

## Midterm - ECON 5495

Q1 Download "county\_data.csv" and import it into R.

(1) Find the county that has the largest population (TotalPop) in each state.

(2) Select a subset of counties whose population belong to the top 10%, and compute the mean and median of those counties. (You can first use the `quantile()` function, and make a logical vector with TRUE when the population is greater than the 0.9 quantile and FALSE when it is less than the 0.9 quantile. Then, you can select the subset using this logical vector.

Q2 Generate 100 standard normal random numbers to construct  $10 \times 10$  matrix. Find the minimum value in each row. You can use the for loop or apply function.

Q3 Create a function that runs a regression of  $Y$  on  $X$  and  $X^2$  given  $(X, Y)$  and returns the coefficients. Using this function, run a regression of "Unemployment" on "Men/Women" and its square using "county\_data.csv" data.