Can inflation expectations in business or consumer surveys improve inflation forecasts?
R. Basselier, D. de Antonio Liedo, J. Jonckheere, G. Langenus

Discussion
Caroline Jardet - Banque de France

Understanding inflation dynamics: the role of costs, mark-ups and expectations

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The paper

The purpose :
Assess whether the accuracy of Belgian and euro area inflation projections can be improved by incorporating information in expected price development.

- focus on *both* consumer and business expectations...
- ...drawn from the EC *qualitative* surveys

The model :

- belongs to the class of unobserved components models (UCM), up to ten variables
- fluctuation of headline and core are given by a trend and a cyclical component
- this cyclical component co-move with the cyclical component of the real activity (common factor for all variables)

The paper

The results :
they are mixed for the period covering the last ten years...

- for Belgium
    - surveys do not help to explain total inflation (larger dataset of structural variables do)
    - in contrast, surveys (esp. Business) seem to matter for core inflation
- for euro area : no convincing evidences that shows that survey content helps to improve inflation projection

... however, if the evaluation sample is restricted to the period starting in 2012 only, model that include the survey expectation tend to outperform other models.

Using inflation survey data to improve inflation forecasts

Macroeconomic theory : most of intertemporal decisions of economics agents necessitate the conversion of nominal variables into real variables $\Rightarrow$ inflation expectation is a key variable that impacts, in general equilibrium, real variables and inflation.

Inflation expectation measures:

- indirect: financial data
- direct : survey data
  - professionals, firms, households
  - short term/long term horizon
  - qualitative/quantitative

$\Rightarrow$ Firm and household surveys are the most consistent with the economic theory

Description

- A panel of firms (consumers) provides each month how they expect their selling (consumption) prices to change over the next 3 months (12 months).
- qualitative survey responses are summarized via Balance Statistics (BS) measures
- BS is a weighted average of the share of responses for each categories:

$$BS_t = \alpha_1 A_{1,t} + \alpha_2 A_{2,t} + \alpha_3 A_{3,t} + \alpha_4 A_{4,t} + \alpha_5 A_{5,t} \qquad (1)$$

ex: $(\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5) = (1, \frac{1}{2}, 0, -\frac{1}{2}, -1)$

The consumer and business EC survey: pros and cons

The pros of the EC survey data

- responses reflect firm and household expectations
- available at a monthly frequency
- fixed forecast horizon
- harmonization at the EU level

The cons of the EC survey data

- short term horizon of expectations while long term expectations seem more relevant with economic theory
- qualitative nature and the use of balance statistics :
    - depends on the weighting of the frequency of responses, which are arbitrary
    - BS are fundamentally different from indices of inflation that makes a direct comparison of these indicators difficult

The consumer and business EC survey: pros and cons

- Interpreting BS as the measures of average expected inflation imposes certain conditions on implied values of expected price dynamics by individual fractions of respondents :
  If we assume $BS = k.\pi_{t+1}^e$:

  $$BS_t = \alpha_1 A_{1,t} + ... + \alpha_5 A_{5,t} = k.(\pi_{1,t+1}^e A_{1,t} + ... + \pi_{5,t+1}^e A_{5,t})$$

  $$\Rightarrow \frac{\pi_{1,t+1}^e}{\pi_{2,t+1}^e} = \frac{\alpha_1}{\alpha_2}, \frac{\pi_{1,t+1}^e}{\pi_{3,t+1}^e} = \frac{\alpha_1}{\alpha_3}, ...$$

- The qualitative responses can be mapped into quantitative estimates of inflation expectations (probability, regression methods), but the quantification is sensible to technical assumptions underlying the mapping (see T. Lysiak (2010))

- Expected inflation depends not only on the distribution of responses to the survey question, but also on the current perceived inflation.

  If $A_{2,t}$ is the share of respondent that responds *"Price will grow at the same rate"* $\Rightarrow \pi^e_{2,t+1} = \pi^p_t$

  Then, $\frac{\pi^e_{1,t+1}}{\pi^e_{2,t+1}} = \frac{\alpha_1}{\alpha_2}$, $\frac{\pi^e_{4,t+1}}{\pi^e_{2,t+1}} = \frac{\alpha_4}{\alpha_2}$,... implies that

$$BS_t = \alpha_2 \frac{\pi^e_{t+1}}{\pi^p_t} \tag{2}$$

$\Rightarrow$ An increase in *BS* does not necessarily reflect an increase in expected inflation. It can reflect a decrease in the perceived inflation (over the last 12 months)

comment/questions

The interpretation of qualitative survey responses as proxies of expected inflation must be carried out with caution.

- add more noise in the measurement equation of the surveys ? done
- include the BS of the survey of perceived inflation ?
- include other quantitative measures of inflation expectations in the model ?
- quantification of qualitative responses ?
- is it an issue ?

comment/questions

- in the model, both headline and core inflation are considered that constrains estimation ? Are forecasting performances improved ?
- sectoral decomposition of inflation (Stock and Watson (2015))?
- the core equation : η_{t-4} ? no effect of the the cyclical component of oil prices ?
- did you test restrictions implied by the model consistency with survey?

- a very nice paper
- a relevant and promising topic for forecasting purposes
- thanks !