Consumers’ quantitative inflation perceptions and expectations in the euro area: an evaluation

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(*) The views expressed in this presentation are those of the authors and do not necessarily reflect those of the European Central Bank, the Eurosystem or the European Commission.
Motivation of the study

Quantitative inflation expectations based on consumer surveys relatively little analysed in the euro area

This study assesses the information content of a dataset collected for research purposes by the European Commission

Aim is twofold
  • discuss the usefulness of the data
  • refine the monitoring of survey-based consumers’ inflation expectations in the euro area
Main features of the survey

Key results

Why do euro area consumers overestimate inflation?
- role of outliers
- data quality
- design of the survey questionnaire

Conclusions and future research
The quantitative dataset

Quantitative information on consumers’ inflation expectations (and perceptions) in the euro area is provided by the European Commission.

Quantitative survey is part of the “Joint EU Harmonised Programme of Business and Consumer Survey”
- Consistent methodology across countries
- Reliability of the data

Dataset is experimental
- No official release following each data collection;
- Dissemination of the data is limited
Main features of the experimental survey

• **National samples, focus on the euro area (all countries except NL)**

• **In total ca. 23,000 randomly selected consumers take part in the survey every month (for the euro area)**

• **Monthly frequency starting in May 2003 (to June 2010)**
The quantitative questions

Two questions asked whenever respondent perceives or expects changes in consumer prices (in qualitative questionnaire):

- By how many percent do you think that consumer prices have gone up/down over the past 12 months? They have increased by ...% / decreased by ...%.

- By how many percent do you expect consumer prices to go up/down in the next 12 months? They will increase by ...% / decrease by ...%.
Notable features of the survey questions

- **Open-ended questions (no ranges provided)**
- **No probing of unusual replies**
- **Generic reference to ‘consumer prices’**
  - not uniformly understood by consumers (e.g. FR, IT, NL experiments in 2007)
  - reference to ‘rate of inflation’ generally yields lower inflation expectations (de Bruin et al., 2009)
• Response rate of around 75% for the euro area
• But rather diverse picture cross countries

Source: European Commission.
Note: as a percentage of respondents who believe that the inflation rate has changed or will change; average response rates over the period May 2003 to June 2010.
Main findings

- Overestimation
- Dispersion across countries
- Demographics
Survey results: overestimation of inflation

Average results for the euro area (May 03-June 10):
Inflation perceptions: 11.9%
Inflation expectations: 6.4%

HICP total: 2.0%
HICP out-of-pocket: 2.5%
Infl. expectations from Consensus: 1.8%
Evolution of households’ inflation estimates

(annual percentage changes)

Sources: European Commission and Eurostat.
Note: last observation: June 2010.
Comparison with other surveys

Overestimation in the euro area survey is much higher than in comparable surveys outside the euro area

<table>
<thead>
<tr>
<th>Area</th>
<th>Survey</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euro area</td>
<td>EC consumer survey</td>
<td>+4.4pp</td>
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<tr>
<td>US</td>
<td>Michigan Survey</td>
<td>+0.6pp</td>
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<td>UK</td>
<td>BoE/NOP</td>
<td>+0.7pp</td>
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<tr>
<td>UK</td>
<td>YouGov/Citigroup</td>
<td>+0.7pp</td>
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Inflation estimates across euro area countries

<table>
<thead>
<tr>
<th></th>
<th>Inflation perceptions</th>
<th>Inflation expectations</th>
<th>Actual inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>10.6</td>
<td>6.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Belgium</td>
<td>8.6</td>
<td>4.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Germany</td>
<td>8.0</td>
<td>5.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Greece</td>
<td>18.5</td>
<td>14.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Spain</td>
<td>16.8</td>
<td>11.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Finland</td>
<td>3.6</td>
<td>2.9</td>
<td>1.5</td>
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<tr>
<td>France</td>
<td>7.7</td>
<td>3.6</td>
<td>1.8</td>
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<tr>
<td>Ireland</td>
<td>8.8</td>
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<td>1.6</td>
</tr>
<tr>
<td>Italy</td>
<td>18.3</td>
<td>5.2</td>
<td>2.1</td>
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<td>Luxembourg</td>
<td>7.9</td>
<td>4.8</td>
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<tr>
<td>Portugal</td>
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<tr>
<td>Cyprus</td>
<td>16.1</td>
<td>12.9</td>
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<tr>
<td>Malta</td>
<td>9.1</td>
<td>9.2</td>
<td>2.4</td>
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<tr>
<td>Slovakia</td>
<td>10.2</td>
<td>10.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Memo: euro area</td>
<td>11.9</td>
<td>6.4</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Source: European Commission.
Note: averages over May 2003 to June 2010.

- Consumers’ opinions of inflation range from high/very high, to low and close to official inflation (e.g. expectations in FI, FR, BE)
- The reasons for such divergences are not well understood
Inflation assessment and demographics (1)

Inflation estimates across socio-economic groups

- High income earners tend to expect and perceive lower inflation
- Women tend to report higher inflation than men

Source: European Commission.
Note: averages over May 2003 to June 2010.
Inflation assessment and demographics (2)

Inflation estimates across socio-economic groups

- Older people expect lower inflation than younger ones
- Inflation estimates tend to decrease with the education attainment

Source: European Commission.
Note: Averages over May 2003 to June 2010.
Reasons for overestimation

Possible impact of:
- Outliers
- Data quality
- Survey design
Reasons for overestimation: outliers?

Wide range of replies

For example:
minimum expected rate of inflation: -200%
maximum expected rate of inflation: 800%

...but the number of such extreme replies is small

Digit preference e.g. 0%, 2%, 5%, 10%, 20%
Trimmed measures of inflation sentiment

(a) Inflation perceptions
- Non-trimmed mean
- Trimmed mean: excl. val>100
- Trimmed mean: excl. val>50
- Trimmed mean: excl. top & bottom 10%
- Trimmed mean: excl. top & bottom 25%

(b) Inflation expectations
- Non-trimmed mean
- Trimmed mean: excl. val>100
- Trimmed mean: excl. val>50
- Trimmed mean: excl. top & bottom 10%
- Trimmed mean: excl. top & bottom 25%

Source: European Commission.
Note: averages over May 2003 to June 2010.

- trimming progressively lowers expectations as more outliers are cut out from the distribution
- the trimmed mean that excludes the top/bottom 25% gives an average expected inflation of 0.7% in 2009
Controlling for outliers: the median

Median of consumers’ inflation assessment in the euro area

- The median as a summary statistic that is less sensitive to outliers
- Owing to the prevalence of round digits, median tends to exhibit discrete jumps

Source: European Commission.
Possible measurement and data quality issues:
  “data entry” errors
  in the validation processes
  in the data collection

Question misunderstood?
Concept “annual percentage change” unknown?

Check
Data entry and validation processes
Methods for outlier correction, e.g. “probing question”
Reasons for overestimation: survey design?

**Michigan survey in the US** probes unusual replies

**BoE/NOP and YouGov/Citigroup surveys for the UK** provide brackets of responses
Reasons for overestimation: survey design?

Open-ended, not probed questions may emphasise outliers

(a) United States

(b) United Kingdom

Sources: University of Michigan, Bureau of Labor statistics, BoE/NOP, YouGov/Citigroup and ONS.
Reasons for overestimation: survey design?

UK consumers’ estimates of inflation expectations

- UK as a natural experiment to test the effect of ranges of reply
- Expectations tend to track actual inflation closely when consumers select their replies from given ranges

Sources: European Commission, BoE/NOP and ONS.
Conclusions

Tentative evidence that overestimation of inflation by euro area consumers is affected by the survey design (no probing question) and heterogeneous interpretation of survey question.

Outliers play a more modest role.

Euro area consumers hold very different opinions of inflation depending on their income, age, education and gender.

Wide dispersion of responses across countries.
Future research

- **Trial ‘probing question’** (as in the US survey)

- **Ranges of responses (as in the UK surveys)** might reduce the overestimation, but do they add a different bias?

- **Refer to ‘rate of inflation’** (as opposed to ‘prices in general’; see van der Klaauw et al, 2008)

- **Investigate why answers are closer to the official inflation rate in some countries than in others**

- **Monitor inflation expectations in the medium term** (2 to 5 years ahead)