Computer Homework 3

Consider the model

$$SP = \alpha + \beta\ SQFT + \delta\ VAC + \theta\ SQFT{\cdot}VAC + \varepsilon \qquad \text{(Model A)}$$

where SQFT·VAC is simply a new regressor constructed from knowledge of SQFT and VAC.

Impose the condition VAC=0.

a.   What is the intercept for the sample of occupied houses?

b.   What is the coefficient of floor space for the sample of occupied houses?

Impose the condition VAC=1.

c.   What is the intercept for the sample of vacant houses?

d.   What is the coefficient of floor space for the sample of vacant houses?

Use the data in the *Stata* data file mls.dta to estimate model A. Use the entire sample.

Obviously, we can allow the coefficients for the vacant and occupied samples to differ by estimating the model

$$SP = \alpha + \beta\ SQFT + \varepsilon \qquad \text{(Model B)}$$

separately for the vacant and occupied samples. Estimate model B separately for the vacant and occupied samples.

e.   Compare the estimates of α and β from model B using the occupied sample, with the estimates of α and β from model A using the full sample.

f.   Compare the estimates of α and β from model B using the vacant sample, with the estimates of $(\alpha+\delta)$ and $(\beta+\theta)$ from model A using the full sample.

g.   Add the values of e'e for model B from the vacant and occupied samples. Compare this to the value of e'e for model A. Is there any substantive difference between estimation of model A for the full sample, and separate estimation of model B for the vacant and occupied samples?

h.   Conduct a Chow test for the pooling of the vacant and occupied samples.

Stata **Tip**

Estimation of model B using the vacant subsample is accomplished with the *Stata* command line

reg sp sqft if vac==1

Note the double equal sign on the condition.