210C Problem Set 2 (Johannes)

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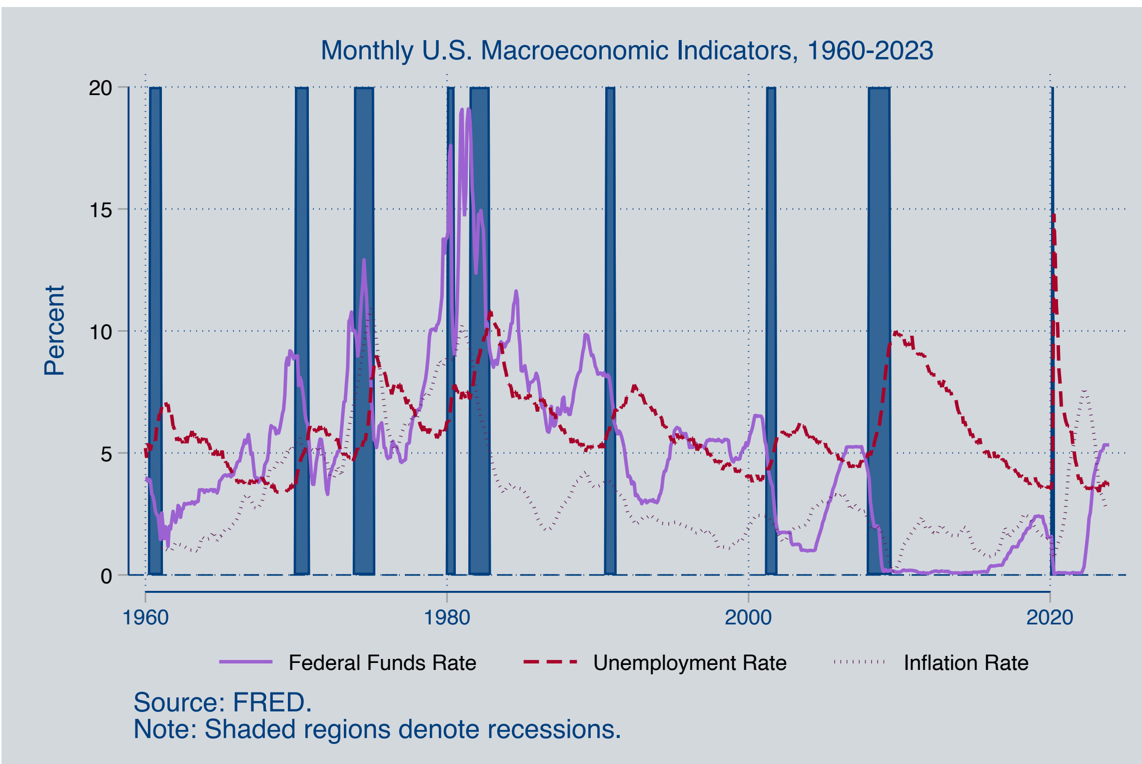
May 23, 2024

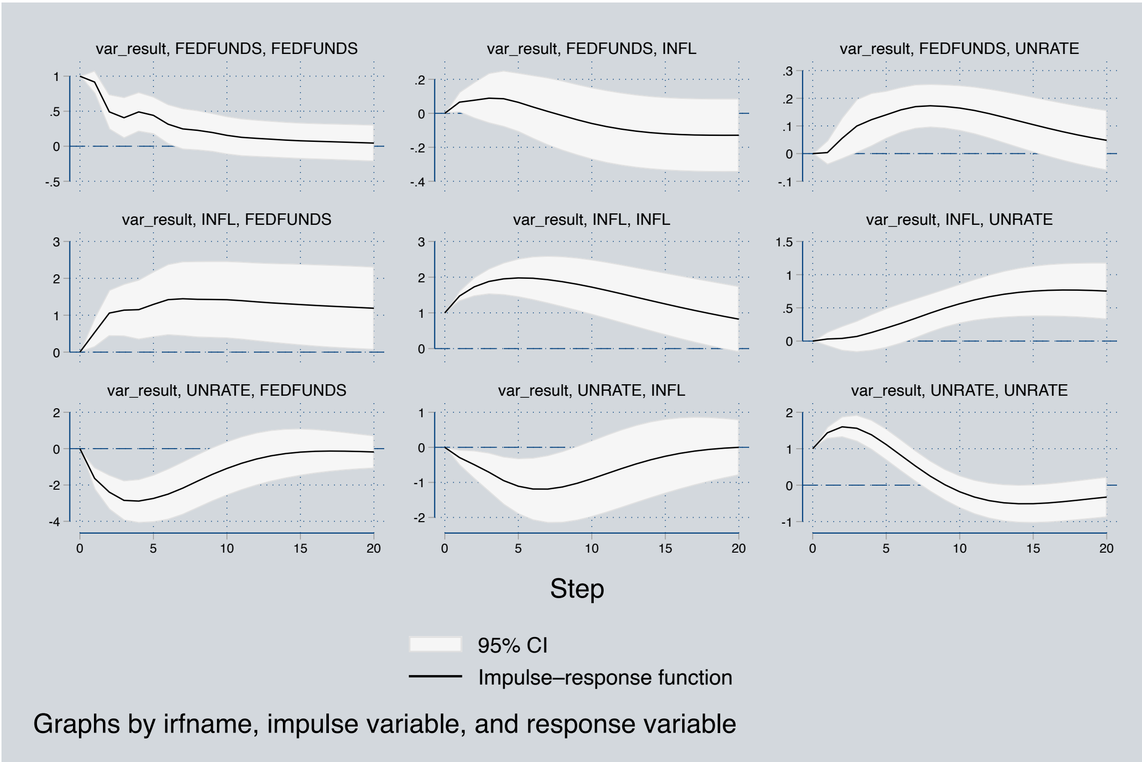
I collaborated with Zorah when working through the coding part of this assignment.

Question 1: VARs

Part a



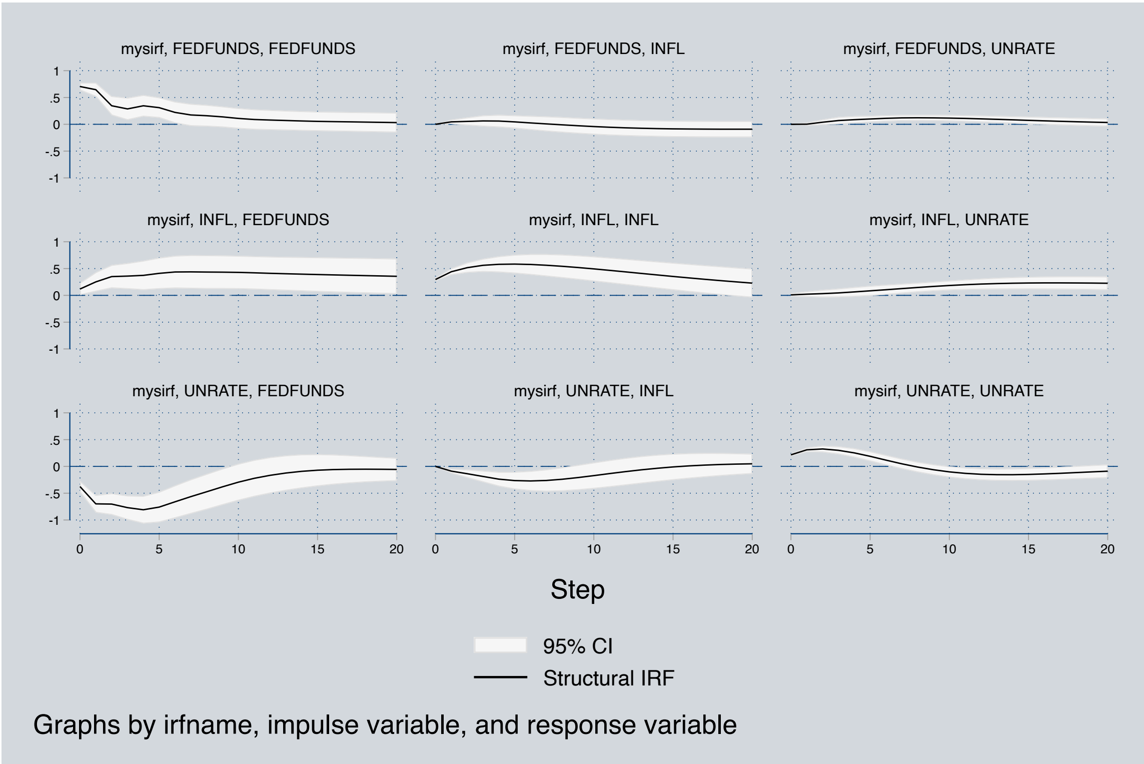
Part b



Part c

It makes sense to end our analysis at the beginning of the Great Recession since the trends we are analyzing may have been different as a result of this recession. In particular, considering the graph in Part (a) the trends in all 3 variables change dramatically in 2008 and are therefore not good for our ceteris paribus analyses.

Part d



Part e

Using an SVAR implies that there are some immediate effects that were not captured by the VAR. In particular, changes to the federal funds rate have immediate effects on the unemployment rate. The effects are also generally smaller than in the VAR implying that the contemporaneous variables being omitted in the VAR graphs were important factors in impulse response.

Federal Funds

A shock to federal funds has large immediate impacts on unemployment and smaller immediate effects on inflation. The effects are fairly sustained for inflation while the effects eventually fade out for unemployment after about 10 quarters. This may be related to expectations about federal funds availability and firm liquidity choices.

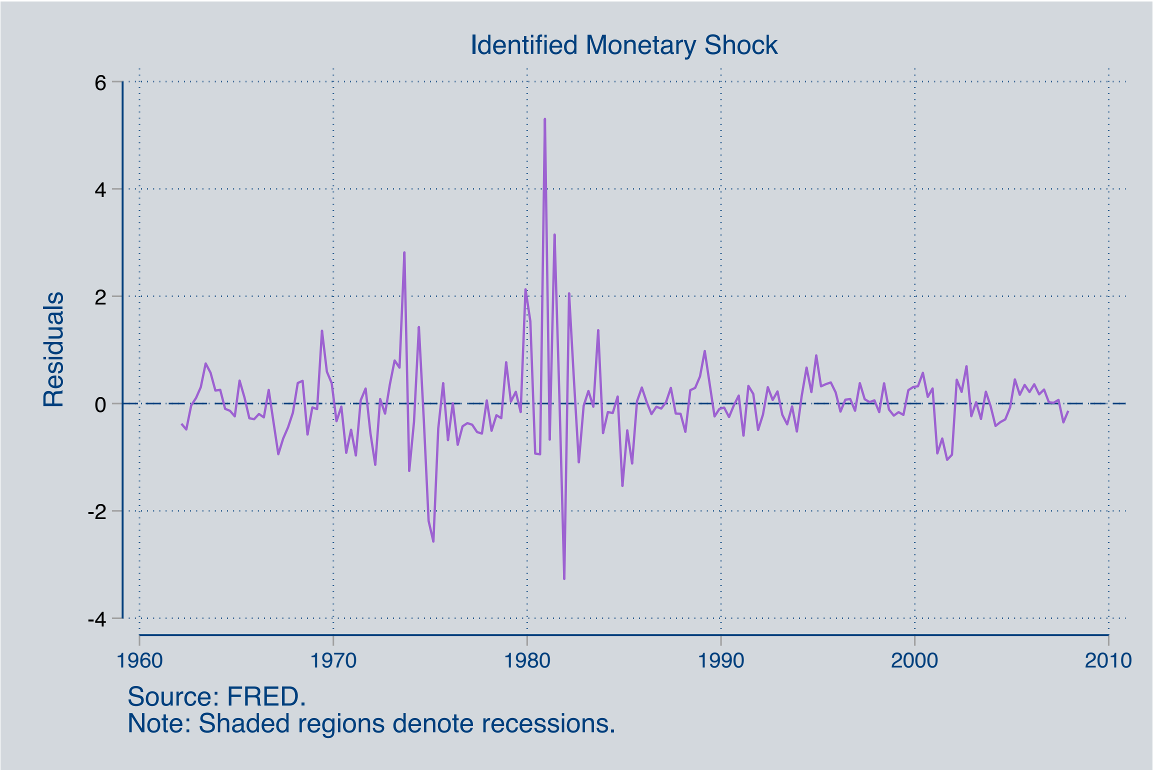
Inflation

The effects of the inflation shocks are much more modest than the Fed Funds shocks. Still there is some lagged effect on unemployment. The unemployment rate shrinks and federal funds increase.

Unemployment Rate

Shocks to unemployment lead to a sustained effect on inflation and a very small effect on federal funds. Increases in unemployment may cause the fed to try to improve by issuing more funds to stimulate growth.

Part f



Part g

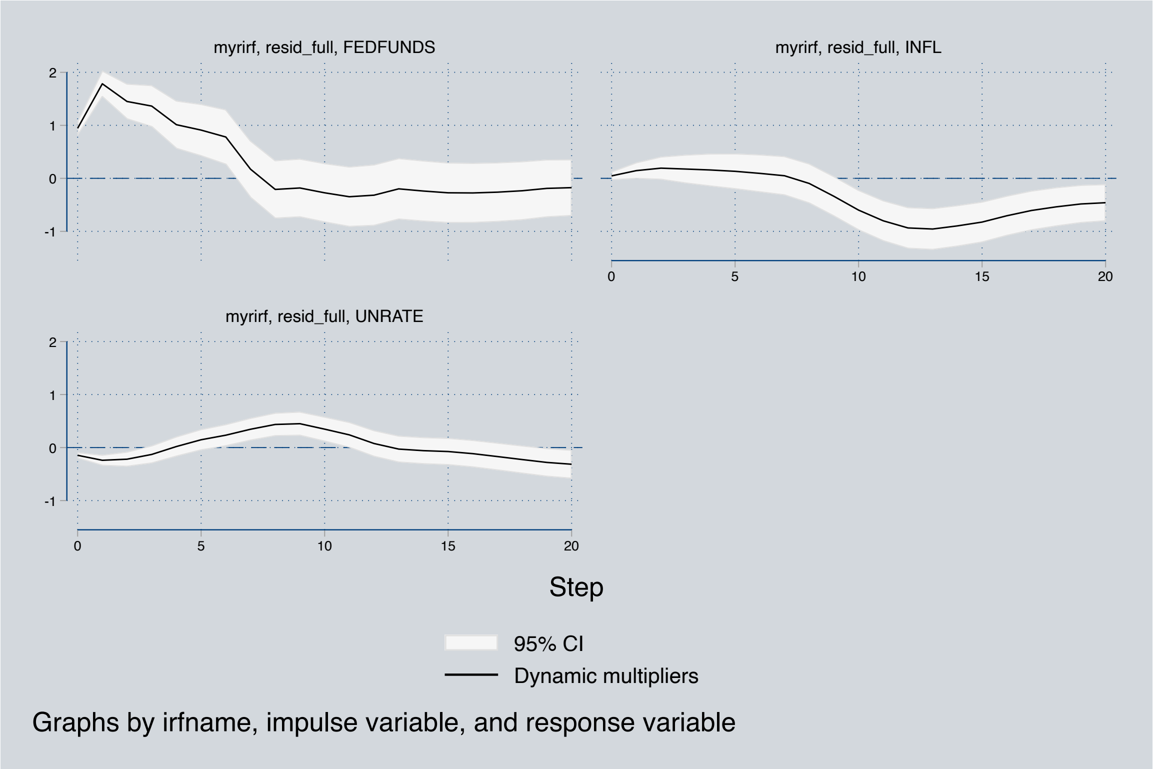
These shocks are in response to 9/11. As we saw in class, the fed changed rates in reaction to the attacks and behavior changed even more drastically. We should interpret these as largely exogenous changes that led to endogenous reactions by the fed and other economic actors.

Question 2: Romer Shocks

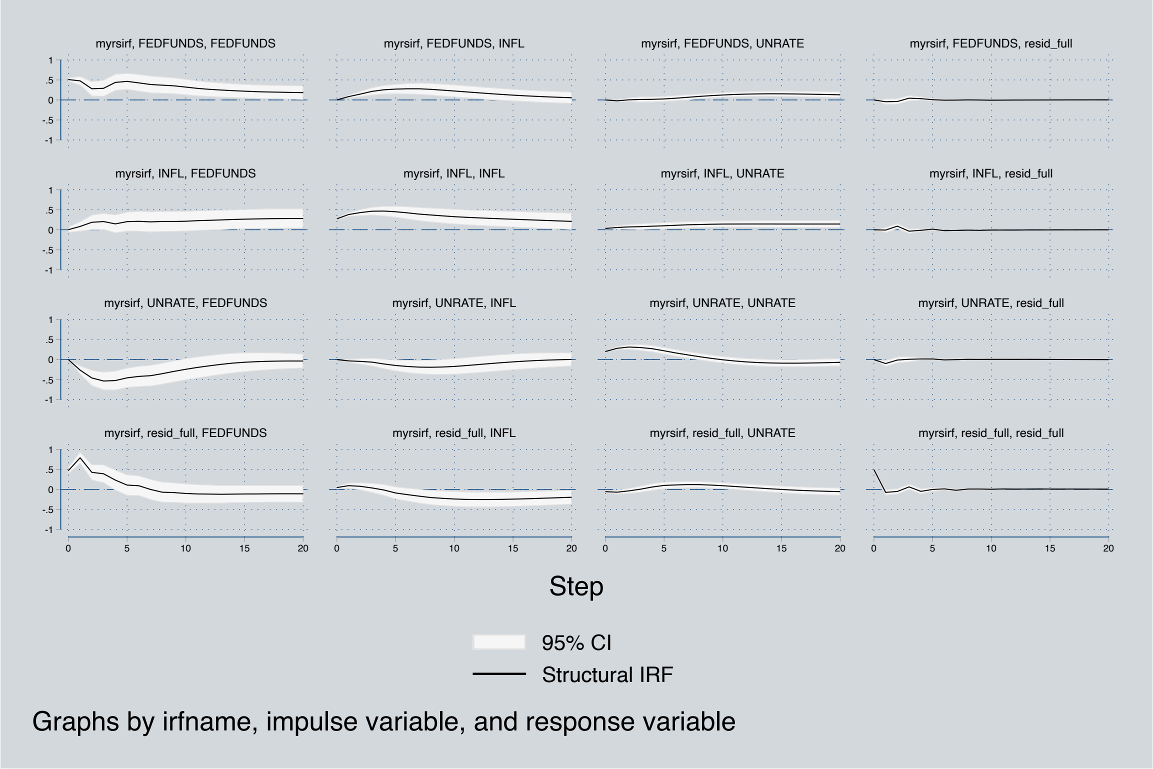
Part a

(see code)

Part b


myrirf, resid_full, FEDFUNDS
myrirf, resid_full, INFL
myrirf, resid_full, UNRATE
Step
95% CI
Dynamic multipliers
Graphs by irfname, impulse variable, and response variable

Part c


myrsirf, FEDFUNDS, FEDFUNDS
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myrsirf, resid_full, FEDFUNDS
myrsirf, resid_full, INFL
myrsirf, resid_full, UNRATE
myrsirf, resid_full, resid_full
Step
95% CI
Structural IRF
Graphs by irfname, impulse variable, and response variable

Part d

It is reasonable to assume that the Romer Shocks can influence federal funds rates, unemployment, and inflation, but not that the other factors would influence the Romer shocks contemporaneously. As such, including them first allows them to affect all other variables without the other variables having reverse causal effects.

Part e

The VAR effects are smaller than in question 1 and are also much less sustained. The SVAR results are also much smaller than in question 1. They do allow for more smoothing in the sustainability of shocks.

Notably, the federal funds rate is very responsive to changes in the Romer Shocks which makes sense since it is probable that this information is being used by the fed when setting rates.

Part f

Including controls for the Romer Shocks in 2(b) removes much of the endogeneity that was present in the model in 1(d). In particular, the responses of the inflation rate and unemployment rate are more pronounced in the presence of controls which eliminate the noise in the variables before.

Part g

Including controls for Romer Shocks would decrease the observed shocks in 2001Q3 and 2001Q4 since it allows for exogeneity that was not considered in the earlier analysis. This would not probably remove the entire effect but make it much less notable than in the earlier analysis.