

Assignment 1 (VARs) Notes

1 Answers

1. Note that the initial shock is a fall of 70 basis points to the Fed Funds rate. What's befuddling is that inflation seems to fall on impact. This is the so-called "price puzzle". We will see this goes away with a more select sample of data. Also, goes away if you include commodity prices in the specification. Note also the hump shaped responses in consumption and investment. People like CEE take this as a sign that there are adjustment costs.
2. Change *nlag* to 2. Pretty similar. I would consider it a bit smoother looking which I think reflects fewer parameters to estimate.
3. *order_cev* = [361245];. Here output, investment, hours, and inflation all *fall* when Fed cuts rates. This is really uncovering a correlation that when the Fed is cutting interest rates, the economy is not doing well. But this is a correlation and not causation. If anything, this shows how important identifying assumption can be.
4. Set *beg_samp* = 141. Now there's no price puzzle and smaller estimated shock. This is the so-called Great Moderation and much debate about whether this reflects smaller variance of shocks or changing policy rule.
5. *TTShock* = 1; *ISShock* = 1;. Now the price of investment has been included as data as well. This will allow us to identify the investment specific shock. Note we use two LR restrictions to pin down technology shocks, which are permanent. Hence, we see that output and consumption are permanently shifted. This should be contrasted with the temporary effects of monetary policy shocks.

Note for later that hours increase after a positive TFP shock. Also, technology shocks have much more impact on economic variables than monetary policy. I'd be interested to know the error bands on the decompositions given low ID power of LR restrictions. Makes you think though why are we hear worrying about MP so much.

6. Set *HOURSLEVELS* = 0. Now hours falls after a TFP shock. People freaked out with this. If you take standard RBC model with *separable* utility in leisure and consumption, then hours should rise after the tech shocks. But this is very dependent on specification since a priori there is a wealth effect and substitution effect since you're now richer but work is more productive. So it seems ambiguous how tech should effect hours. Larry et al. have a number of papers about this issue arguing against the difference specification. I find the whole argument academic. This results doesn't seem to hold if you use the subsample from part 4.
7. *TTShock* = 1; *ISShock* = 1, *FFShock* = 0. Similar results but very wide confidence intervals. This reflects lack of ID power from LR restrictions and suggests that before, we were stealing from SR restriction to ID tech shock.
8. *ISShock* = 0. Still no change here and probably wouldn't expect much to change unless other restrictions were terribly misspecified. You can test the overidentifying restrictions. In *mkimprec*, there is

an overidentification variable that you can switch to 1 to test. I would think that the VAR would pass that test.

9. When you include the investment specific shock the confidence intervals are much tighter on the other two shocks.
10. Drop *new* from load commands. I don't see much difference in the IRFs.

2 Other Comments, Programs, and Options

- Bootstrap: Using initial OLS estimates, can then estimate residuals $\hat{\epsilon}_t$. Now we generate artificial data using A and sampling $\hat{\epsilon}$ with replacement. Then run OLS on this to estimate A, B and calculate IRF. Do this a bunch of times and confidence interval is pointwise quantiles of fictitious data. Can do this for any statistic you want. In particular.
- You can use ACEL or CEV specification only difference is what variables are included.
- Also, can include a constant or not. I don't know why you wouldn't include one.
- You can also have the code detrend the data using whatever polynomial you would like. You should attempt to put detrended variables in the VAR to begin with. This is why we usually put in growth rates and not levels of say GDP. It's also related to the hours debate. Are hours worked stationary?
- The functions that assignment 1 calls are very difficult to read i.e. not as well documented as assignment 1, and not very efficient code. If you want to play around with that code, enter at your own risk.
- I would suggest that trying to write your own code to estimate a VAR with an identified monetary policy shock could be good practice for those Matlab beginners.
- For even more up to date data, load *invpricedata2008* and *main4datanew2008* and comment out line 78.