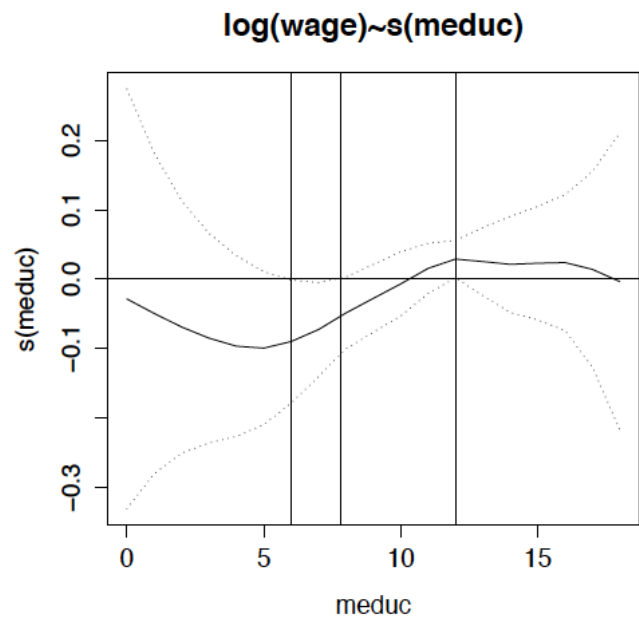
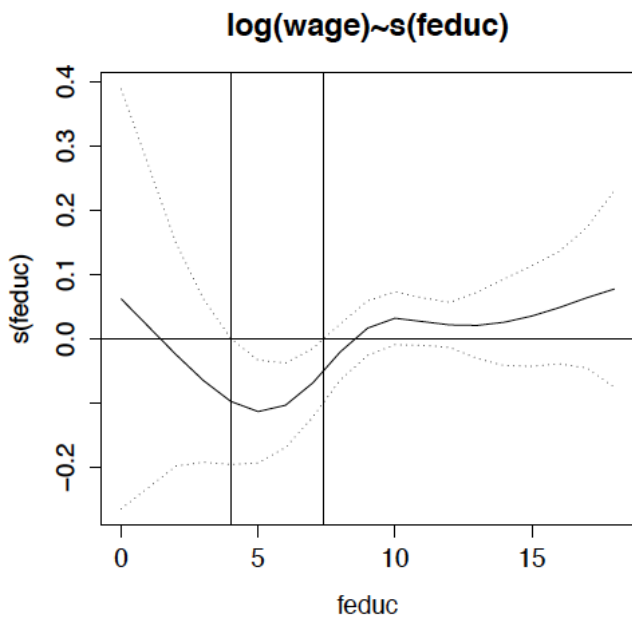
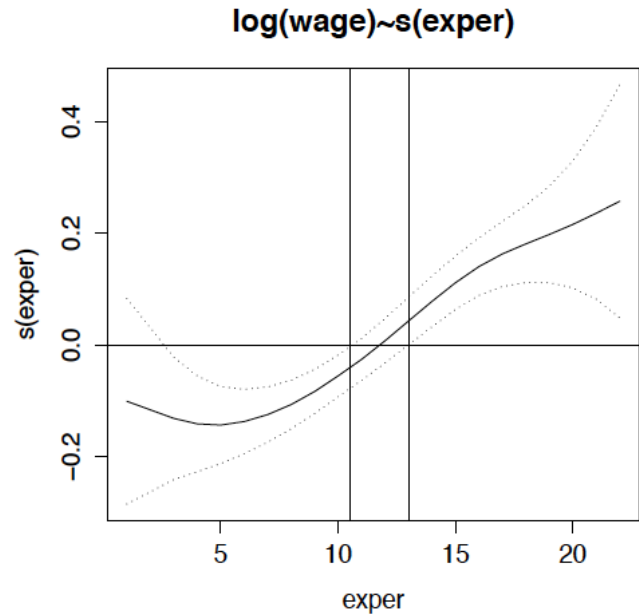
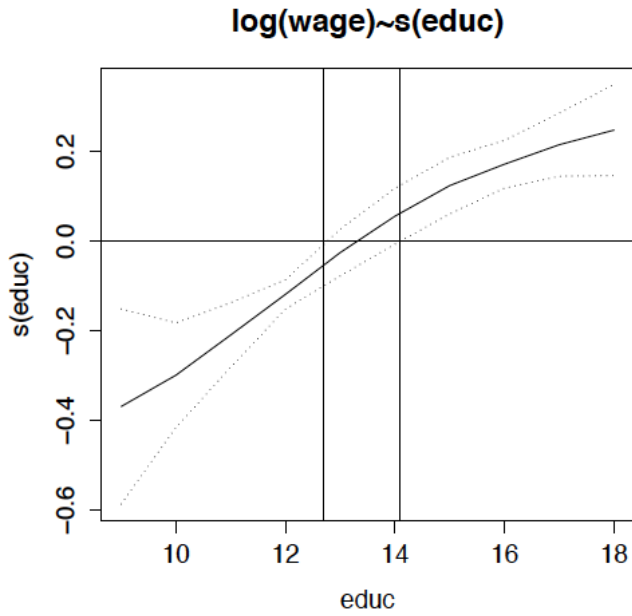


# Economics 217 Exam #2 – Answer Key

## Problem #1

### Part A

See attached for code. The vertical lines are referenced in the code, and will be used in part b.



### Part B:

For this question, I asked you to interpret these graphs. As discussed in class, the key is determining when the plots are significantly different from the sample average, which is normalized to zero for each graph.

### **Education:**

For respondents with below (approximately) 12.7 years of education, wages are significantly lower than the sample average.

For respondents with above (approximately) 14 years of education, wages are significantly higher than the sample average.

### **Experience:**

For respondents with below (approximately) 10.5 years of experience, wages are significantly lower than the sample average.

For respondents with above (approximately) 13 years of experience, wages are significantly higher than the sample average.

### **Father's Education:**

The relationship between father's education and the respondent's wage is far more noisy. There does exist a region in the non-parametric fit in which the respondent's wage is significantly below the sample average. This is when father's education is below 7.4 years of education (middle school education). The relationship becomes noisy again below 4 years of education, but this is likely due to very few observations.

### **Mother's Education:**

Again, a noisy relationship. There does seem to be a point significantly above the sample average at 12 years of education (high school), and the line appears generally upward sloping. Mother's education between 6 and 8 is significantly below the sample average.

## **Problem 2**

Part A: This is cross-validation from the notes, except instead of choosing the optimal bandwidth we are choosing the optimal kink.

Part B: Here, we are nesting the cross-validation from part A into a bootstrap replication.