PART 1. Progress on the Critical Replication.

Please read the attached "Suggestions for the Critical Replication Term Paper." Submit some work that indicates progress. For example you may want to answer some of the questions posed in "Suggestions."

PART 2. Granger Causality Tests for U.S. Interest Rates

Can the Federal Reserve control interest rates? This is a question for which Granger causality tests are well suited. For this exercise, explore the Granger-causal relationship between the U.S. Federal Funds rate (the rate that is the main instrument of monetary policy in the United States), and the BAA Corporate Bond rate (the rate that applies to corporations that are of middling risk levels when they try to raise funds). The data for both variables are available from the Federal Reserve Bank of St. Louis FRED Economic Data system. R, Stata, and Eviews can all read data directly from FRED (a skill worth learning). The relevant series are http://research.stlouisfed.org/fred2/series/BAA, and http://research.stlouisfed.org/fred2/series/FEDFUNDS.

Remember that you must first test the two data series for stationarity. If either is not stationary, they must both be made so through first-differencing. Once we have both series stationary at equivalent orders of integration—they must both be differenced the same number of times—you can then test for Granger causality.

1. Use the sample 1961.03 – 2009.06 — these are business cycle troughs over seven full cycles. Conduct a unit root test (the Augmented Dickey Fuller test) separately for both variables.
2. If the variables are not stationary, first-difference all the variables and repeat the test on the differenced variables.
3. Once both variables are transformed into stationary variables through differencing, implement a Granger Causality test on the pair.

You may present a simple tabular display of results, similar to the one in Bob Pollin's paper discussed in class, and any graphical representations you choose along with a brief write up of what you have done and what your results show.

Suggestions for the Critical Replication Term Paper

Here are some suggestions for how to approach your term paper. They are suggestions, not requirements. You need not address all of the questions, and you must write a well-argued term paper rather than mere bullet-pointed responses to these items. We discourage the submission of raw output from statistics applications. We welcome creative or elegant visual displays of data and results.

- Explain the economic problem or question that the original paper addresses. What is the dependent variable? What are the key independent variables? How big is the estimated effect? What is the proposed causal process? What are some confounding factors (e.g., other independent variables, reverse causality, or selection) that the original paper addresses?
- What is the unit of observation (e.g., countries, quarters for one country, country-years for a panel of countries, sub-national regions, persons, households, etc.)? What are other relevant dimensions of the data (e.g., frequency of the data or time or geographic span)?
- How did you gather the data (e.g., received the data from the author or reconstructed the data from the description in the paper)?

- To what extent does the paper rely on sophisticated econometrics to make its points? Are summary statistics used effectively to begin the argument? Can you design tables or figures that express the main points without sophisticated econometric methods?
- Compare your attempt at pure replication to the published results (e.g., summary statistics and regression output). Use side-by-side tables to compare the results as published and as replicated. Do your results differ in sign, size, or significance from those of the original paper? If so, can you explain the difference (e.g., data source, data construction, estimation procedure)?
- Explain your extension of the original paper. You might consider confounding factors, shortcomings in the estimation procedure, alternative specifications, outliers and leverage points, or limited external validity of the model. Compare the sign, size, and significance of the results in the extension to those in the original paper.

Timely completion is an essential component of applied econometrics. There is always one more regression that you could run or one more subset of the data that you could test. But part of the challenge of using econometrics effectively is determining that your results are robust and that you are ready to stop running tests, write up, and turn in.