Homework 7: VAR & SVAR

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1. The program of this question include VAR estimation by Valerie A. Ramey to estimate VAR model and its recursiveness to decompose structural shock (Stata-TS-program.do).

   (a) Read monthlydat.csv and run the code for the US data. Here are the variables: (i) federal funds rate (ffr); (ii) log industrial production (lip); (iii) log CPI (lcpi); and (iv) log commodity prices (lpcom). Allow for 12 monthly lags in the SVAR. Use the Romer-Romer (2004) monetary shock (rrshock) as the external instrument. Show the impulse responses for the federal funds rate, log industrial production and log CPI up through horizon 48 of a monetary shock that raises the federal funds rate by 100 basis points on impact.

   (b) Now, I want you run this STATA Do file for Iran by collecting appropriate data from various sources.

2. This exercise aimed to teach you what's in a prewritten code like what you did above. The code to do the exercise is again almost entirely ready to use and provided by Sims 2002 on his course in SVAR. Your task is to look over the code carefully so you understand what it is doing, then assemble the results in the form of graphs and statistics, to reach conclusions with rmpy data, but you must provide an structural interpretation.

   The code is in svarexcode.m, and it requires the matlab data file svardata.mat. It also requires some auxiliary programs that are available on the course website. The code estimates one structural VAR that is overidentified by the order condition, but in fact only weakly identified, because it is very close to satisfying additional zero restrictions that would make it unidentified. This estimated VAR shows a price puzzle.

   The first equation in the system is a monetary policy behavior equation, the second is a money demand equation, and the third and fourth jointly describe non-financial private behavior. Money demand is separated from the rest of the private sector on the grounds that it is strongly influenced in the short run by asset market traders and could thus be quickly responsive to interest rates.

   The second structural model imposes the additional restrictions that would make the first model unidentified, plus one more normalizing restriction. The code then generates impulse responses for 6 different models, all consistent with the same set of identifying restrictions.

   The code generates two pairs of statistics to be used in assessing overidentifying restrictions. You are to discuss whether they weigh against or in favor of the null hypothesis, perhaps using the Schwarz criterion.

   You are also to discuss whether any version of any of these models can at the same time satisfy the identifying restrictions on the first model and the beliefs of most economists about

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the pattern of effects of a monetary contraction on money, prices and output. The code generates over a dozen graphs, Some of which, or variants on them, should be useful in your discussion. The graphs the code produces are not labeled. You should label the ones you use in your discussion.