

ECON 4230 Intermediate Econometric Theory

Problem Set #4

Due: Thursday, April 18, 2019

#1. Gujarati and Porter, 5th Edition, Exercise 10.27. In part (b), make sure to use the simple correlation coefficient(s) and VIF(s) to defend your answer.

#2. Gujarati and Porter, 5th Edition, Exercise 11.15. Parts (a) and (b) only. Then test for heteroscedasticity and comment on the results. Also, provide GLS and White's adjusted OLS estimates. Again, comment on the results.

#3. Build and estimate a model to predict Wyoming's unemployment rate for 2019. Use annual data over the period 1976-2018 downloaded from FRED

(<https://fred.stlouisfed.org/series/WYUR#0>). Then answer the following questions.

- a) Provide an interpretation of the estimate coefficients using at least two explanatory variables. Comment on the goodness of fit and the signs of the coefficients.
- b) Test for autocorrelation using the graphical method and the Durbin Watson test.
- c) Provide Newey-West robust standard errors. Comment on the differences from the standard errors in part (a).
- d) Provide feasible GLS estimates (either Cochrane-Orcutt or Prais-Winsten) of the model and comment on the results.
- e) What does your preferred model say about the predicted unemployment rate in 2018 for Wyoming?

#4. ECON 5230 Question. Build a model similar to the one in problem #3 that predicts the U.S. unemployment rate for 2019. Use the same number of explanatory variables, although the actual variables can differ across the two models. Then re-run both models – the one for Wyoming and the one for the U.S. – using data through 2017 and provide an out-of-sample forecast for 2018. Include a paragraph at the end summarizing your findings and discussing which model you prefer.