ANA 500 Week 8 gretl and P&P Assignments - Addendum to the original handout

Spring I 2023 – Dr. Hamner

I have been getting some questions. In going back through my notes and solutions I find that there was an error in Part IV of the script originally included as appendices. I’ve corrected that error. In addition, I/we have not been following “best practices” with regard to reproducible research. That is, in order to ensure that we get the same answer every time we run a code or script we need to set the seed to a specified value. It really doesn’t matter what that value is, only that we set it. I still haven’t done that. What I have done is increase the range of values that are accepted as correct answers for the questions on Blackboard. That should cover any variation between running the script from time to time.

In addition, I am adding a couple worked examples to Question 25 to help make things a bit easier. Here is the updated text of Question 25.

1. Add higher (second) order terms for the variables sqft and age to your multivariable model. Use your results from running that model to answer the following questions. (NOTE!!! Do not round until you are ready to submit your final answer. It does make a big difference here.)
   1. The intercept and all coefficients are not statistically significant. (True/False)
   2. Estimate the marginal effects of price as a function of size, i.e. , and age, i.e., for the smallest or oldest house in the data, the largest or newest house in the data, and a 2300 square foot or a 20 year old house. To help here are the relevant equations:

The complete model is:

The derivative with respect to size (sqft) to find the marginal effect of size is:

The derivative with respect to age to find the marginal effect of age is:

* + 1. The coefficient of the sqft term is \_\_\_\_\_\_\_\_.
    2. The coefficient of the term is \_\_\_\_\_\_\_\_.
    3. The coefficient of the age term is \_\_\_\_\_\_\_\_.
    4. The coefficient of the age term squared is \_\_\_\_\_\_\_\_.
    5. The estimated marginal effect of sqft on price for the smallest house, 662 square feet, is \_\_\_\_\_\_\_\_.
    6. The estimated marginal effect of sqft on price for the largest house, 7,897 square feet, is \_\_\_\_\_\_\_\_.
    7. The estimated marginal effect of sqft on price for the 2300 square foot house is \_\_\_\_\_\_\_\_.
    8. The estimated marginal effect of age on price for the oldest house (age = 80), 662 square feet, is \_\_\_\_\_\_\_\_.
    9. The estimated marginal effect of age on price for the newest house (age = 1), 7,897 square feet, is \_\_\_\_\_\_\_\_.
    10. The estimated marginal effect of age on price for the 20 year old house is \_\_\_\_\_\_\_\_.
    11. The lower bound on a 95% confidence interval around the marginal effect of size on price is \_\_\_\_\_\_\_\_.
    12. The upper bound on a 95% confidence interval around the marginal effect of size on price is \_\_\_\_\_\_\_\_.