Computer Homework 1

This homework is concerned with application of t-tests in linear regression models. Use the data in the *Stata* data file mls.dta to estimate the following model.

$$\ln(sp) = \alpha + \beta\ln(age) + \delta\ln(lot) + \theta\ln(sqft) + \gamma\ln(mfi) + \rho[\ln(mfi)\cdot\ln(trav)] + \tau\ln(trav) + \eta fin + \lambda gar + \varepsilon$$

The observational subscript has been omitted to simplify notation. Conduct all tests at the 5 percent level. Clearly state the null and alternative hypotheses in each question.

1. Is the estimate of β significant?

2. Is the estimate of η significantly negative?

3. Is the estimate of θ significantly less than one?

4. Is the estimate of θ significantly different than one?

5. If $\delta+\theta=1$, then proportional increases in lot size and floor space will result in a proportional increase in selling price. Is the estimate of $\delta+\theta$ significantly different than one?

The elasticity of selling price with respect to median family income is $\dfrac{\partial \ln(sp)}{\partial \ln(mfi)}$.

6. Obtain an estimate of the elasticity of selling price with respect to median family income. (Evaluate any regressors at their sample means.)

7. Is the estimate of the elasticity of selling price with respect to median family income significantly positive? (Again, evaluate any regressors at their sample means.)

***Stata* Tip**

Stata will report the estimated covariance matrix of the coefficients if you add the command line

estat vce

immediately after the regress statement.