

Forecasting & Nowcasting with Text as Data: Homework 3

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Problem 1

VAR Output

Table 1: VAR Equation Results: EPU

Variable	Coefficient	Std. Error	t-stat	p-value
const	46.364	5.341	8.681	0.000
L1.EPU	0.641	0.038	16.879	0.000
L1.INDPRO_GR	-3.193	2.828	-1.129	0.259
L1.PCE_GR	-14.406	8.393	-1.716	0.086
L1.PAYEMS_GR	-20.540	11.366	-1.807	0.071

Table 2: VAR Equation Results: INDPRO_GR

Variable	Coefficient	Std. Error	t-stat	p-value
const	0.105	0.097	1.086	0.278
L1.EPU	-0.001	0.001	-1.923	0.054
L1.INDPRO_GR	0.070	0.051	1.363	0.173
L1.PCE_GR	0.473	0.153	3.098	0.002
L1.PAYEMS_GR	0.930	0.207	4.500	0.000

Table 3: VAR Equation Results: PCE_GR

Variable	Coefficient	Std. Error	t-stat	p-value
const	0.168	0.029	5.867	0.000
L1.EPU	-0.001	0.0002	-2.809	0.005
L1.INDPRO_GR	0.010	0.015	0.680	0.496
L1.PCE_GR	0.400	0.045	8.889	0.000
L1.PAYEMS_GR	0.021	0.061	0.344	0.731

Table 4: VAR Equation Results: PAYEMS_GR

Variable	Coefficient	Std. Error	t-stat	p-value
const	0.059	0.018	3.285	0.001
L1.EPU	-0.0003	0.0001	-2.234	0.026
L1.INDPRO_GR	0.018	0.009	1.901	0.057
L1.PCE_GR	0.031	0.028	1.093	0.274
L1.PAYEMS_GR	0.675	0.038	17.749	0.000

a. What is the coefficient of the lag of the EPU in the INDPRO equation, i.e., $\phi_{2,1}$? What does this coefficient measure? Describe in words.

$\phi_{2,1} = -0.001$ measures the effect of an increase of 1 unit in the EPU at $t - 1$ on industrial production growth at t . The negative sign indicates that higher uncertainty leads to a slight contraction in industrial output growth.

b. Describe in words what the EPU tries to measure.

The EPU tries to measure uncertainty about who's making policy decisions and what decisions they're going to make.

Problem 2

Cholesky IRFs

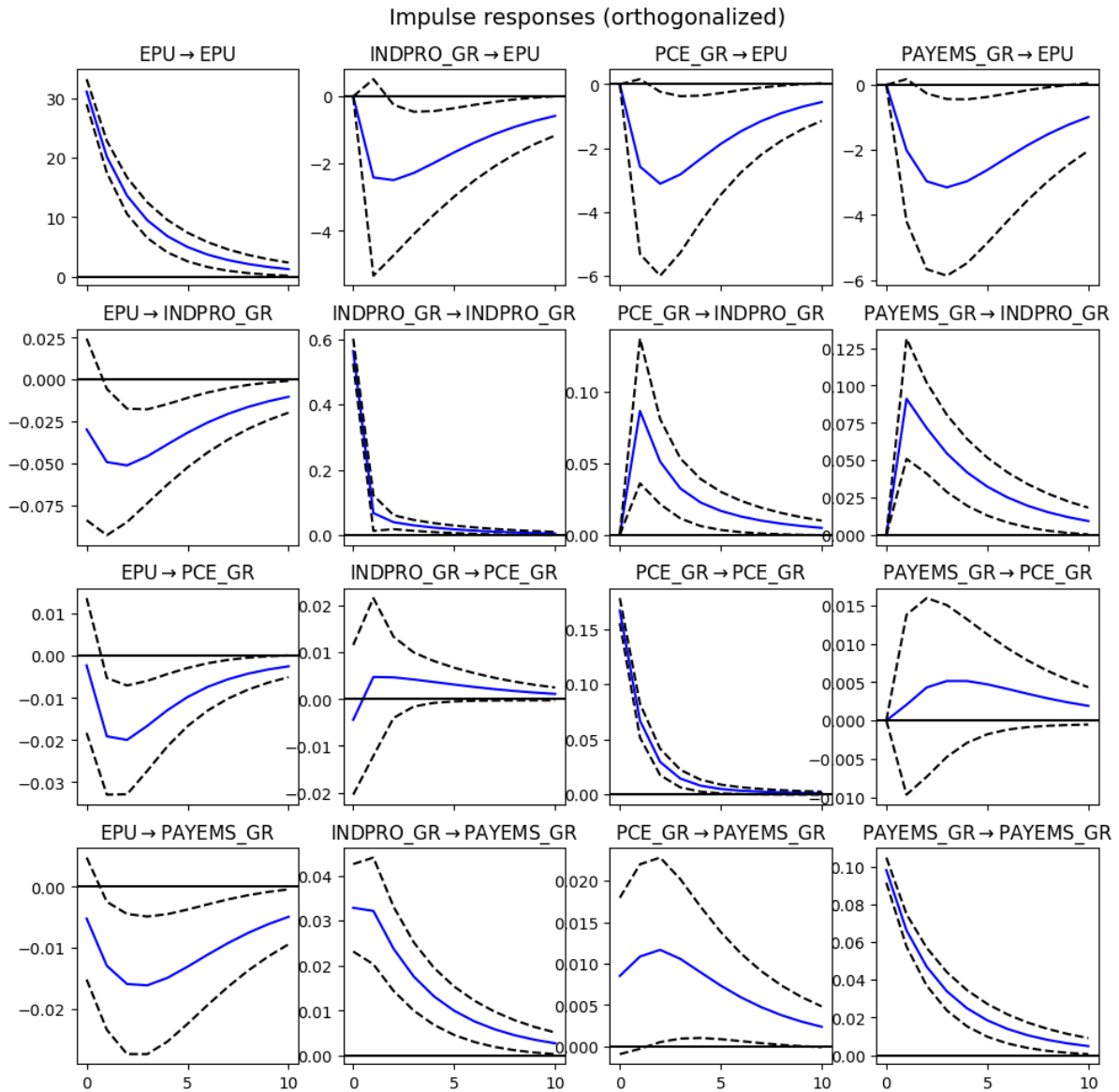


Figure 1: 10-period-ahead impulse response functions with Cholesky restrictions ensuring that the EPU reacts contemporaneously only to its own innovations. Dashed lines give 95% confidence bands.

a. Plot the impulse response function for the log-level of employment and industrial production including 95% confidence bands.

The desired IRFs and confidence bands are given by the second and fourth rows in the above plot.

b. Include the plots into your answer PDF and describe what you see – how do employment and industrial production react to an economic policy uncertainty shock. Describe in words what these impulse response functions mean.

EPU has no significant contemporaneous impact on industrial production growth or employment growth, but the point estimates are negative. Several periods ahead, the effect becomes significant and remains negative, though it reverts to 0 after 10 months.

Problem 3

a. Summarize in your own words recommendations 9 to 11 of the report.

9: The Bank of England publishes a central forecast that draws a lot of attention. However, the assumptions underlying these forecast are provided externally and without accounting for the endogenous decisions of the Bank. Moreover, publishing one forecast under one set of assumptions obscures the sensitivity of the forecast. Bernanke recommends that the Bank clearly explain the origin of these assumptions and include alternative scenarios.

10: The Bank includes a misleadingly detailed quantitative discussion of market conditions alongside the central forecast. Bernanke recommends that this be replaced with a short qualitative discussion, which should be clearer for the public and press.

11: Similar to point 10, the Bank publishes fan charts that purport to show the uncertainty associated with its forecast. However, the Bank does not explain how these are constructed in its public communications: they come from a mix of qualitative judgments and historical forecasting errors. Hence, Bernanke recommends decomposing this into a qualitative discussion of the sources of uncertainty and a quantitative exposition of the Bank's recent errors.