Homework #3 Problems from Wooldridge

Wooldridge Problem 2.6

Using data from 1988 for houses sold in Andover, Massachusetts, from Kiel and McClain (1995), the following equation relates housing price (*price*) to the distance from a recently built garbage incinerator (*dist*):

fitted log(*price*) = 9.40 + 0.312 log(*dist*)
n = 135, R-squared = 0.162

(i) Interpret the coefficient on log(*dist*). Is the sign of this estimate what you expect it to be?
(ii) Do you think simple regression provides an unbiased estimator of the ceteris paribus elasticity of *price* with respect to *dist*? (Think about the city's decision on where to put the incinerator.)
(iii) What other factors about a house affect its price? Might these be correlated with distance from the incinerator?

Wooldridge Computer Exercise C2.6

Use the data MEAP93.DTA to explore the relationship between the math pass rate (*math10*) and spending per student (*expend*). (Additional questions are given on the assignment sheet.)

(i) Do you think each dollar spent has the same effect on the pass rate, or does a diminishing effect seem more appropriate?
(ii) In the population model *math10 = beta0 + beta1 log(expend) + u*, argue that beta1/10 is the percentage point change in *math10* given a 10% increase in *expend*.
(iii) Use the data to estimate the model from part (ii). Report the estimated equation in the usual way, including the sample size and R-squared.
(iv) How big is the estimated spending effect? Namely, if spending increases by 10%, what is the estimated percentage point increase in *math10*?
(v) One might worry that regression analysis can produce fitted values for *math10* that are greater than 100. Why is that not much of a worry in this data set?