Household Expectations and Dissent Among Policymakers

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Motivation

- Central bank communication is important to guide public expectations.
- This became even more relevant when many countries hit the effective lower bound.
- Central banks broadened their communication to also address ordinary households.
- One important piece of information is the vote in the decision making body of the central bank.
- In contrast to most central banks the ECB does not reveal voting results.

Motivation

- When asked by journalists, the ECB president only communicates a thin assessment of his or her reading of the Governing Council's (GovC) majority using codewords such as "consensus" or "overwhelming support".
- **Our research question:** What is the effect of the vote, i.e. dissent or unanimity, on households' inflation uncertainty?
- Theoretically, the effect is ambiguous:
  - Speaking with one voice, i.e. a unanimous decision, reduces uncertainty. Dissent, in contrast, would raise uncertainty.
  - Dissent could also signal that all arguments are heard by the GovC, which reduces uncertainty.

Contribution

- We study the effect of the vote in the ECB's Governing Council (GovC) on inflation expectations of households.
- We use a randomized controlled trial (RCT) design, which mimics the information provision during ECB press conferences.
- The RCT is implemented using the Bundesbank Online Panel Households (BOP-HH).
- This allows us to derive the *causal* effect of the vote on the IQR or the standard deviation of individual distributions about future inflation.

Key Findings

1. **Information about the vote is informative**
   Households receiving information about the vote revise their first-stage inflation forecasts more strongly relative to the control group. Dissent is most informative.

2. **The effect depends on pre-treatment uncertainty**
   Information about either unanimity or dissent increase inflation uncertainty for the bottom 40% of households in the distribution of pre-treatment uncertainty.

3. **No significant difference between average effect of unanimity and dissent**
   The revelation of the fact that there is a vote in the GovC causes inflation uncertainty to increase, not the nature of the votes cast.

Literature

- RCTs and information provision experiments: Coibion, Georgarakos, Gorodnichenko, Kenny and Weber (2021), Coibion, Georgarakos, Gorodnichenko and Weber (2021), Coibion, Gorodnichenko and Weber (2021), Hoffmann et al. (2022) and many others.
- Central bank communication and inflation expectations: Lustenberger and Rossi (2020), Jain and Sutherland (2020), Lamla and Vinogradov (2019), Lewis et al. (2020), Kryvtsov and Petersen (2021), De Fiore et al. (2021), Rast (2021), Brouwer and de Haan (2021)
- Dissenting votes and cacophonous communication: Ehrmann and Fratzscher (2013), Tillmann (2021), Tillmann and Walter (2022)

Dissent in the ECB's GovC

- The Fed and the BoE publish their voting results. The ECB remains opaque.
- The public can only learn about the vote from information given to the press in the Q&A part of the press conference.
- Journalists often ask whether the decision was unanimous. The president then does not reveal the name of the dissenters, nor the direction.
  - July 06, 2006:
    Trichet: "Yes, very much."
  - September 06, 2012:
    Draghi: "Well it was not unanimous. There was one dissenting view. We do not disclose the details of our work. It is up to you to guess."
  - February 05, 2009:
    Trichet: "We were unanimous in taking our decision, which does not mean that we all have the same view."

The Survey

- We contributed two questions to wave 19 (July 2021) of the Bundesbank Online Panel - Households (BOP-HH).
- The RCT is conducted in two stages
  1. Pre-treatment stage: households are prompted to submit their minimum and maximum inflation expectation.
  2. Treatment stage: participants are randomly assigned to four groups.
- 2927 participants completed the survey.
- Survey participants also provide socio-demographic information about gender, age, household income, their employment status, the years of schooling and much more.

Design of the RCT - Pre-treatment Stage

- We provide the following information:

> Assume that the ECB is aiming
> for an annual inflation rate of 2% over the medium term.
> Please also assume that the inflation rate is 1% in 2021. The ECB
> Governing Council decides to keep the policy rate at 0%

- Participants could acquire additional information about the GovC and the policy rate.

- We ask them about their min and max inflation expectations over the next one to two years.

Design of the RCT - Treatment Stage

- We randomly assign each participant to one of four groups:
  - $T = 1$ (*control*): Received no additional information.
  - $T = 2$ (*una*): The ECB President informs the media that this was a unanimous decision.
  - $T = 3$ (*dis*): The ECB President informs the media that this was a majority decision, i.e. there were dissenting votes.
  - $T = 4$ (*unadis*): The ECB President informs the media that this was a unanimous decision despite different opinions.
- Participants should allocate probabilities that the inflation rate over the next one to two years may fall in a set of bins.

Individual Distributions

- Pre-treatment stage:
  - We fit a symmetric triangular distribution to the individual answers.
  - We allow for skewed distributions.
- Treatment stage:
  - As in Engelberg et al. (2009) we fit triangular distributions to histograms when the respondent fills one or two bins and a generalized β distribution when the respondent fills three or more bins.
- We concentrate on the forecaster-specific interquartile range and standard deviation as measures of forecast uncertainty.

Empirical Model

- We follow the literature (e.g. Coibion et al., 2021) and run:

$$x_i^{post} = c + \alpha x_i^{pre} + \sum_{T=2}^{4} \beta_T I_i^{(T)} + \sum_{T=2}^{4} \gamma_T \left(I_i^{(T)} \times x_i^{pre} \right) + \omega_i$$

  - x_i^{post} is the expectation after receiving the treatment and x_i^{pre} denotes expectations before the treatment.
  - I_i^T is an indicator variable equal to one if respondent i received treatment T.
  - The control group is the omitted category, so that coefficients γ and β can be interpreted relative to the control group.

Empirical Model

- We follow the literature (e.g. Coibion et al., 2021) and run:

$$x_i^{post} = c + \alpha x_i^{pre} + \sum_{T=2}^{4} \beta_T I_i^{(T)} + \sum_{T=2}^{4} \gamma_T \left(I_i^{(T)} \times x_i^{pre} \right) + \omega_i$$

  - α can be interpreted as the weight the control group attaches to prior information and should be close to one.
  - γ_T should be more negative for more informative treatments. The "level effects" β_T can be positive or negative.

Empirical Model

- We follow the literature (e.g. Coibion et al., 2021) and run:

$$x_i^{post} = c + \alpha x_i^{pre} + \sum_{T=2}^{4} \beta_T I_i^{(T)} + \sum_{T=2}^{4} \gamma_T \left(I_i^{(T)} \times x_i^{pre} \right) + \omega_i$$

  - The treatment effect on uncertainty is positive if $\beta_T + \gamma_T x_i^{\text{pre}} > 0$.
  - With $\gamma_T < 0$, this implies a critical level of $x_{i,crit,T}^{\text{pre}} < -\frac{\beta_T}{\gamma_T}$.
  - We report the share of respondents with prior uncertainty below that critical value.

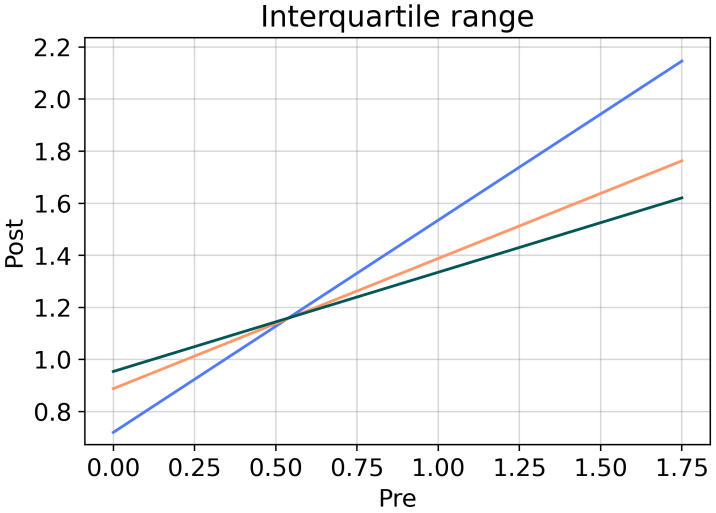
Results: Interquartile range

	I	II	III	IV
α	0.812 [0.033***]	0.831 [0.033***]	0.815 [0.033***]	0.828 [0.032***]
β_{una}	0.163 [0.049***]	0.193 [0.049***]	0.168 [0.050***]	0.195 [0.048***]
β_{dis}	0.216 [0.052***]	0.240 [0.052***]	0.234 [0.054***]	0.265 [0.050***]
β_{unadis}	−0.146 [0.050***]	−0.049 [0.050]	−0.082 [0.054]	−0.023 [0.050]
γ_{una}	−0.309 [0.042***]	−0.384 [0.041***]	−0.315 [0.048***]	−0.388 [0.041***]
γ_{dis}	−0.401 [0.049***]	−0.452 [0.048***]	−0.407 [0.049***]	−0.492 [0.048***]
γ_{unadis}	0.296 [0.045***]	0.141 [0.044***]	0.291 [0.052***]	0.104 [0.046]
Controls		✓		✓
below critical value (*una*)	42.04%	41.89%	39.94%	41.89%
below critical value (*dis*)	40.87%	40.87%	38.18%	40.87%
# obs.	2,520	2,518	2,388	2,391

Results: Standard deviation

	I	II	III	IV
α	0.789 [0.033***]	0.814 [0.033***]	0.795 [0.033***]	0.825 [0.032***]
β_{una}	−0.002 [0.035]	0.135 [0.035***]	0.114 [0.034***]	0.142 [0.037***]
β_{dis}	0.122 [0.036***]	0.156 [0.036***]	0.150 [0.038***]	0.184 [0.035***]
β_{unadis}	−0.044 [0.035]	−0.013 [0.035]	−0.036 [0.038]	−0.001 [0.035]
γ_{una}	0.014 [0.042]	−0.381 [0.041]	−0.312 [0.045***]	−0.403 [0.041***]
γ_{dis}	−0.320 [0.049***]	−0.428 [0.049***]	−0.390 [0.056***]	−0.487 [0.048***]
γ_{unadis}	0.127 [0.045***]	0.072 [0.044]	0.115 [0.058**]	0.049 [0.046]
Controls		✓		✓
below critical value (*una*)	42.04%	41.70%	39.94%	41.70%
below critical value (*dis*)	40.87%	39.07%	38.18%	39.07%
# obs.	2,520	2,518	2,388	2,391

Results: The effects of the treatments on inflation uncertainty



Robustness

- We now allow for a skewed distribution in the pre-treatment stage:
  1. We assume the individual prior distributions in our pre-treatment stage to have the same skewness as the distributions in (routine) question CM004.
     - Advantage: the design of the answer categories is identical to our survey question
     - Disadvantage: the verbal framing of the question differs slightly from our question.
  2. We assume the prior distribution between the minimum and maximum to have the average skewness of the control group.
     - Advantage: consistency. We use the skewness based on exactly the same survey design.
     - Disadvantage: we rely on average skewness rather than the skewness of the individual distribution.

Robustness: Interquartile range with skewness from question CM004

	I	II	III	IV
α	0.628 [0.040***]	0.809 [0.030***]	0.788 [0.031***]	0.811 [0.030***]
β_{una}	0.079 [0.054]	0.192 [0.050***]	0.167 [0.050***]	0.192 [0.048***]
β_{dis}	0.163 [0.057***]	0.268 [0.049***]	0.264 [0.048***]	0.294 [0.048***]
β_{unadis}	−0.133 [0.056**]	0.008 [0.050]	−0.037 [0.050]	0.031 [0.049]
γ_{una}	−0.144 [0.051***]	−0.368 [0.039***]	−0.308 [0.045***]	−0.370 [0.039***]
γ_{dis}	−0.294 [0.059***]	−0.490 [0.040***]	−0.477 [0.041***]	−0.531 [0.040***]
γ_{unadis}	0.260 [0.057***]	0.034 [0.041]	0.094 [0.045**]	−0.001 [0.042]
controls		✓		✓
below critical value (*una*)	*n.a.*	41.32%	41.32%	41.32%
below critical value (*dis*)	39.19%	39.19%	39.19%	39.19%
# obs.	2,520	2,518	2,388	2,391

Robustness: Interquartile range with skewness from the control group

	I	II	III	IV
α	0.812 [0.033***]	0.831 [0.032***]	0.815 [0.033***]	0.830 [0.032***]
β_{una}	0.163 [0.049***]	0.193 [0.050***]	0.168 [0.050***]	0.195 [0.048***]
β_{dis}	0.216 [0.052***]	0.240 [0.052***]	0.234 [0.054***]	0.265 [0.050***]
β_{unadis}	−0.146 [0.056***]	−0.049 [0.050]	−0.082 [0.054]	−0.023 [0.050]
γ_{una}	−0.309 [0.042***]	−0.383 [0.041***]	−0.315 [0.048***]	−0.388 [0.041***]
γ_{dis}	−0.401 [0.049***]	−0.434 [0.056***]	−0.434 [0.056***]	−0.492 [0.048***]
γ_{unadis}	0.296 [0.045***]	0.141 [0.044]	0.184 [0.058**]	0.140 [0.047**]
controls		✓		✓
below critical value (*una*)	41.29%	41.29%	41.29%	41.29%
below critical value (*dis*)	38.92%	38.92%	38.92%	38.92%
# obs.	2,520	2,518	2,388	2,391

Conclusions

- We studied the impact of information about the vote in the GovC on households inflation expectations.
- Key findings:
  1. The vote is very informative for households. They revise their distribution of inflation upon receiving information about the vote.
  2. The effect on uncertainty depends on pre-treatment uncertainty.
  3. No significant difference between unanimity and dissent.
- The vote in the GovC is a significant determinant of inflation uncertainty, which could have real consequences.

Additional slides

Professional ECB watchers vs households

- Though households might not be as well informed about the details of monetary policy as experts, they are aware of rifts in the GovC.

- This is particularly true for households in Germany, where the disagreement between the president of the Bundesbank, who is a member of the GovC, and the ECB president was headline news for more than a decade:

  - *Der Spiegel*: "The rebellion of the Bundesbank".
  - *Süddeutsche Zeitung*: "Frosty" relationship between ECB president Trichet and Bundesbank president Weber.
  - *Hamburger Abendblatt*: "Showdown between Draghi and Weidmann?"
  - *BILD*: "Open dispute in the ECB council".
  - *FAZ*: "Dispute is getting worse: ECB suspects 'euro foes' in the Bundesbank"

Survey design: Pre-Treatment stage

P1908 | 2021_019 | Inflation expectations [min, max] | inflexp1_[a-b]

Respondent group: all
Range of valid values: -100.0 to +100.0
Info box "ECB Governing Council": The Governing Council of the ECB is the institution's main decision-making body. It consists of the six members of the ECB's Executive Board as well as the governors of the national central banks of the 19 euro area Member States.
Info box "Policy rate": The policy rate is the rate of interest at which commercial banks can borrow money from the central bank or deposit it there. In the euro area, the European Central Bank (ECB) is responsible for setting the policy rate, by means of which it can steer economic conditions, inflation and the exchange rate, amongst other things.

The following questions ask again about your inflation expectations given different scenarios.

Assume that the European Central Bank (ECB) is aiming for an annual inflation rate of 2% over the medium term. Please also assume that the inflation rate is 1% in 2021. The ECB Governing Council (i) decides to keep the policy rate (i) at 0%.

Question: In your opinion, how high will the inflation rate be at least over the next one to two years? And at most?

Note: If you assume there will be deflation, please enter a negative value. Values may have one decimal place.

a At least `Input field` [percent]
b At most `Input field` [percent]

Survey design: Treatment unanimous decision

P1909B | 2021_019 | Inflation expectations probabilistic – POST | inflexp_post_[a-j]

Respondent group: all

Input filter: drandom3 = 2

Info box "ECB Governing Council": The Governing Council of the ECB is the institution's main decision-making body. It consists of the six members of the ECB's Executive Board as well as the governors of the national central banks of the 19 euro area Member States.

Info box "Policy rate": The policy rate is the rate of interest at which commercial banks can borrow money from the central bank or deposit it there. In the euro area, the European Central Bank (ECB) is responsible for setting the policy rate, by means of which it can steer economic conditions, inflation and the exchange rate, amongst other things.

Continue to assume that the ECB is aiming for an annual inflation rate of 2% over the medium term. Please also assume that the inflation rate is 1% in 2021. The ECB Governing Council (i) decides to keep the policy rate (i) at 0%. The ECB President informs the media that this was a unanimous decision.

QUESTION: In your opinion, how likely is it that the rate of inflation will change as follows over the next one to two years?

Note: The aim of this question is to determine how likely you think it is that something specific will happen in the future. You can rate the likelihood on a scale from 0 to 100, with 0 meaning that an event is completely unlikely and 100 meaning that you are absolutely certain it will happen. Use values between the two extremes to moderate the strength of your opinion. Please note that your answers to the categories have to add up to 100.

a The rate of deflation (opposite of inflation) will be 12% or higher.
b The rate of deflation (opposite of inflation) will be between 8% and 12%.
c The rate of deflation (opposite of inflation) will be between 4% and 8%.
d The rate of deflation (opposite of inflation) will be between 2% and 4%.
e The rate of deflation (opposite of inflation) will be between 0% and 2%.
f The rate of inflation will be between 0% and 2%.
g The rate of inflation will be between 2% and 4%.
h The rate of inflation will be between 4% and 8%.
i The rate of inflation will be between 8% and 12%.
j The rate of inflation will be 12% or higher.

How we deal with outliers

- In each table, we report our results for two alternative corrections of outliers:

  1. We drop responses that put 100% probability on either of the outer bins in the treatment stage, i.e. more than 12% inflation or deflation, and responses of inflation or deflation of more than 100% in the pre-treatment stage.

  2. We additionally exclude respondents whose change in the interquartile range between the pre-treatment and the treatment stage is larger than the 95th percentile of all changes.

- The first (second) outlier correction leaves us with 2,520 (2,338) respondents.

Results: Mean expectations

	I	II	III	IV
α	0.642	0.638	0.726	0.723
	[0.017***]	[0.017***]	[0.017***]	[0.017***]
β_{una}	−0.083	−0.069	−0.041	0.002
	[0.094]	[0.094]	[0.093]	[0.094**]
β_{dis}	−0.480	−0.446	−0.272	−0.230
	[0.089***]	[0.092***]	[0.010***]	[0.102***]
β_{unadis}	0.116	0.125	0.001	0.003
	[0.091]	[0.099]	[0.090]	[0.100]
γ_{una}	0.033	0.030	0.014	−0.001
	[0.022]	[0.021*]	[0.023]	[0.023***]
γ_{dis}	0.166	0.156	0.084	0.071
	[0.020***]	[0.020***]	[0.024***]	[0.022***]
γ_{unadis}	−0.012	−0.016	0.019	0.015
	[0.021]	[0.021]	[0.023]	[0.019**]
controls		✓		✓
# obs.	2,520	2,518	2,388	2,391

Robustness: Standard deviation with skewness from question CM004

	I	II	III	IV
α	0.787 [0.033***]	0.811 [0.032***]	0.793 [0.033***]	0.822 [0.032***]
β_{una}	−0.001 [0.035]	0.136 [0.035***]	0.114 [0.034***]	0.144 [0.033***]
β_{dis}	0.130 [0.037***]	0.167 [0.036***]	0.159 [0.038***]	0.189 [0.035***]
β_{unadis}	−0.040 [0.035]	−0.008 [0.035]	−0.031 [0.054]	−0.003 [0.034]
γ_{una}	0.101 [0.042]	−0.379 [0.041***]	−0.311 [0.044***]	−0.399 [0.041***]
γ_{dis}	−0.341 [0.047***]	−0.444 [0.046***]	−0.417 [0.044***]	−0.499 [0.046***]
γ_{unadis}	0.114 [0.044**]	0.060 [0.044*]	0.102 [0.056*]	0.003 [0.035]
controls		✓		✓
below critical value (*una*)	41.70%	41.70%	41.70%	41.70%
below critical value (*dis*)	39.82%	39.87%	39.18%	39.82%
# obs.	2,520	2,518	2,388	2,391

Robustness: Standard deviation with skewness from the control group

	I	II	III	IV
α	0.789 [0.033***]	0.813 [0.033***]	0.795 [0.033***]	0.825 [0.033***]
β_{una}	−0.002 [0.035]	0.135 [0.035***]	0.114 [0.034***]	0.142 [0.034***]
β_{dis}	0.122 [0.036***]	0.159 [0.036***]	0.149 [0.038***]	0.184 [0.035***]
β_{unadis}	−0.044 [0.035]	−0.013 [0.035]	−0.036 [0.038]	−0.000 [0.035]
γ_{una}	0.139 [0.042]	−0.381 [0.041]	−0.312 [0.045***]	−0.403 [0.041***]
γ_{dis}	−0.320 [0.049***]	−0.428 [0.048***]	−0.391 [0.056***]	−0.487 [0.048***]
γ_{unadis}	0.127 [0.045**]	0.072 [0.044*]	0.115 [0.058*]	0.049 [0.047]
controls		✓		✓
below critical value (*una*)	41.70%	41.70%	41.70%	41.70%
below critical value (*dis*)	39.97%	39.97%	39.97%	39.97%
# obs.	2,520	2,518	2,388	2,391