

SVAR Analysis with Long-Run Restrictions

1. Retrieve with R the series er and p^c from the previous problem set. Then construct a third time series called $rer = er/p^c$.
2. Set $y_t = (rer_t, er_t)'$ and estimate a VAR for $\Delta \log y_t$. Choose the lag length using information criteria. Trim all series and use only an effective sample starting in January 2004 and ending in December 2019.
3. Using the Blanchard-Quah identification scheme, estimate the parameters of the structural VAR based on the reduced form in **2**. Assume that there is a shock that has no long-run impact on rer . Label this shock as the “nominal” shock and the other as the “real” shock. Recover the instantaneous as well as the long-run impact matrices.
4. Compute the responses of the system to all shocks, along with the FEVDs and historical decompositions. Provide bootstrap confidence bands when possible.
5. Recover the exchange rate pass-through to consumer prices implicit in the system with the formula in the **problem set 2**. Produce bootstrap confidence intervals for your estimates. Keep in mind that you now have two distinct ERPT.

Estimating Local Projections

1. Load the dataset provided containing the following variables
 - g^c , government spending (public consumption in constant pesos).
 - G^s , government spending (public welfare expenditures in nominal pesos).
 - y , real GDP.
 - p , GDP deflator.
2. Define $\Delta x_t = (\Delta g_t^c, \Delta y_t)$ and estimate the response of real GDP to a government spending shock using the local projection methodology. Assume that g_t^c is ordered first. Use only observations from 2004Q1 to 2019Q4. Provide confidence bands and comment on the results.
3. Now the define a binary variable D_t that takes the value 1 if $\Delta y_t < 0$, and 0 otherwise. Then compute the response of a spending shock conditional on being in recession or not and compare the results. Modify the local projection methodology accordingly to accommodate this non linearity.

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Problem Set 3

4. Replace Δg^c with Δg^s and re do the analysis in **1** and **2**. To construct g^s , first deflate G^S using p and then seasonally adjust the resulting series.
5. Compute a the fiscal multiplier for either measure of government spending and comment on your findings.