the predictors in each model? Which model do you prefer? What is the interpretation of (each of) the estimated coefficient(s) in your chosen model?
   (b) Examine residual plots from your chosen model. Do there seem to be any model violations or problems here? If so, how would you characterize them? What might you do about them?

2. Consider again the file hdtv.mpj. Build a model for the overall score assigned to a television by Consumer Reports as a linear function of HD picture quality rating, whether the television is an Ultra HD set, viewing angle rating, sound quality rating, whether the set features High Dynamic Range (HDR), and the screen size. Interpret what you’ve found, including coefficients and measures of predictive power of your model. Perform a complete analysis as described in class, including checking assumptions. Does it appear that there are model violations here? If possible, address these violations and build a more effective model for the relationship implied by your chosen model. Are the implications of your model different from those for the model you first built for Consumer Reports score?

Due: December 11

Note: You will probably not get the graded homeworks back before the final. I urge you to keep a copy of the homework. I will be giving out answers to the assignment in class on December 11, so no assignments will be accepted after the answers are distributed at the end of class.