

**ECO 103, Winter 2020, Required Homework Assignment #3**  
**Due by 5 PM on Friday, March 6**

This assignment asks you to collect some data on output, employment, and inflation, and apply it to the AS/AD model from class. It also introduces you to some new techniques in Excel, including scatterplot graphs, correlations, and trendlines.

**Instructions:** Answer all questions. In most cases, one or two concise paragraphs per question are sufficient and you should avoid the temptation to write more.

You are welcome to work together on this assignment. All students are expected, however to both individually make calculations using a spreadsheet and to individually craft your answers.

1. Go to the St. Louis Fed's FRED database. Download data on the civilian unemployment rate, the growth rate of real per-capita GDP, and overall CPI inflation. All data should be annual. You should be able to get the data for each year between 1948 and 2019. Report the averages for these three variables.
2. Report the correlation between all three combinations of these variables. If you are not familiar with what a correlation is, here is a simple introduction.
3. You should have found a negative correlation between unemployment and GDP growth. Explain why you think that this relationship exists.
4. Now make a scatterplot graph for GDP growth and inflation for the years 1983-2019 only. Add a trendline to your graph.
5. Is your trendline upward or downward sloping? What does the slope of your trendline indicate?
6. Does your graph from #4-5 suggest that aggregate demand or aggregate supply was more important in causing economic fluctuations in this period? Your answer should include a graph of AS/AD showing how the relationship from #5 is generated.
7. Find an example of a major macroeconomic event between 1983-2019 that fits your graph from #6.
8. Now re-do your scatterplot and trendline for the years 1965-1982 only.

9. Is your trendline now upward or downward sloping? Does this suggest that aggregate demand or aggregate supply were more important in causing economic fluctuations? Your answer should include a graph of AS/AD showing how the trendline in this graph is generated.

10. Find an example of a major macroeconomic event between 1965-1982 that fits your graph from #8.

11. Suppose that the Federal Reserve starts making large and random changes to interest rates. Will this create a positive or negative correlation between GDP growth and inflation?

12. Based on your answer to #11, would it be fair to say that inflation causes higher or lower GDP growth?