IQ, Expectations, and Choice

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Large literature about transmission of monetary policy

Rationality and rational expectations are central components

Important questions
- Do people form rational expectations?
- How do people form macro expectations?
- Do they act on those expectations?
- Heterogeneity in expectation formation
Do People Act on Their Inflation Beliefs?

- Mixed evidence in the literature (partial list)
  
  - Yes:
    - Armantier et al. (2015) – US
    - D’Acunto et al. (2016) – Germany
    - Ichiue and Nishiguchi (2015) – Japan
    - Lieb, Schuffels (2015); Vellekoop, Wiederholt (2019) – Netherlands
    - Yadav and Shankar (2019) – India
  
  - No:
    - Bachmann et al. (2012) – US
    - Burke and Ozdagli (2013) – India
  
  - Maybe:
    - Rondinelli and Zizza (2019) – Italy
Current Paper

Explanation to why response may appear weak
- Heterogeneity: IQ is important

Main results
- Financial literacy/understanding increases with IQ
- High IQs act on inflation expectations

Conclusion:
- Only a subset of population forms a meaningful economic outlook
- Pushes us to think about limited cognition

Share authors’ view: Too much credit to individuals
Comment 1: Should We Trust Inflation Forecasts?

- Inflation range: -1% - +4%
Comment 1: Should We Trust Inflation Forecasts?

- Ranges:
  - Inflation: 0%-4%
  - Forecast errors:
    - High IQ: 2%-2.5%
    - Low IQ: 2.5%-4.5%

- Surprisingly high absolute forecast error ranges
Comment 1: Should We Trust Inflation Forecasts?

- Kalmi, Ruuskanen: Financial Literacy and Retirement Planning in Finland (2015)
- Suppose that you put €1000 into a savings account with a guaranteed interest rate of 1% per year. The inflation is 2% annually. You do not make any further payments into this account, and you do not withdraw any money. In one year’s time, will you be able to buy:
  - more than you can buy today
  - the same amount
  - less than you can buy today
  - N=1427

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct responses: entire sample (%)</th>
<th>Correct responses: 25-65 years old (%)</th>
<th>DK: entire sample (%)</th>
<th>DK: 25-65 years old (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk and return</td>
<td>88.9</td>
<td>90.4</td>
<td>5.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Inflation: definition</td>
<td>58.2</td>
<td>62.8</td>
<td>8.7</td>
<td>8.5</td>
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<tr>
<td>Mutual fund returns</td>
<td>58.2</td>
<td>63.0</td>
<td>19.5</td>
<td>18.4</td>
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<tr>
<td>Risk of stocks vs. bonds</td>
<td>60.2</td>
<td>63.0</td>
<td>30.1</td>
<td>28.6</td>
</tr>
<tr>
<td>Interest and bond prices</td>
<td>23.9</td>
<td>23.8</td>
<td>33.5</td>
<td>33.0</td>
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</tbody>
</table>
Comment 2: Information Content in “Forecasts”?

- When asked, people often predict the past
- Potentially recency / representativeness bias

- Source: Greenwood and Shleifer (2014)
Comment 2: Information Content in “Forecasts”?

- When asked, people predict the past
- Potentially recency / representativeness bias

![Graph showing relationship between 12-month past returns and average 12-month forecast. The equation y = 0.0287x + 5.8158 and R² = 0.1393 are provided.]

- Source: Ben-David, Graham, and Harvey (2013)
Comment 2: Information Content in “Forecasts”? 

<table>
<thead>
<tr>
<th></th>
<th>Only Wave 2 and Wave 1</th>
<th>All Waves</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High IQ</td>
<td>Low IQ</td>
</tr>
<tr>
<td>Past expectations</td>
<td>0.2620***</td>
<td>0.0258</td>
</tr>
<tr>
<td></td>
<td>(0.0347)</td>
<td>(0.0363)</td>
</tr>
</tbody>
</table>

- Demographics: X for High IQ, X for Low IQ
- Year-Month FE: X for High IQ, X for Low IQ
- Adj. R²: 0.1308, 0.0335, 0.0253, 0.0189
- Nobs: 633, 443, 1,082, 774

- Past realizations and expectations are important
- Issue: Small N obs
Comment 2: Information Content in “Forecasts”?

- To what extent are “forecasts” just “recitations” of past inflation stats?
- When asked about inflation, people just recite a number from memory?
- High IQ individuals may recall historical statistics?
- Is it a first-order statistic in Finland?
Comment 3: Do People Make Decisions Based on Inflation Expectations?

- My prior: In a low-information environment...
  - Inflation expectations are not an important determinant of most decisions
  - People think about inflation only when asked
  - Purchase decisions are driven by host of other factors (correlated with inflation):
    - Interest rates
    - Unemployment risk

- Department survey
  - Ran out of friends
Comment 3: Do People Make Decisions Based on Inflation Expectations?

- The wild 1980s
Comment 3: Do People Make Decisions Based on Inflation Expectations?

• Suppose asked: “What are the top 3 economic factors determining large purchases?”
  ➢ Is inflation a major factor?

• In low inflation environment: Does “acting on inflation expectations” captures something else?
Comment 3: Do People Make Decisions Based on Inflation Expectations?

- Inflation vs interest rate
- Interest rate expectations are correlated with inflation expectations and drive behavior?
Comment 3: Do People Make Decisions Based on Inflation Expectations?

- Inflation vs unemployment
- Unemployment concerns are correlated with inflation expectations and drive behavior?
Conclusion

• Limited cognition is an important factor to be taken in modelling response to monetary policy

• Based on fundamentals: Most people do not understand basic macroeconomic principles

• Open Q: People behave “as if” they understand?
  - Do personal forecasts/expectations really matter?
  - Who is the marginal agent? Individuals? Firms?
  - People are pushed by market prices (e.g., house prices, mortgages, employment opportunities)