Econ 301 Lab Session # 4

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Christensen and Greene (1976) estimated a generalized Cobb-Douglas cost function for electricity generation of the form

*Pricek, Pricel* and *Pricef* indicate unit prices of capital, labor, and fuel, respectively, Q is output and C is total cost.

1. Interpret β4 estimate
2. Test Ho: β2=1 Ha: not Ho with Wald (t-test/Ahmet)
3. Test Ho: β2=1 Ha: not Ho with LR test (F-test)
4. Are they same? Any relationship?
5. Test if price of capital; price of labor and price of fuel matters

Ho: β2= β3= β4=β5= β6=0 ; Ha: Not Ho.

1. Is this number exist somewhere else?
2. Test if price of capital; price of labor and price of fuel matters

Ho: β4= β5= β6=0 ; Ha: Not Ho

1. Test if the input price elasticity of each input is the same

Ho: β4= β5= β6; Ha: Not Ho

1. Test if the cost function be homogeneous of degree one in the three prices

Ho: β4+ β5+ β6=1; Ha: Not Ho

1. *Test Ho: β4=2β5=3β6; Ha: Not Ho*
2. *Test Ho: β4=2β5=3β6=4; Ha: Not Ho*
3. Test Ho: β2=1 Ha: β2>1 with LR test (F-test)
4. Test Ho: β2=1 Ha: β2>1 with Wald (t-test/Ahmet)
5. *Did we forget to interpret β2 estimate?*
6. *Estimate the above equation, then below equation and get the residuals (εct)*

Estimate the below equation and get the residuals (εlt)

Regress εct on εlt without constant.

*What do you conclude on the estimated residual term?*

1. How much is expected the *ln Cost* is expected to change on average as *ln Pk* increases by 1 unit ceteris paribus in the original equation?
2. Howelse you may interpret the above parameter? In

Consider the following specification.

1. *To test if there is a non-liner relationship between ln(output) and ln(cost), then what are the null and alternative hypotheses?*
2. *How much is expected the ln Cost is expected to change on average as ln output increases by 1 unit ceteris paribus?*
3. *What is the expected Marginal Cost if the output increases from 100 to 101 versus 1000 to 1001? Are they same? Why or why not!*

For the rest of the assignment consider the first equation test

1. *How do you think you may test Ho: β4=0 Ha: not Ho with LM test (test under the null. I did not teach this.)*
2. *How do you think you may test Ho: β4=-0.1 Ha: not Ho with LM test.*