

Consumers' quantitative inflation perceptions and expectations in the euro area: an evaluation^(*)

**Gianluigi Ferrucci (ECB), Olivier Biau (EC),
Heinz Dieden (ECB), Roberta Friz (EC), Staffan Linden (EC)**

**Conference on Consumer Inflation Expectations
Federal Reserve Bank of New York, 18-19 November**

^(*) 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**

Outline

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):

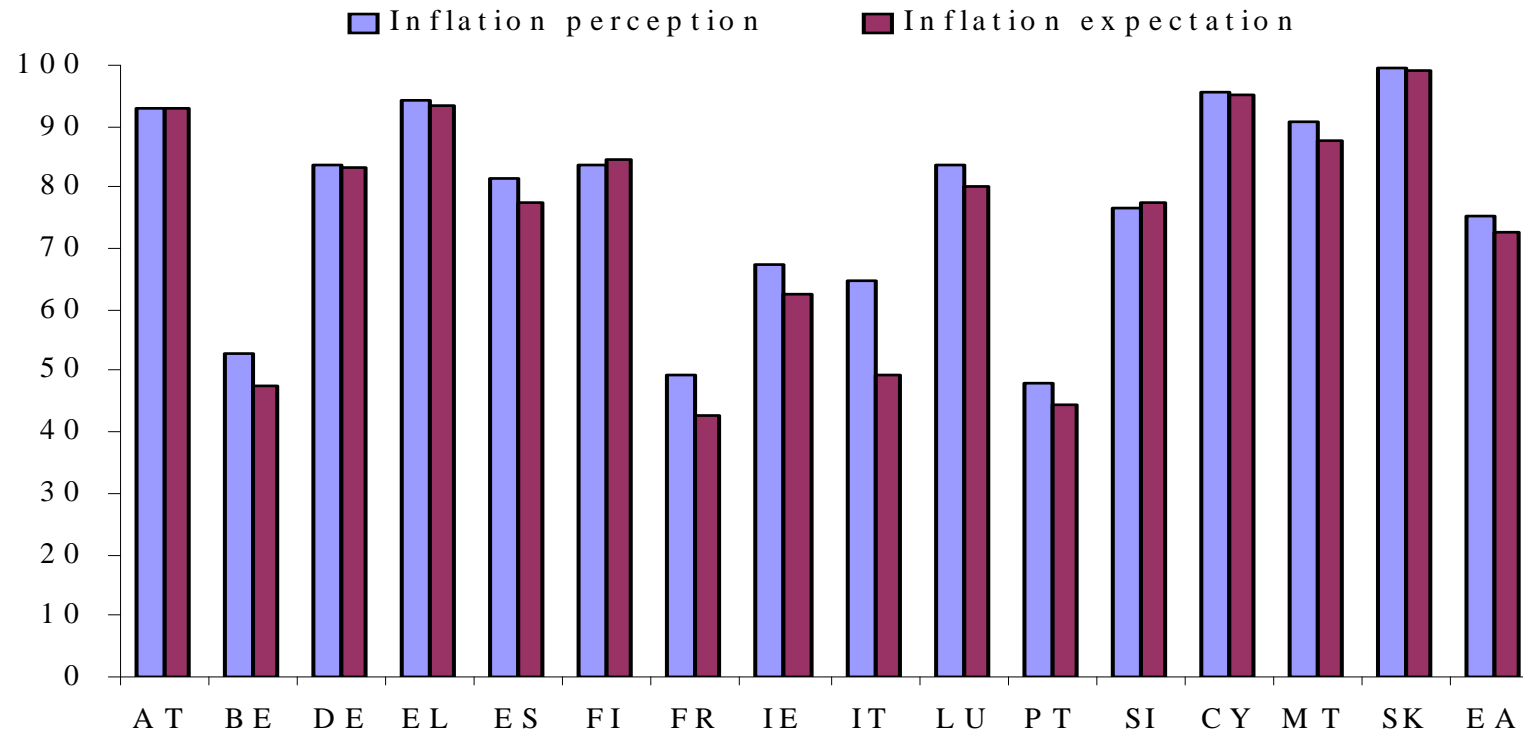
- **By how many percent do you think that consumer prices have gone up/down over the past 12 months? They have increased by ...% / decreased by ...%.**
- **By how many percent do you expect consumer prices to go up/down in the next 12 months? They will increase by ...% / decrease by ...%.**

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 rates to quantitative questions

(percent)



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.

- Response rate of around 75% for the euro area
- But rather diverse picture cross countries

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%

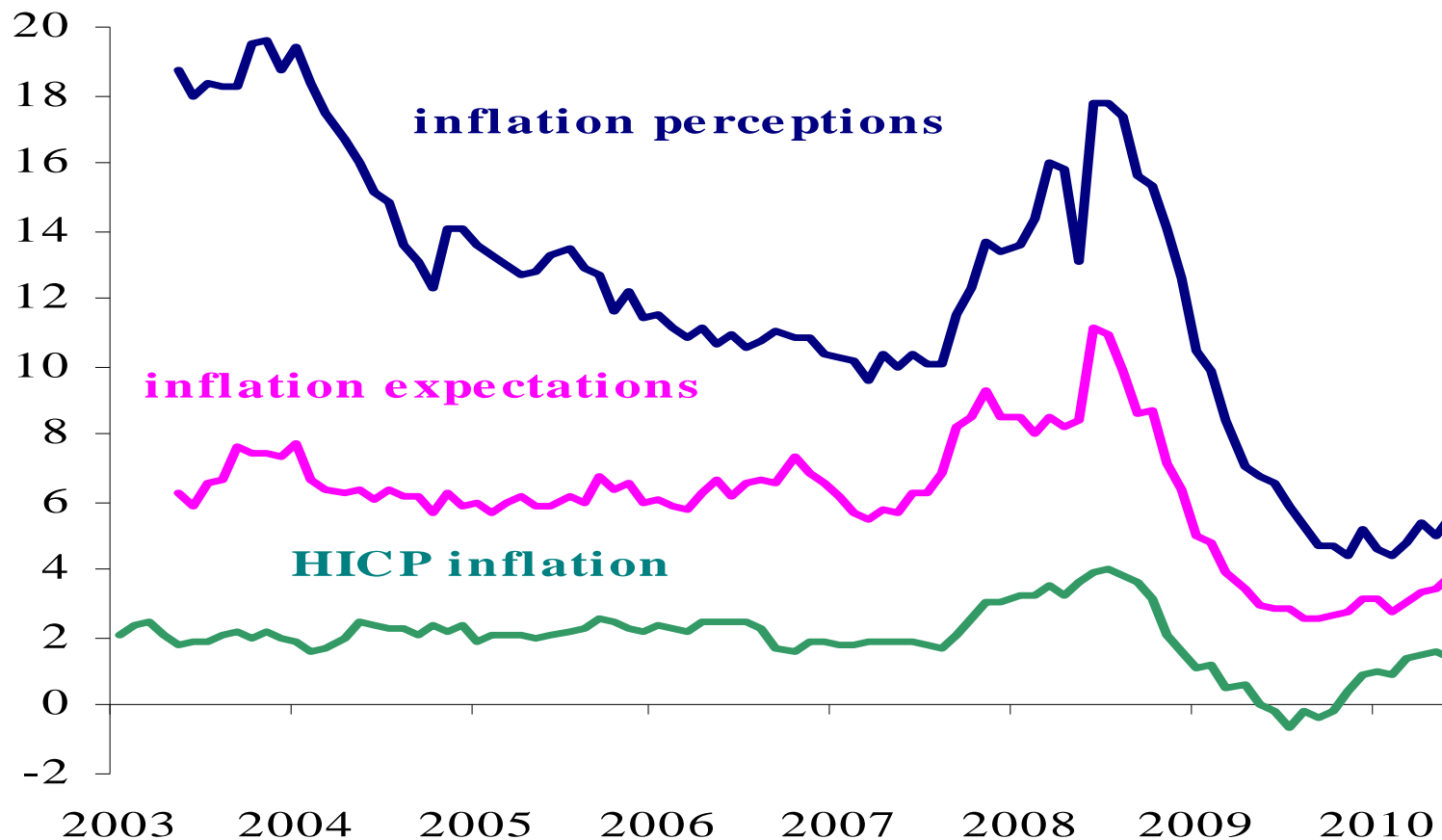
HICP total: 2.0%

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

Euro area	EC consumer survey	+4.4pp
US	Michigan Survey	+0.6pp
UK	BoE/NOP	+0.7pp
UK	YouGov/Citigroup	+0.7pp

Inflation estimates across euro area countries

	Inflation perceptions	Inflation expectations	Actual inflation
Austria	10.6	6.5	1.9
Belgium	8.6	4.0	2.1
Germany	8.0	5.5	1.7
Greece	18.5	14.4	3.1
Spain	16.8	11.4	2.7
Finland	3.6	2.9	1.5
France	7.7	3.6	1.8
Ireland	8.8	7.4	1.6
Italy	18.3	5.2	2.1
Luxembourg	7.9	4.8	2.8
Portugal	7.1	6.1	1.9
Slovenia	11.5	8.0	3.1
Cyprus	16.1	12.9	2.2
Malta	9.1	9.2	2.4
Slovakia	10.2	10.4	3.3
<i>Memo: euro area</i>	<i>11.9</i>	<i>6.4</i>	<i>2.0</i>

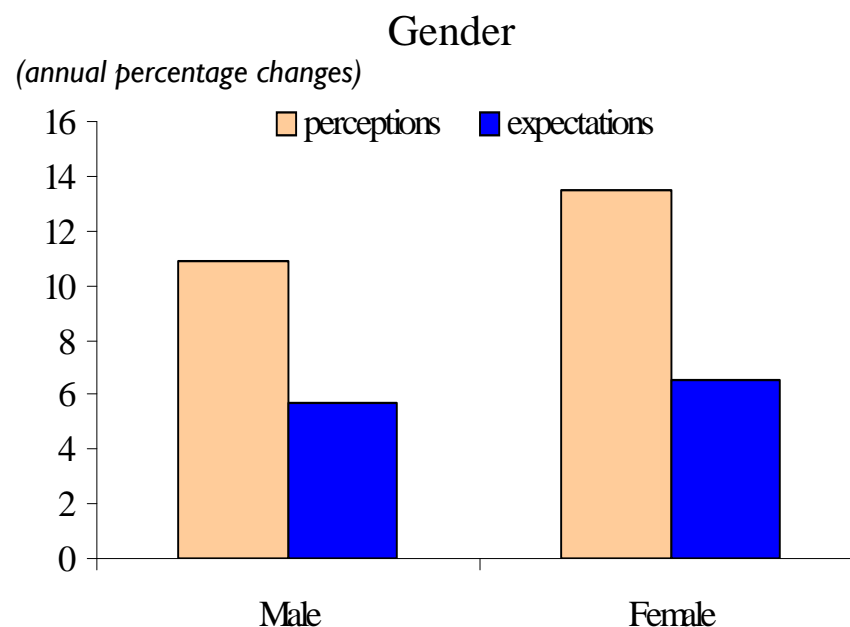
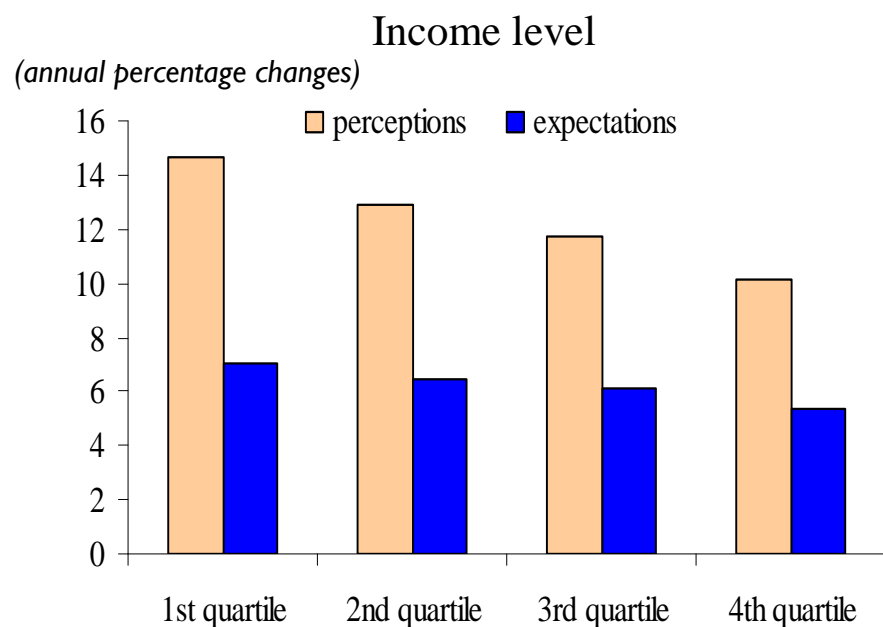
Source: European Commission.

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 (I)

Inflation estimates across socio-economic groups



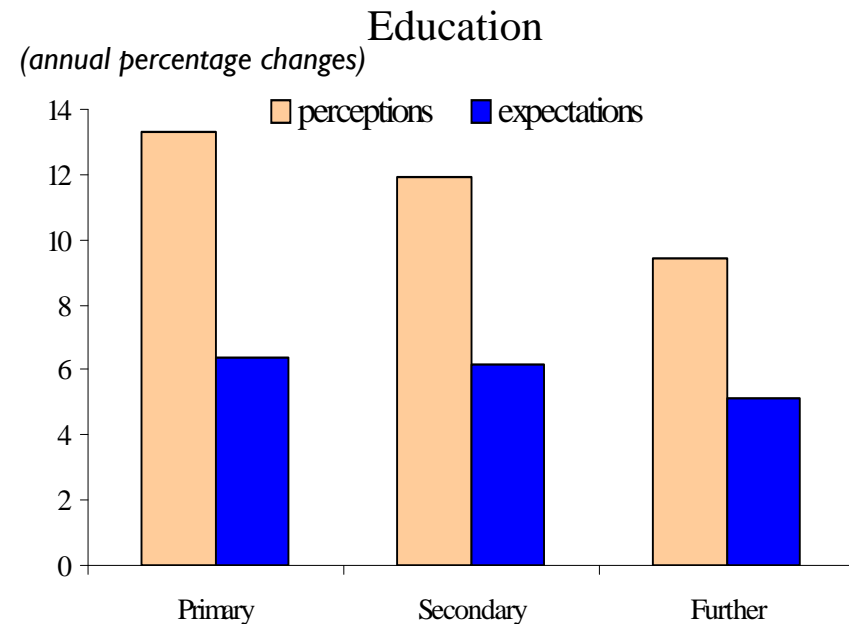
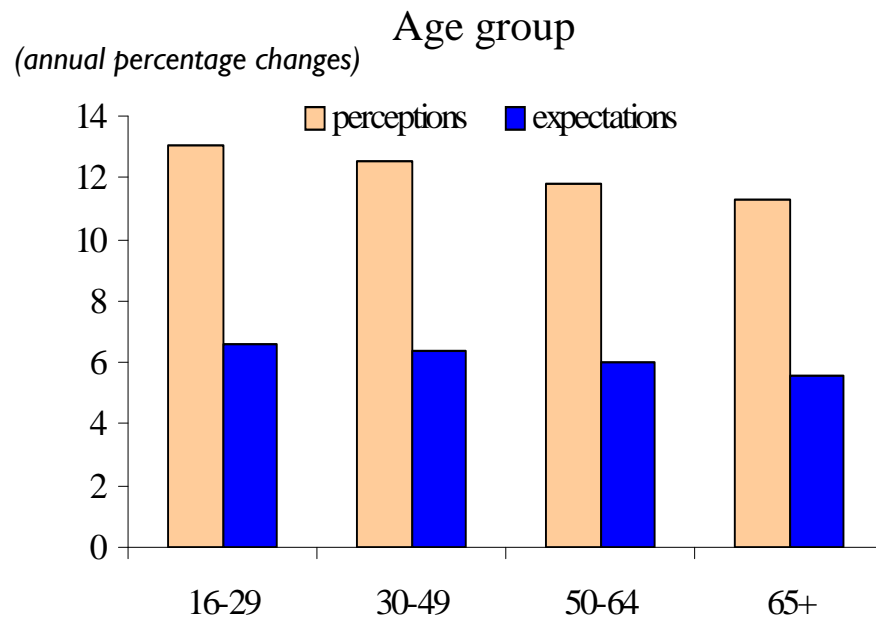
Source: European Commission.

Note: averages over May 2003 to June 2010.

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

Inflation assessment and demographics (2)

Inflation estimates across socio-economic groups



Source: European Commission.

Note: averages over May 2003 to June 2010.

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

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%**

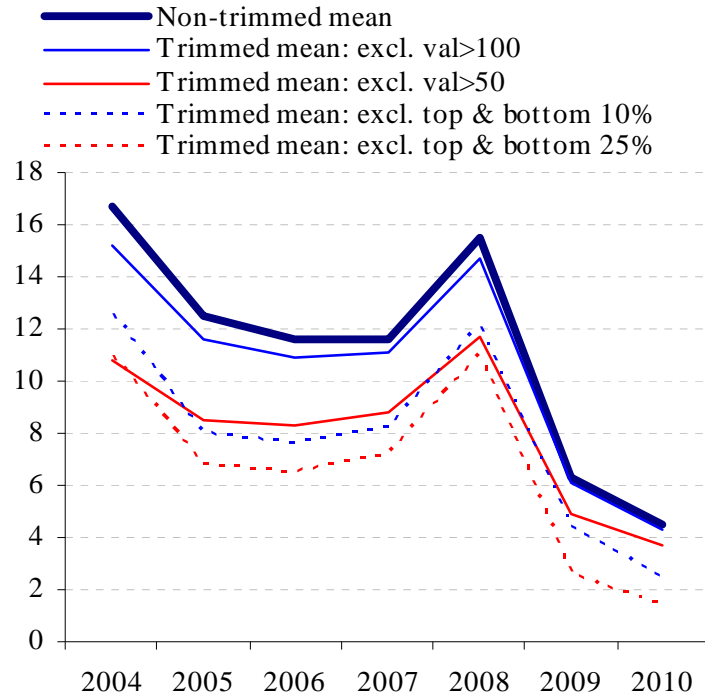
maximum expected rate of inflation: **800%**

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

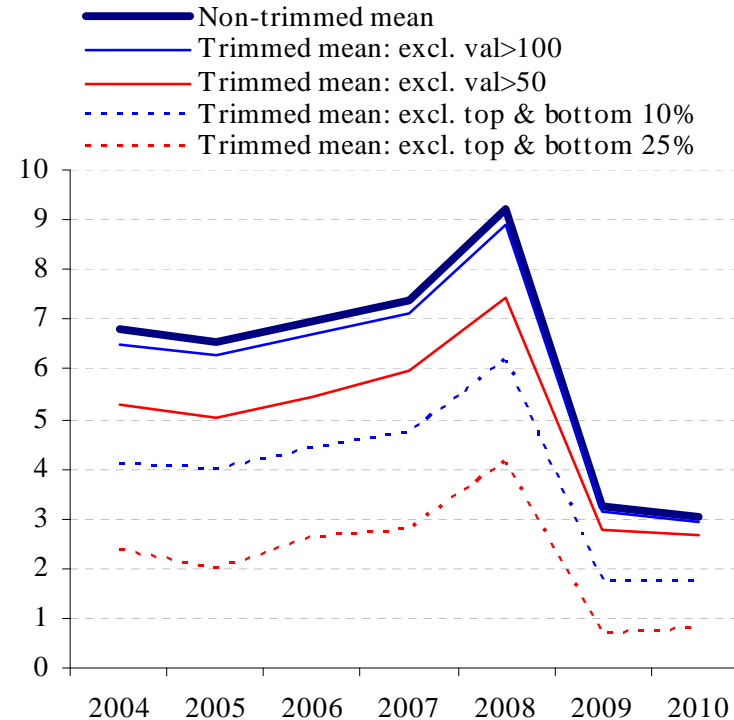
Digit preference e.g. **0%, 2%, 5%, 10%, 20%**

Trimmed measures of inflation sentiment

(a) Inflation perceptions



(b) Inflation expectations



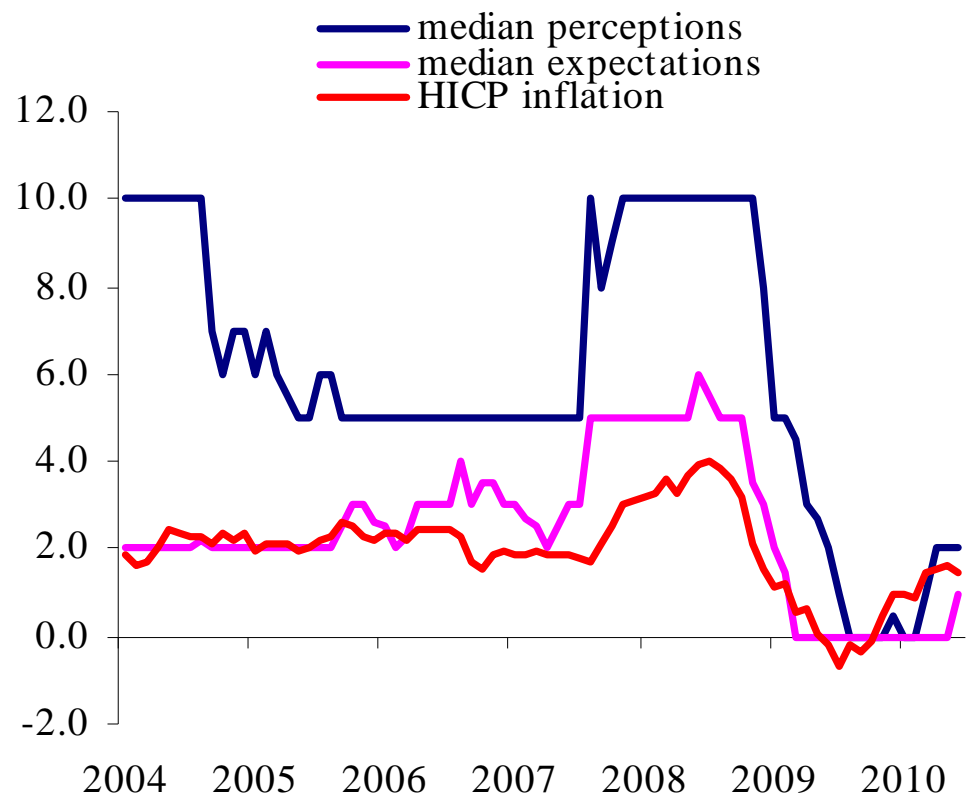
Source: European Commission.

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



Source: European Commission.

- **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**

Reasons for overestimation: data quality?

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

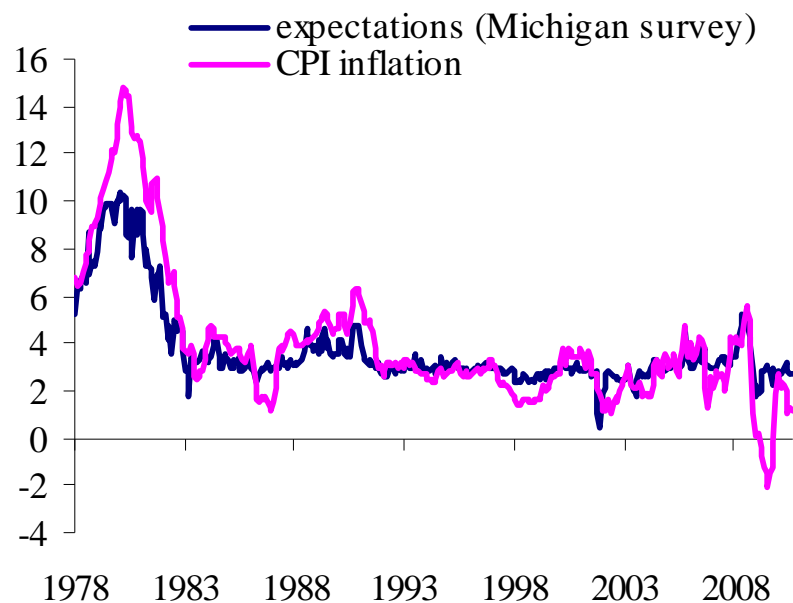
**BoE/NOP and YouGov/Citigroup surveys for the UK
provide brackets of responses**

Reasons for overestimation: survey design?

Open-ended, not probed questions may emphasise outliers

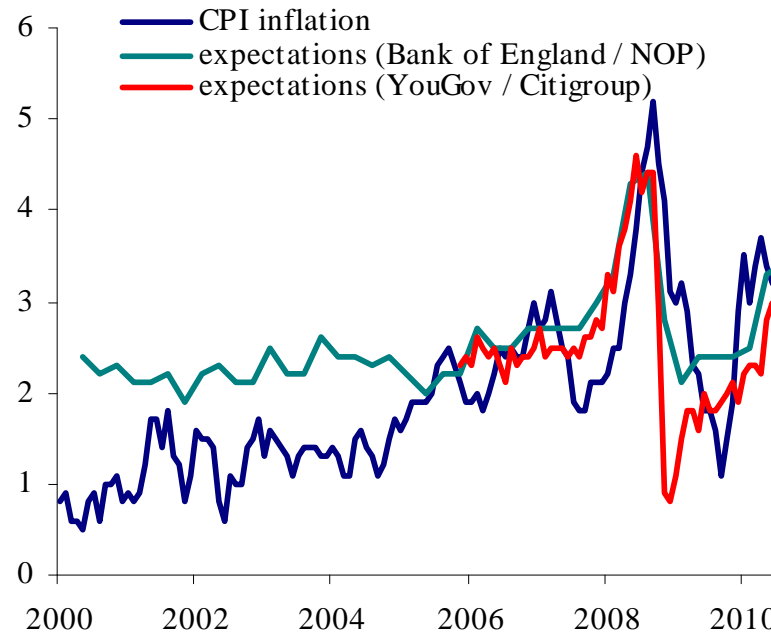
(annual percentage changes)

(a) United States



(annual percentage changes)

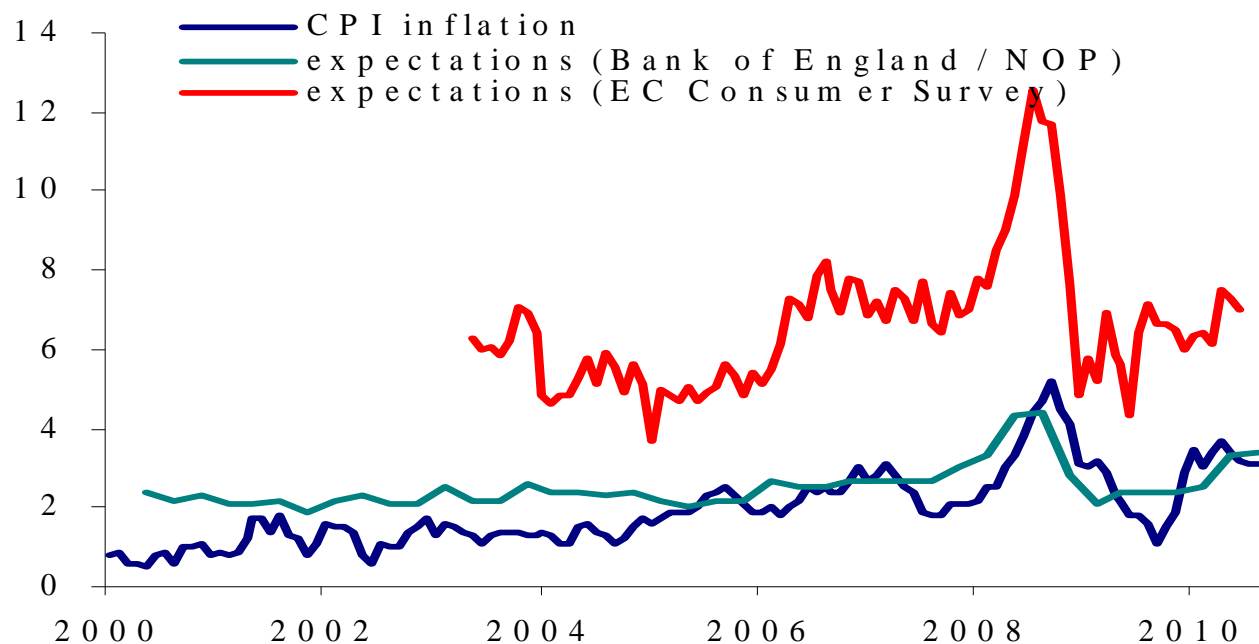
(b) United Kingdom



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



Sources: European Commission, BoE/NOP and ONS.

- **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**

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)**