**Exercise 6**

The file *stockton96.gdt* contains 940 observations on home sales in Stockton, CA in 1996.

1. Use least squares to estimate a linear equation that relates house price *PRICE* to the size of the house in square feet *SQFT* and the age of the house in years *AGE*. Interpret all the estimates.

**ols price const age sqft**



1. Suppose that you own two houses. One has 1400 square feet; the other has 1800 square feet. Both are 20 years old. What price do you estimate you will get for each house?

$$p\_{1}=5193+20\*\left(-217\right)+68.39\*1400$$

$$p\_{2}=5193+20\*\left(-217\right)+68.39\*1800$$

1. Test the hypothesis that the size and the age of the house are important determinants of its price (separately as well as jointly). **Both have three stars. Also jointly significant according to above output**
2. Using the Breusch-Pagan test for heteroscedasticity, test whether the model satisfies the homoscedasticity assumption by using the command for the BP test in Gretl.

**series yhat=$yhat**

**genr resid=price-yhat**

**modtest --breusch-pagan**

1. Use the White test to test for heteroskedasticity.

**modtest --white**

1. What do you conclude regarding the heteroskedasticity? Does your conclusion depend on the choosing a specific test? Discuss also drawbacks of the BP and White tests.

**There is heteroskedasticity**

**A weakness of the BP test is that it assumes the heteroskedasticity is a linear function of the independent variables. Failing to find evidence of heteroskedasticity with the BP doesn't rule out a nonlinear relationship between the independent variable(s) and the error variance.**

**The weakness of white test is that if you have many variables, the number of possible interactions plus the squared variables plus the original variables can be quite high.**

1. Test the hypothesis that the size and the age of the house are important determinants of its price (separately as well as jointly). Hint: choose appropriate standard errors. Does your conclusion differ from part (c)?

**ols price const age sqft –robust**

**compare the robust and non-robust standard errors and parameters. You can see that the parameters did not change, while standard errors increased**

