

1.4. Technological shocks, anticipations, sentiment shocks

(This part will be taught partly by Guido, partly by me.)

Technological shocks: Actual or anticipated? Beaudry-Portier

BP estimate a bivariate system in ΔTFP and ΔSP :

$$\begin{bmatrix} \Delta TFP \\ \Delta SP \end{bmatrix} = \begin{bmatrix} a_{11}(L) & a_{12}(L) \\ a_{21}(L) & a_{22}(L) \end{bmatrix} + \begin{bmatrix} e_1 \\ e_2 \end{bmatrix}$$

They consider two identification schemes:

- SR restriction: The second shock has no contemporaneous effect on TFP: $a_{012}=0$.
- LR restriction: The second shock has no long run effect on TFP: $a_{12}(1) = 0$. (Equivalently: all long-run movements in TFP are due to the first shock).

Main result: The impulse responses of the second shock under SR or the first shock under LR are very similar (Figures 2 and 3, and 8)

- The shock with long run effects on TFP has little initial effect on TFP, but a large initial effect on stock prices
- The shock with no short run effects on TFP has the same dynamic effect on TFP, and a large effect on stock prices.
- When tracing the effects on other variables, initial positive effect on output (0.2%, building over time to 1% after 2 years. id for for C, and I. Little initial impact on hours.

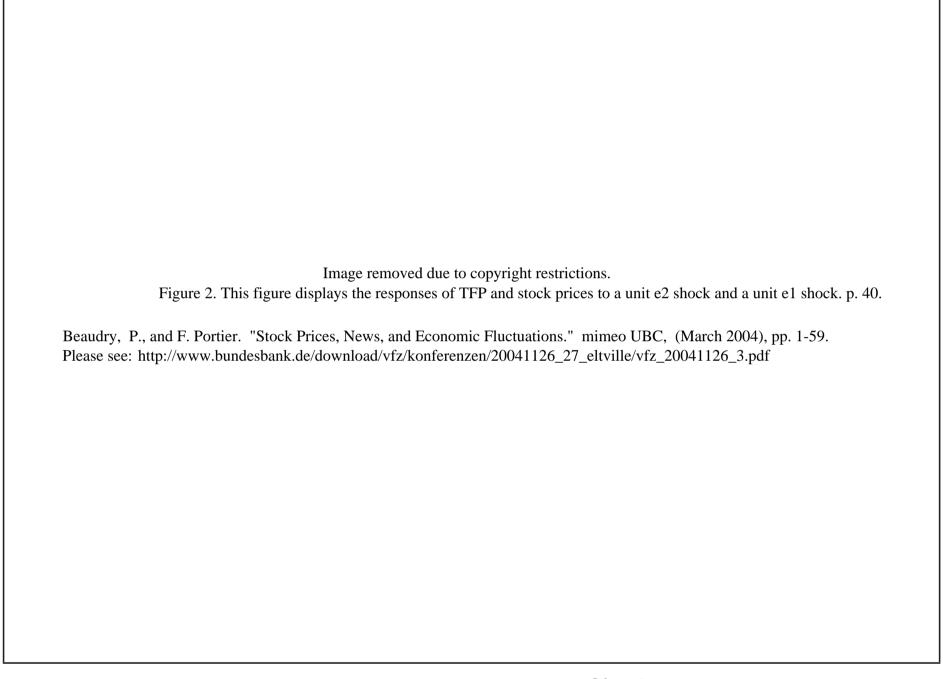
Relation to BQ and Gali papers. In fact, quite similar:

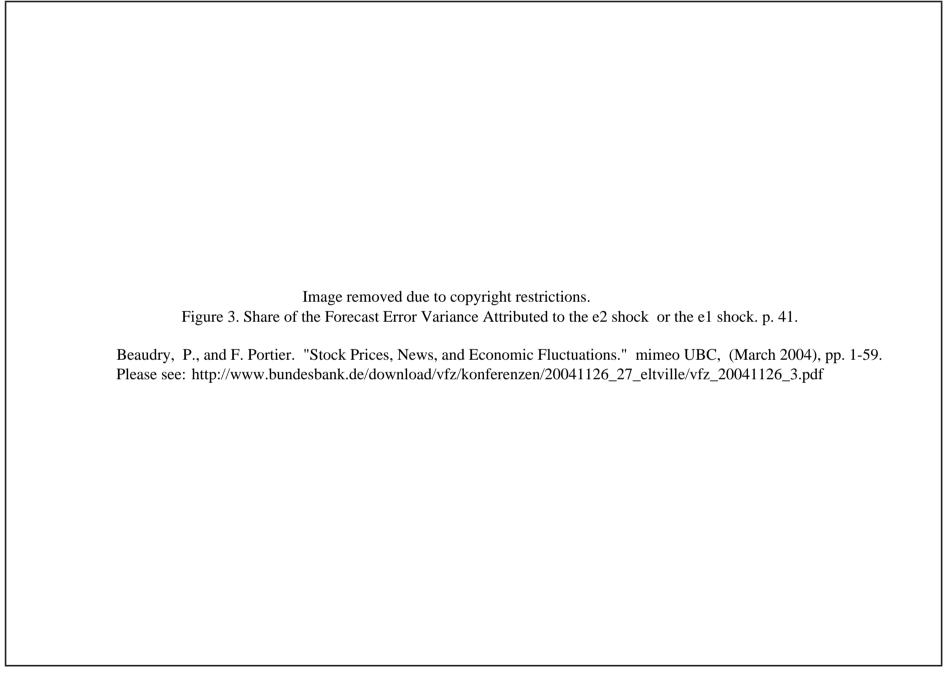
- BQ (bivariate in Δy and u. Little or zero initial impact of "technology shocks" under output, building up. Small increase in unemployment
- Gali (bivariate in $\Delta Y/H$ and H). More of an initial increase in Y/H (0.6%), before build-up after 4 quarters to long-run effects (0.8%). Small decrease in H.

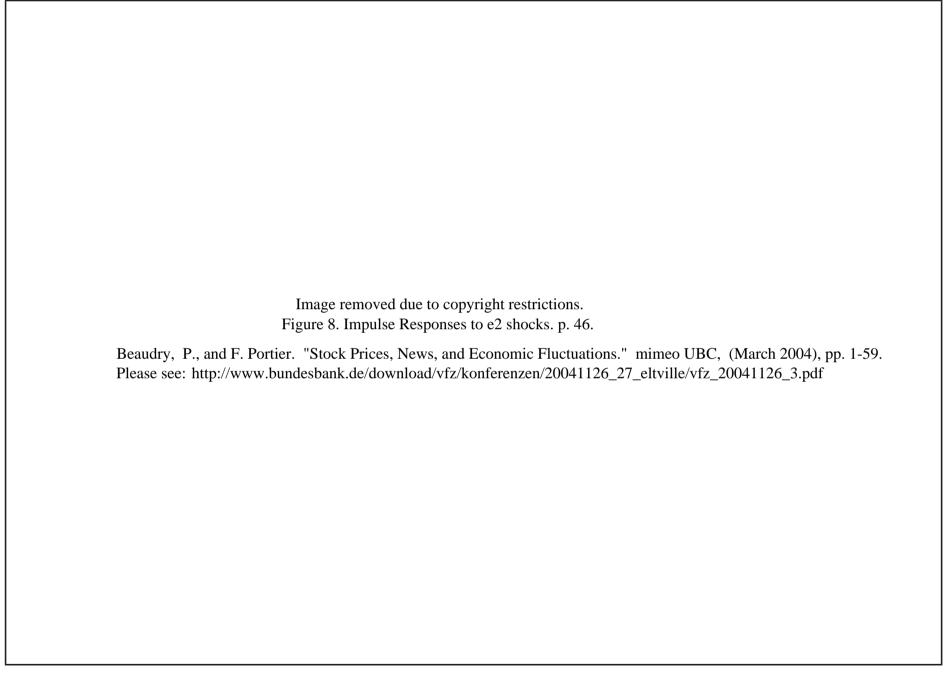
Difference Y/H/TFP? Labor productivity is pro-cyclical. But so is measured TFP $(Y/H^{s_h}K^{1-s_h})$.

Beaudry-Portier interpretation:

- Anticipations of technological shocks, increasing demand. (Alternatively, anticipated, but slowly diffusing technology improvements).
- Technological shocks or waves? A time series issue. Slowly changing underlying growth rate of TFP: well captured by VARs?







Next questions. taken up by Guido

- Can we construct a model which delivers? Is there a need for nominal rigidities? (Rebello-Jaimovich versus NK models)
- What are the non-technological shocks? "Sentiment, demand"?

Anticipations of technological improvements not realized ex-post? (Lorenzoni)

Or, just exogenous shifts in pessimism or optimism? Can we tell? (Cochrane, Barsky-Sims)

Implications for optimal policy. (Lorenzoni)