

Download the data file “housestarts.xls” from D2L. Import it into R. This data has four variables:

$year = \text{year } t$

$un_t = \text{unemployment rate in year } t$

$hstart_t = \text{housing starts in year } t$

$primerate_t = \text{prime interest rate in year } t$

$rgdp_t = \text{real GDP in year } t$

Use R to answer the following questions. You will need to turn in a printout of your work in R and answers for each of the questions listed above.

1. Estimate a regression with $hstart_t$ as the dependent variable and un_t , $primerate_t$, and $rgdp_t$ as independent variables. Write out the estimated regression coefficient.
2. Get residuals and plot against time (as measured by year). Do you see a pattern that resembles positive serial correlation? Explain.
3. Find the DW statistic. Perform a hypothesis test to determine if there is positive serial correlation. Write out the hypotheses, the critical values of the DW statistic, and the decision rule. Make the determination.
4. If there is positive serial correlation, find the Newey-west standard errors for your coefficients.
5. Using the appropriate standard errors, perform one-sided t-tests to determine if the coefficients are different from zero. (Yes, this means you have to hypothesize the signs of the three coefficients before you test them.)