

Measurement of economic sentiments and their impact on monetary policy

Econometric Research in Finance 2017

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Presentation plan

- 1 Introduction
- 2 Estimation of the sentiments
- 3 Monetary policy model
- 4 Results
- 5 Conclusions

- We propose a new method allowing for sentiments extraction that does not require conducting any surveys

Motivation

- We propose a new method allowing for sentiments extraction that does not require conducting any surveys
- As a verification of the usefulness of our estimated sentiments, we also study whether such sentiments can be used to investigate the behaviour of the economy.

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- As a verification of the usefulness of our estimated sentiments, we also study whether such sentiments can be used to investigate the behaviour of the economy.
- We analyse the effects of obtained sentiments on the monetary policy following a similar approach to [Nalban, 2016], who studied the Romanian monetary policy transmission mechanism under different regimes identified on the basis of a synthetic survey-based economic sentiments indicator (Economic Sentiment Indicator).

Global game approach

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With the complete information the game is trivial, however, it leaves interesting conclusion:

- If $\theta > 1$ invest is a dominant strategy
- If $\theta \in [0, 1]$ there are two Nash equilibria: both agents invest or both agents do not invest
- If $\theta < 0$ not investing is a dominant strategy

As a result, the investing game exists in three regimes: two stable and unstable middle one.

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With incomplete information, however, the game is not that trivial anymore - taking public and private signals into consideration, beliefs can be defined by following formula:

- $x'_i = \sum TPF_{-i,t} + \epsilon'_{i,t}$
- $x''_i = \sum x'_{-i} + \xi_t + \epsilon''_{i,t}$

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We assume that public information influence is represented by shocks in SVAR model and their impact can be viewed as:

- For $\xi > \bar{\xi}$ agents decides to invest their wealth
- For $\xi \in [\underline{\xi}, \bar{\xi}]$ sentiments does not influence perception much and agent tend to decide basing mostly on public information
- For $\xi < \underline{\xi}$ agents decides not to invest and keep their wealth on safe assets

Econometric approach

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- Identification strategy is as follows:

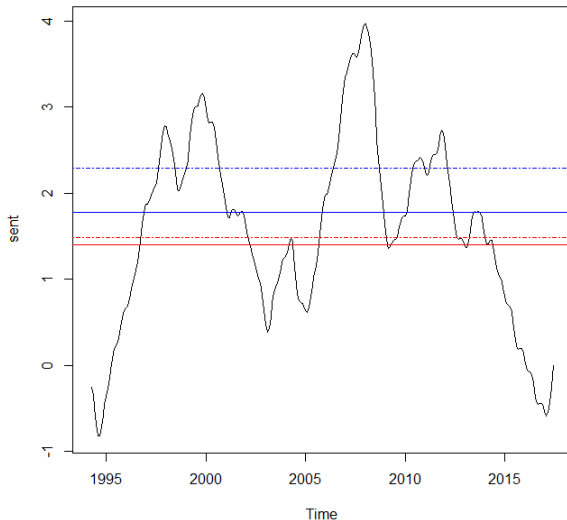
$$Y_t = \begin{bmatrix} 1 & a_{1,2} & 0 & 0 & 0 & 0 \\ a_{2,1} & 1 & 0 & 0 & 0 & 0 \\ a_{3,1} & a_{3,2} & 1 & 0 & 0 & 0 \\ a_{4,1} & 0 & 0 & 1 & a_{4,3} & 0 \\ 0 & a_{5,2} & 0 & a_{5,4} & 1 & 0 \\ 0 & 0 & a_{6,3} & a_{6,4} & a_{6,5} & 1 \end{bmatrix}$$

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Estimated sentiments



- Analysis of the monetary Policy in Poland is based on the approach proposed by [Peersman and Smets, 2001] and we begin with the VAR model with 4 variables: output (industrial production), inflation (CPI), monetary policy (WIBOR), real effective exchange rate (REER).

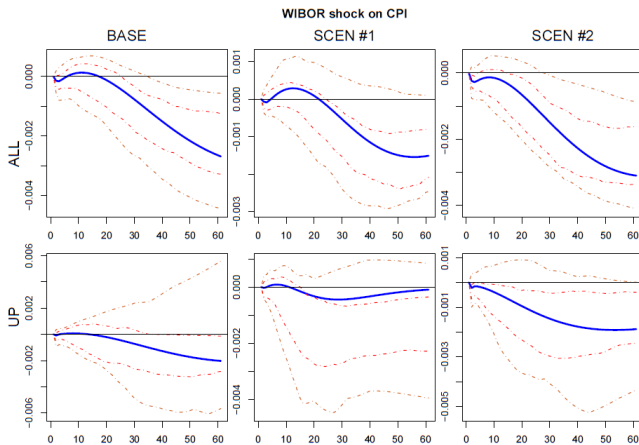
SVAR monetary policy

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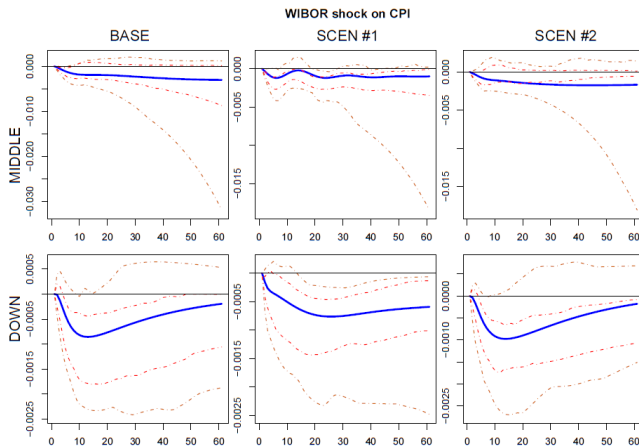
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- In the sensitivity analysis, we also shorten the sample (start: May 1995) and add the commodity price index as an endogenous variable.

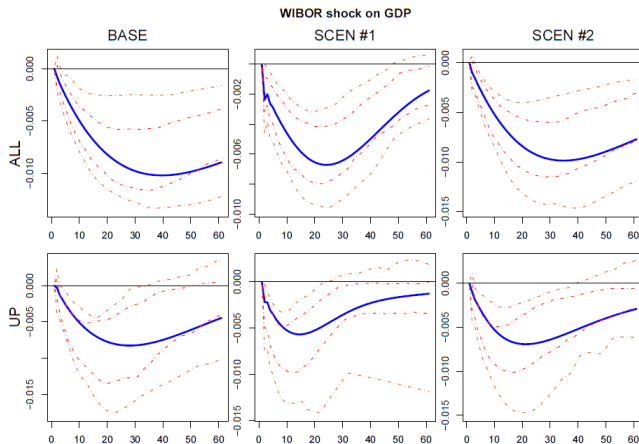
The effects of monetary policy on inflation



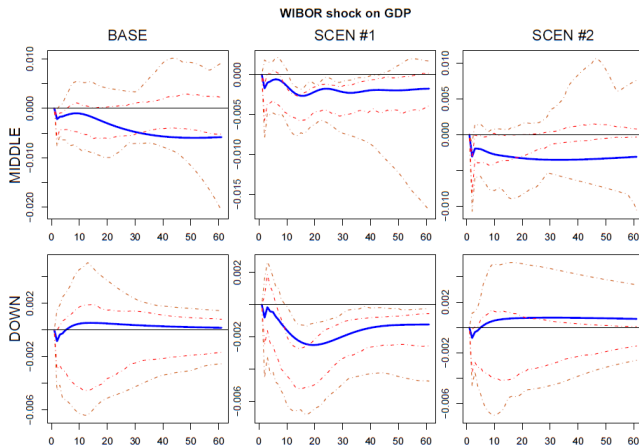
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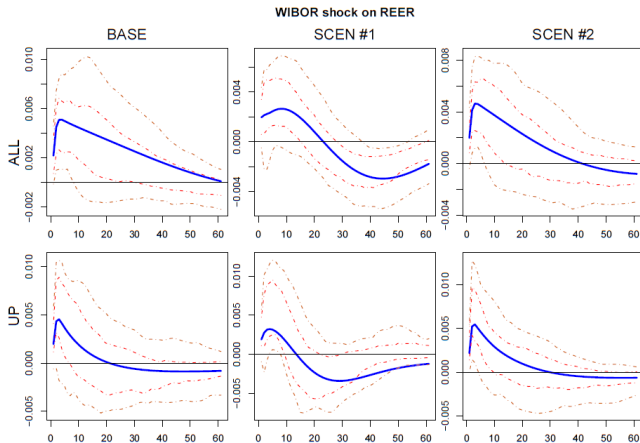
The effects of monetary policy on output



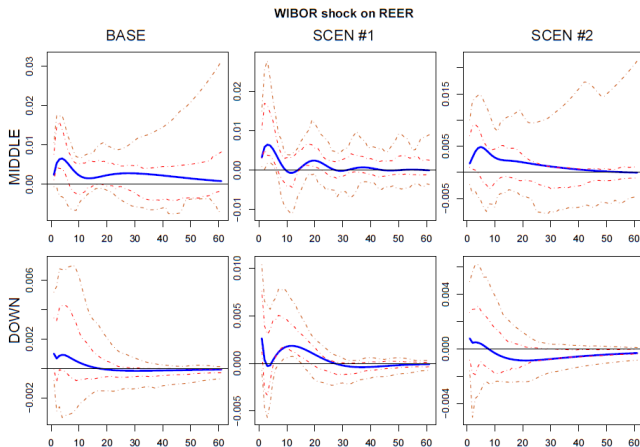
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- Monetary policy seems to be more efficient in the period of high economic sentiments when it can be effectively used to combat the inflation, however, the transmission of monetary policy impulses requires more time.
- In the period of lower sentiments the reaction of the inflation to the monetary policy changes is quicker, it is also less profound and diminishes with time.



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Thank You for Your attention!