ECON 210C-2 PS 2

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1 VARs

(a) Plot the data

(b) Aggregate all series to a quarterly freq.

(c) *Why end the sample in 2007Q4?* In 2008, at the onset of the Great Recession, interest rates plunged to near zero. From there we see a period of persistent near zero interest rates, which acts as a floor (no negative interest rates), which reduces our ability to interpret change in inflation and un employment with respect to the interest rate.

(d) Results:

(e) Interpretation of results:

- In response to the federal interest rate rising, we see a persistent rise in inflation and a partially persistent drop in unemployment.
- Inflation is sticky - a rise in inflation is associated with further rises in inflation
- A rise in inflation leads to a rise in the federal interest rate and a drop in unemployment
- Unemployment is sticky, but after a few quarters is uncorrelated.

(f)

(g) There is a sudden decrease in the federal interest rate in 2001 Q3 and Q4. Without considering what else happened in the US at that time, someone might suggest that the sudden drop in interest rate had very little impact, except a slight increase in unemployment. Being aware of global events however gives us ability to interpret this as a response to 9/11.

2 Romer Shocks

(a) Data processed

(b) Romer-romer IRF (see image below)

(c) SVARS: (see image below)

(d) Why does it make sense to order the Romer shocks first? The Romer shocks are by constructions meant to be exogenous to other information. You could plausibly reject the idea that federal interest rates are exogenous, because clearly they are responses to the wider environment.

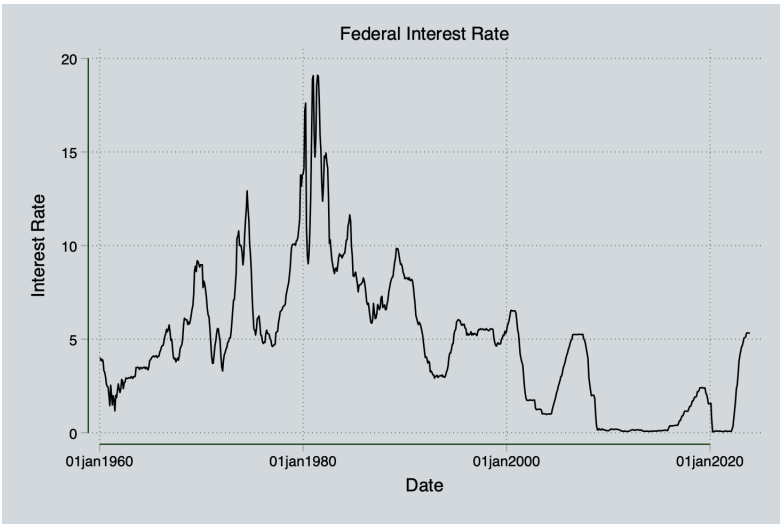
(e) Our results from using the Romer shock first allow us to isolate the exogenous monetary shocks from those that are endogenous responses to the the observed variables.

(f) *Compare VAR irfs here and SVAR from 1d:* You'll notice that the VAR irf from the Romer shocks are much more persistent and monotonic. The irfs in 1.d. may contain endogenous variation from the Fed's efforts to meet certain levels of inflation and unemployment. They are different because the top of the SVAR is different, where the Romer SVAR is plausibly exogenous.

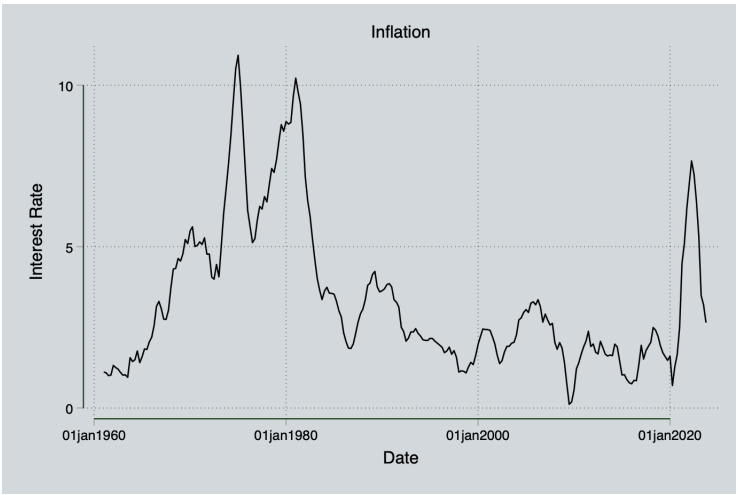
(g) The Romer-Romer shocks and federal interest rate shocks from are

Quarter	RR	Federal Interest Rate
2001-09-01	-.0429872	3.496667
2001-12-01	-.1275094	2.133333

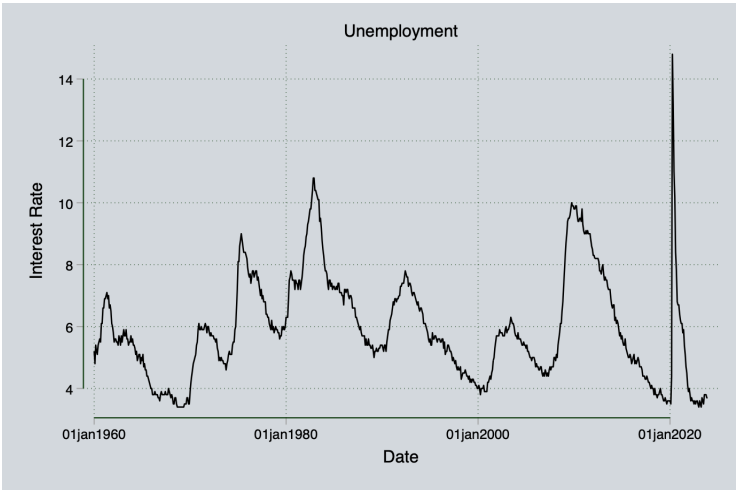
We see that the size of the Federal interest rate shock is an order of magnitude larger than the RR shock, but going in the same direction. The interest rates were already contracting by Q3/Q4 of 2001, so the exogenous shock of Sept 11 is smaller than the total change in interest rate.



(a)



(b)



(c)

Figure 1: Interest Rate, Inflation and Unemployment (1.a)

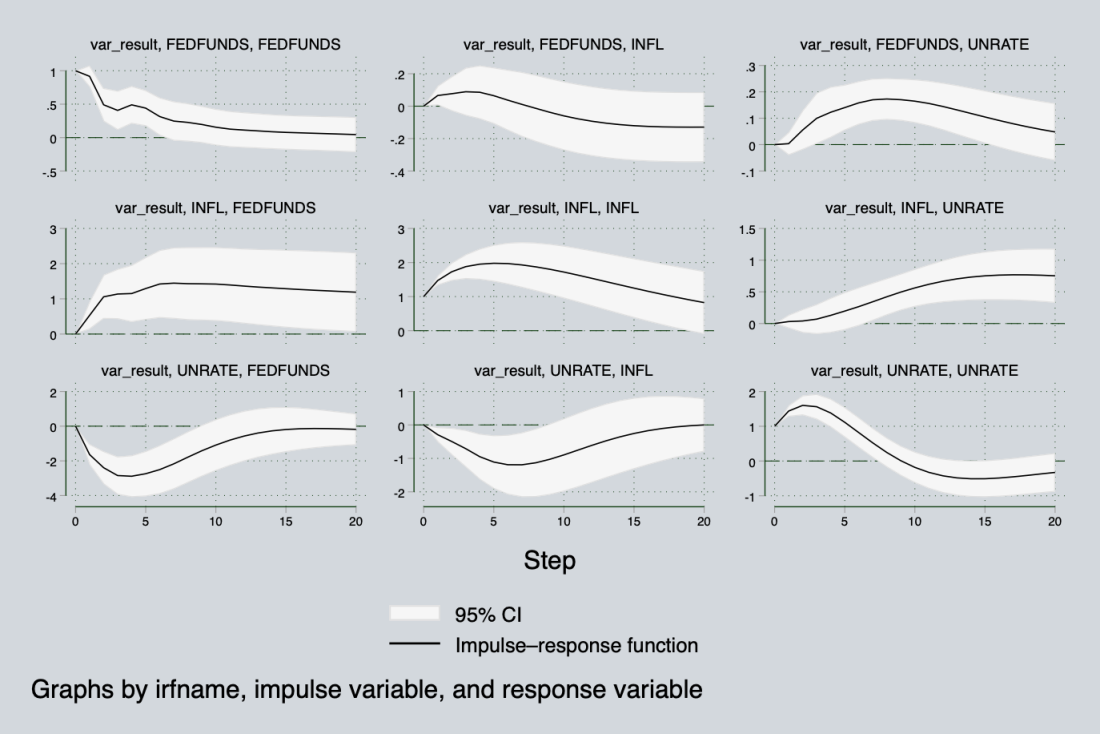


Figure 2: VAR results (1.d)

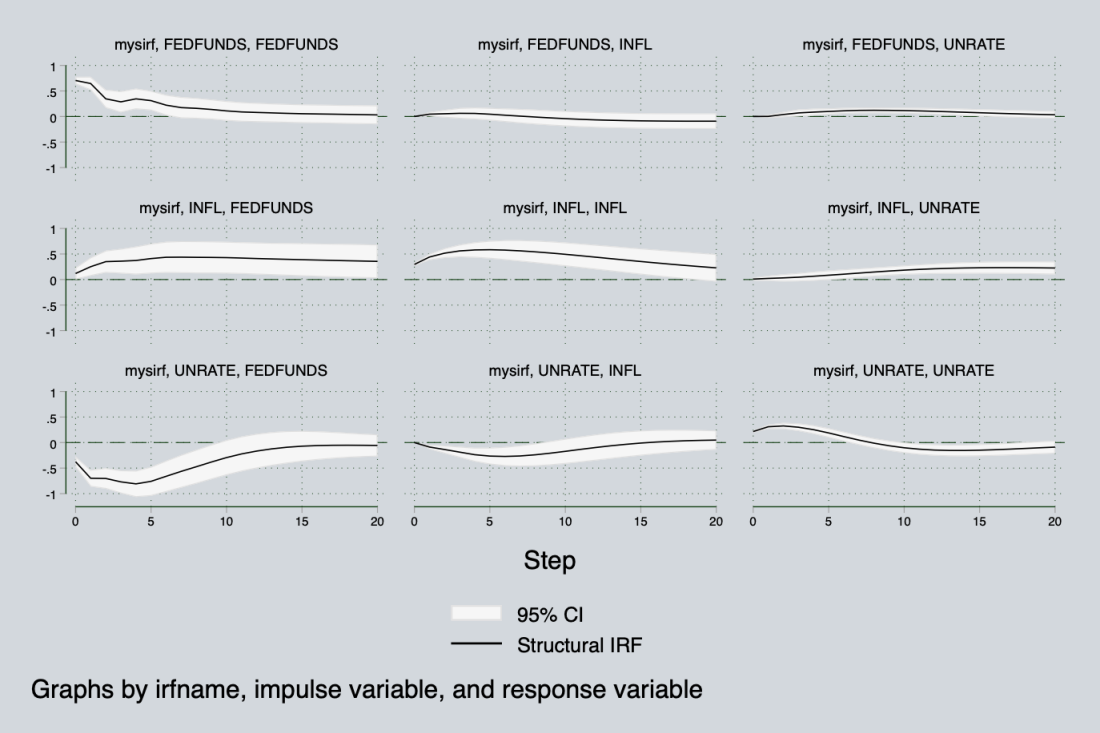


Figure 3: SVAR results (1.d)

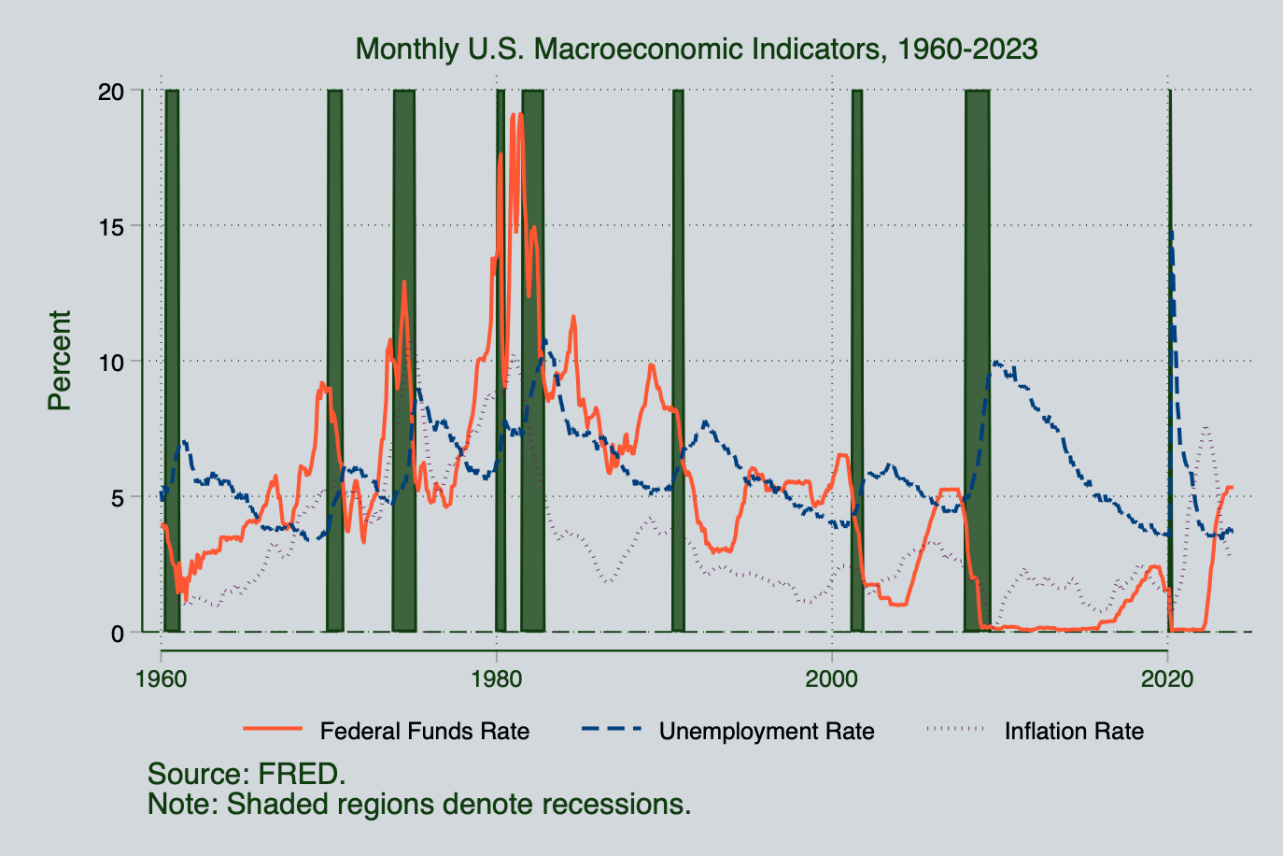


Figure 4: Monetary Shocks shaded (1.f)

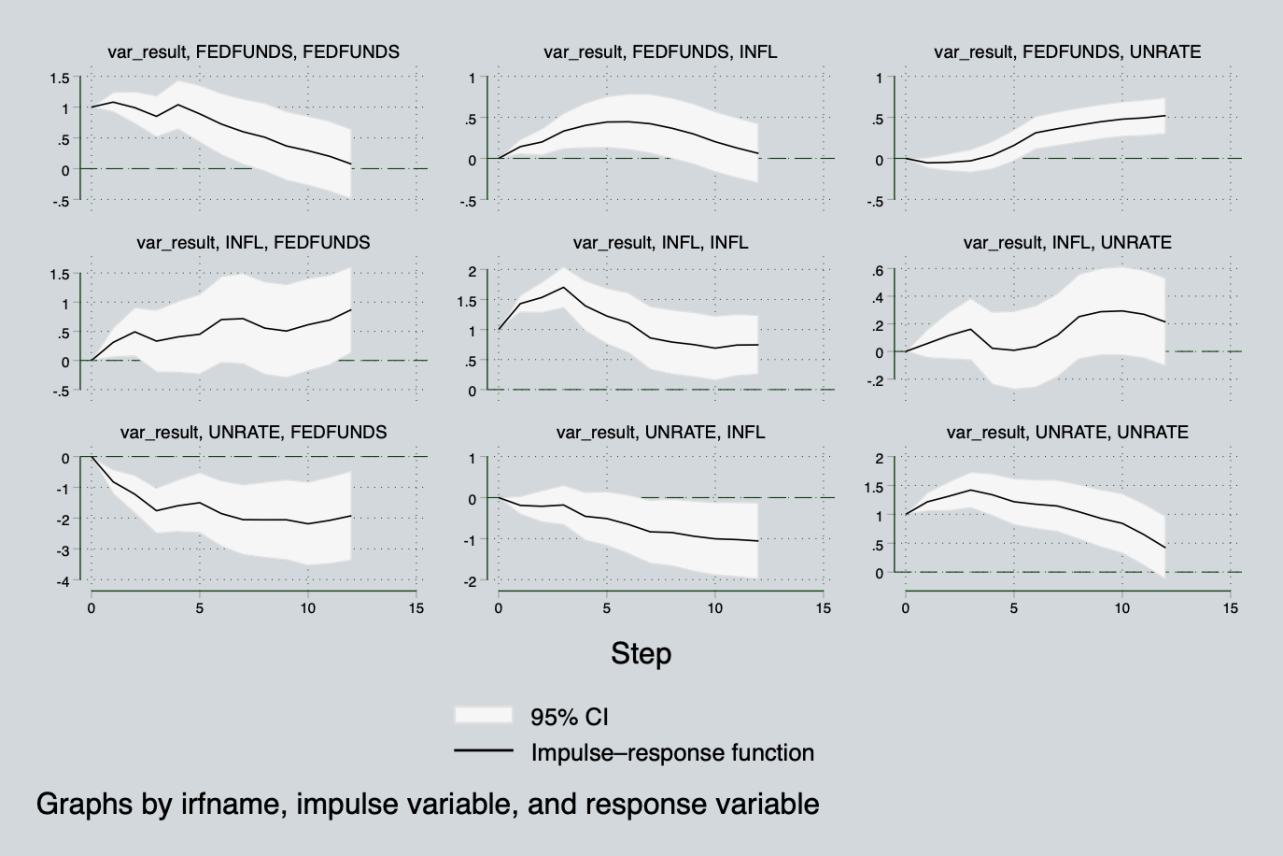


Figure 5: RR IRF (2.b)

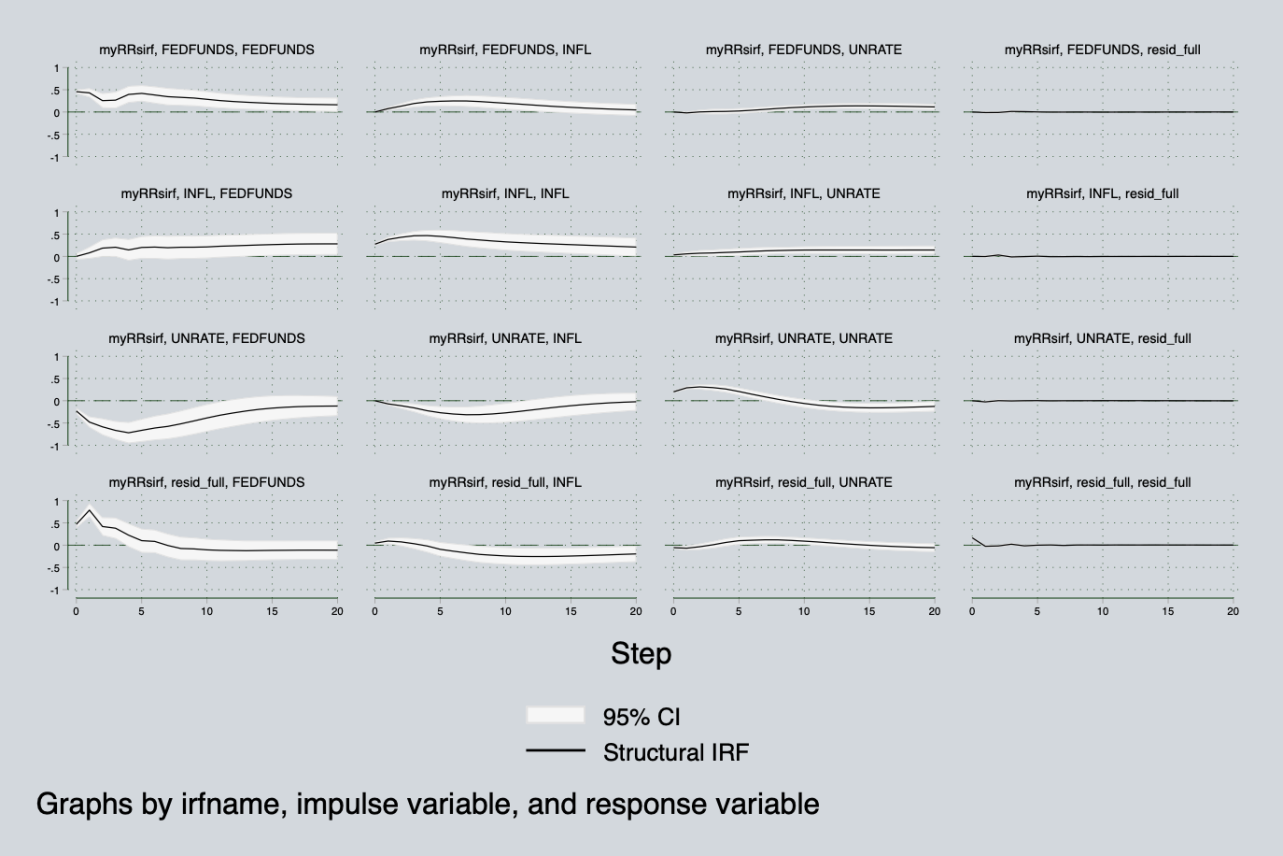


Figure 6: SVAR with RR, pi, u, R (2.c)