

## Extra Credit: Okun's Law

**DUE: End of Finals Period, May 21th 2019**

**You must work alone. Whatever you hand in should be the work of yourself. It should take to form of a professional piece of work.**

1. As your final assignment working for Senator Kirsten Gillibrand (D, NY), you are charged with describing the empirical connection between unemployment and real GDP growth, i.e. Okun's Law. Please use FRED to acquire all the data asked for below. Furthermore, only study the time period from 1970-today, at an annual frequency.
  - a. In one (well labeled) figure, plot the change in the unemployment rate ("Civilian Unemployment Rate") versus time and real GDP growth versus time.  
In a professional looking table, report the following summary statistics: mean, variance, and number of data points for both time-series. Furthermore, please report, the covariance of the change in unemployment with real GDP growth.
  - b. Using Okun's law (as discussed in class) and the observed change in unemployment, compute predicted real GDP growth. In one (well labeled) figure, plot predicted real GDP growth versus time and actual real GDP growth versus time.  
How well does Okun's Law perform? In your report provide a brief discussion of what you see. Please provide special attention to time periods in which there is disagreement.
  - c. **Advanced.** Please compute the ratio of the covariance of the change in unemployment and real GDP growth relative to the variance of the change in unemployment. In your report, discuss the following: Is this value larger or smaller than 2? How does it relate (or not) to the performance of Okun's law that you found in part **b**?