

Problem Set 3

Impulse Response Functions for a Monetary Policy Shock

In the previous problem set you obtained monetary policy shocks for the UK, following a narrative identification strategy and Cloyne and Hürtgen (2016). This week you will continue working with this paper building up on the shocks you obtained.

In case that you couldn't get the shocks, these are also provided in the data file "monthlyShocks.xlsx" columns F and G.

1. Load the data file "regressionData.xlsx" that we provided to you.

This data set contains all the variables necessary for obtaining the IRFs:

- BankRate: rate of the Bank of England.
- Unemp Rate: unemployment rate.
- IoP: industrial production.
- CommodityPriceIndex: commodity price index.
- CPIindex: consumer price index.

2. For industrial production, CPI and commodity price index modify each original variable to be $\log x = \log(x) \times 100$.
3. Run a local projection à la Jordà (2005) using monthly shocks to obtain IRFs for inflation, industrial production and the bank rate .

$$y_{t+h} - y_t = \alpha + \theta_h \text{shock}_t + \text{control variables} + \varepsilon_{t+h}$$

In control variables include four lags of industrial production, CPI, commodity price index and the shock.

4. Plot the θ s to obtain a visual representation of the IRFs (Figure 7 in Cloyne and Hürtgen (2016)).

5. Run a Proxy SVAR model with $p = 24$ and obtain the corresponding IRFs. For this case, the vector Y of endogenous variables contains the following:

- Bank rate.
- Industrial Production.
- CPI.
- Commodity Price Index.

As a proxy take the cumulative shock (i.e. $cummshock_t = \sum_{i=0}^t shock_t$).

6. Plot the corresponding IRFs for the same variables as in exercise 3.