

Different Newspapers – Different Expectations

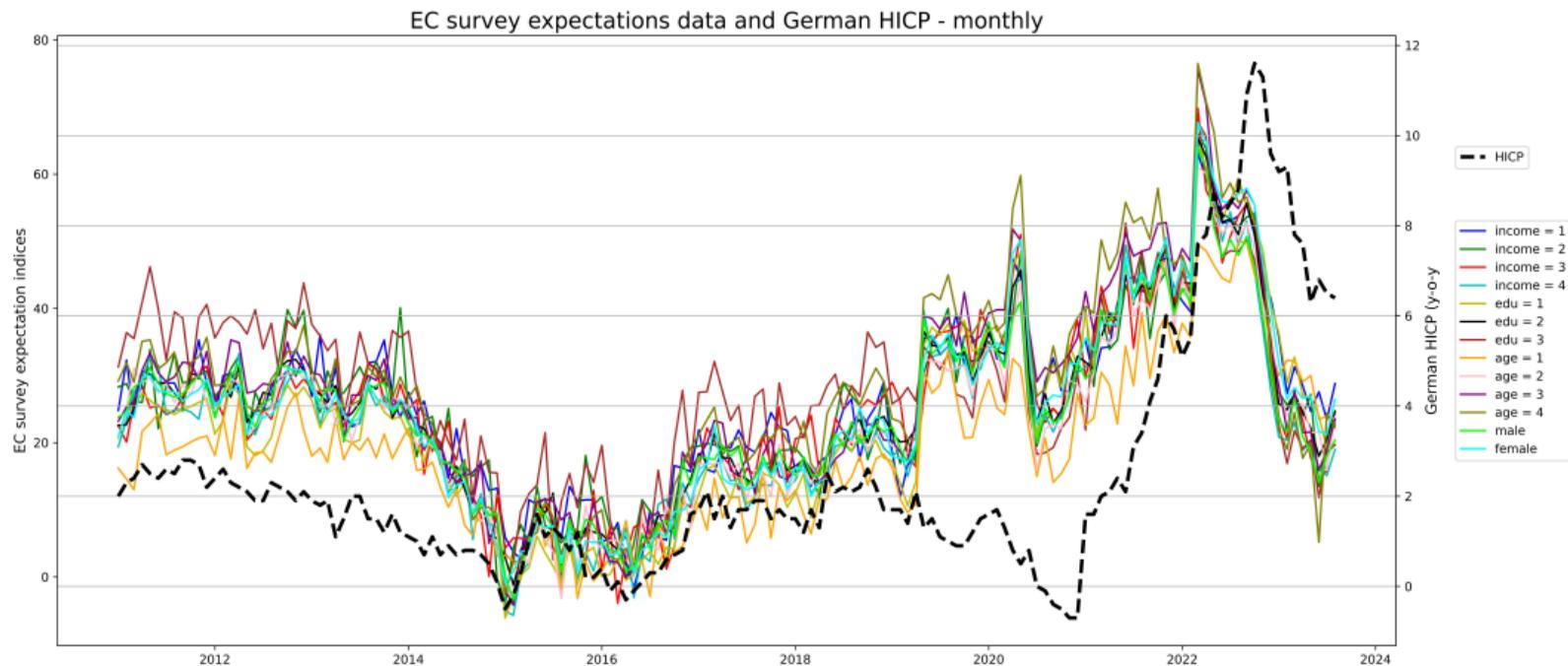
Sarah Arndt



UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386

May 2024 - 1st NEAR Conference on Narrative Economics

Do newspapers drive heterogeneous household expectations?



So far: focus on aggregated expectations & media sources

Inflation expectations with Twitter data

Born et al. (2023)

Angelico et al.
(2022)

Sentiment measurement with news

Shapiro et al.
(2022)

Picault et al.(2022)

Ellingsen et al.
(2022)

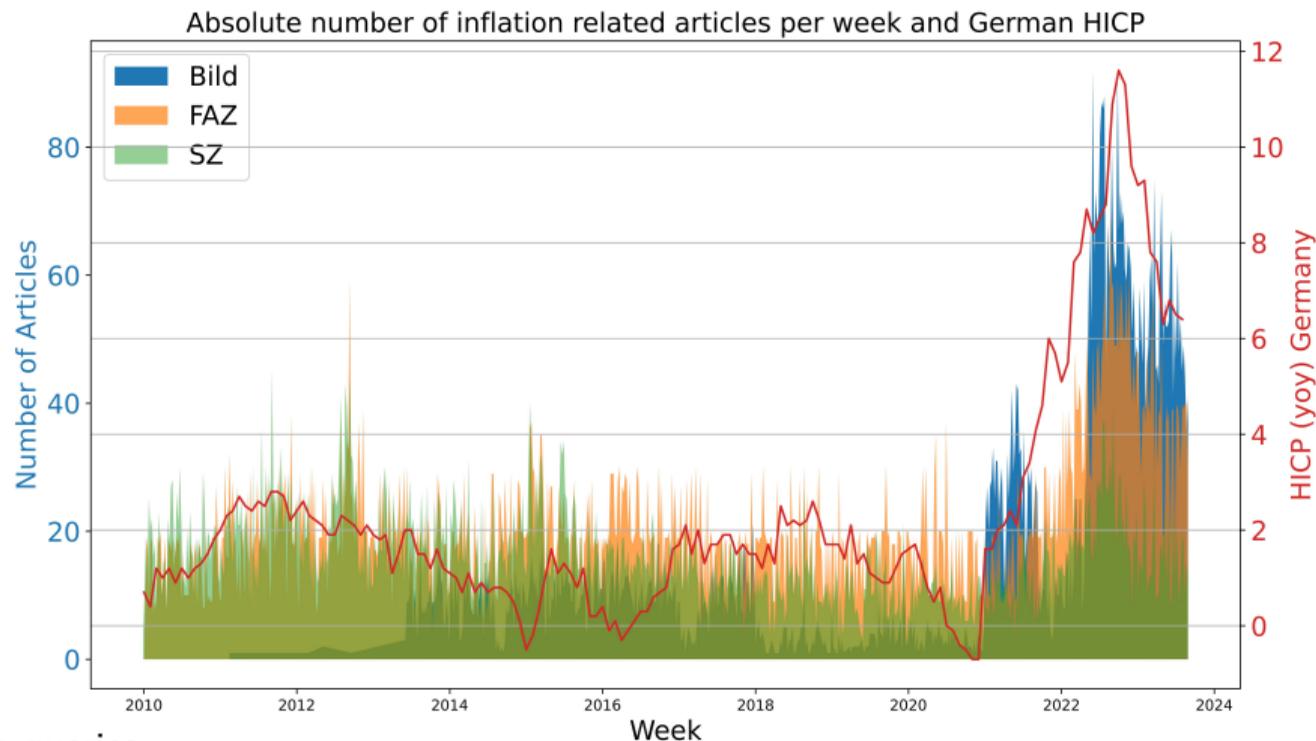
Survey expectations

D'Acunto et al.
(2023)

Weber et al.
(2023)

Andre et al. (2023)

Web-scraping around 45,000 newspaper articles



→ search queries

Measuring article-level sentiments with ChatGPT

System: You are an AI that rates inflation sentiment from 1 to 10. You can only respond with a number between 1 and 10.

User: Provide a sentiment score for inflation in this article on a scale of 1 to 10, where 1 means inflation is likely to decrease, and 10 means inflation is likely to increase. If the article does not address inflation in Germany or the EU, respond with the word 'no': “%title” + “%article”

ChatGPT is well suited for understanding Bild language

German Headline	Translation	Date
Madame Inflation; Luxus-Lagarde macht Sparer und Rentner arm	Madame Inflation; Luxury Lagarde impoverishes savers and retirees	10/30/2021
Nach dem Teuer-Schock ; So einfach schützen Sie Ihr Geld vor Madame Inflation!	After the expensiveness-shock : How to protect your money from Madame inflation!	11/18/2021
Zins-Hammer! EZB erhöht auf 1,25 Prozent	Interest rate hammer! ECB increases to 1.25 percent	09/08/2022

In the context of the euro zone, "**Madame Inflation**" could potentially refer to Christine Lagarde, the current President of the European Central Bank (ECB).

The tone of "**Luxus-Lagarde**" in this context is likely critical, implying a disapproval of Lagarde's perceived lifestyle in connection with the economic challenges faced by savers.

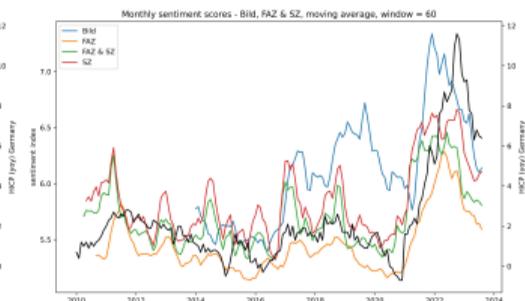
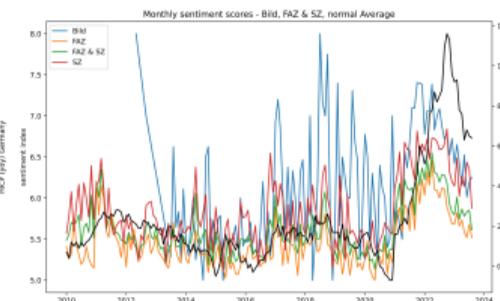
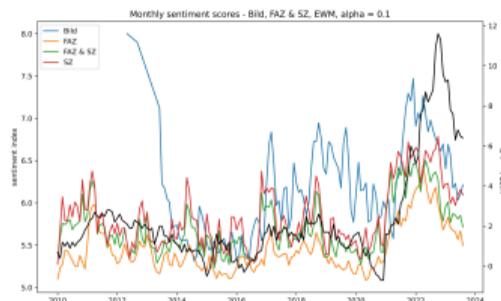
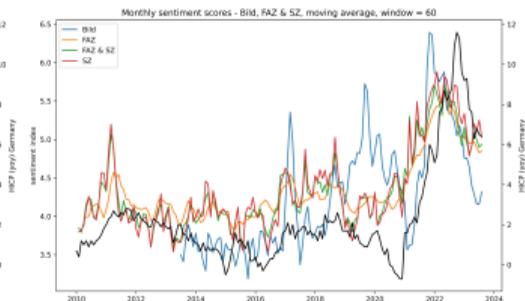
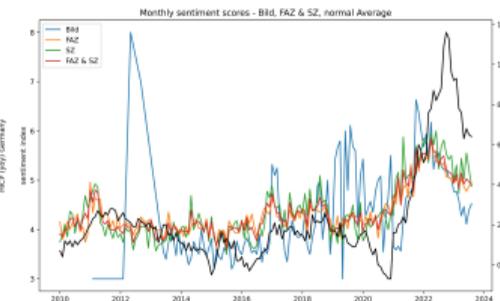
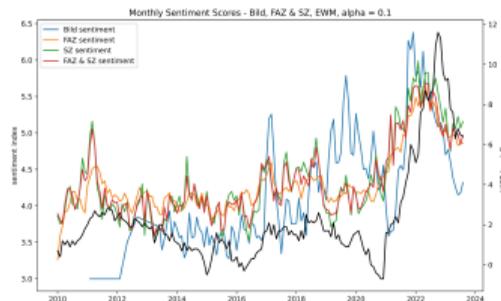
The term "**Zins-Hammer**" is a metaphorical expression. It combines "Zins" (interest rate) with "Hammer," suggesting a forceful and impactful event related to interest rates.

Different ways of aggregation

EWM

Mean

MA 60



Assessing informativeness with two forecasting exercises

Benchmark: AR(p) based on survey sub-category data

Test against: augment benchmark with news indices

in-sample: 2016 M12

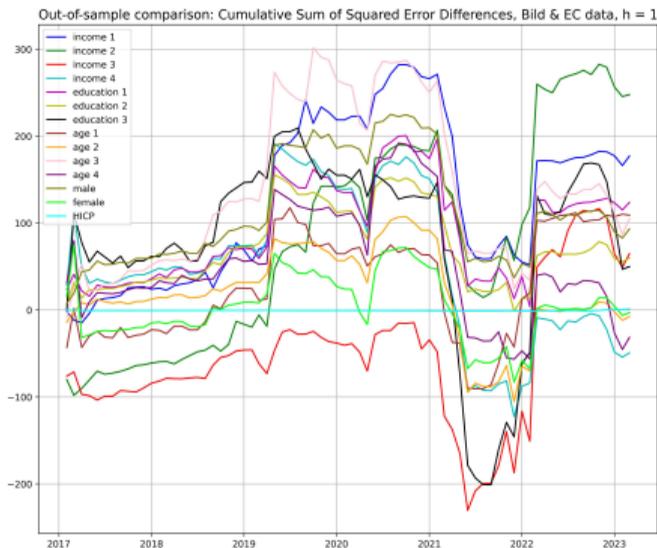
$$CSSED_{m,t} = \sum_{t=1}^T (\hat{e}_{bm,t}^2 - \hat{e}_{m,t}^2)$$

Bild achieves smaller RSME ratios

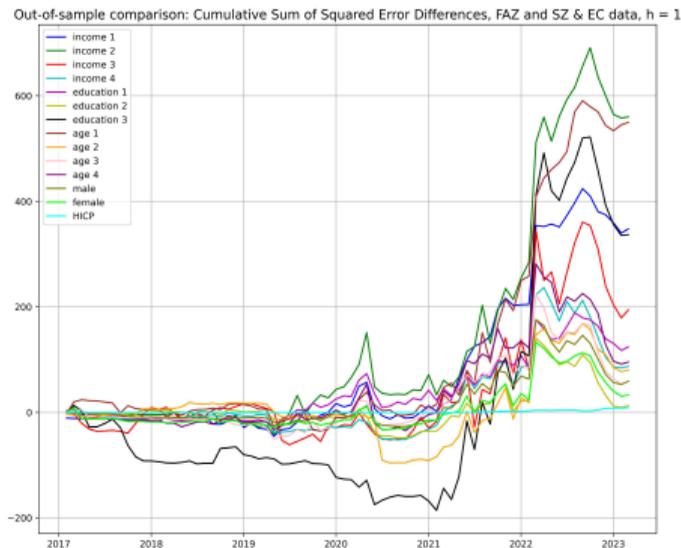
News	income 1	income 2	income 3	income 4	edu 1	edu 2	edu 3
Bild	0.99	0.99	1.01	1.03	1.00	1.00	1.02
	0.96*	0.97*	1.00	1.01	0.98	0.98	0.98
	0.94**	0.95**	0.98*	0.99	0.96*	0.97**	0.96**
	0.91***	0.92***	0.96**	0.97*	0.94**	0.95***	0.93***
	0.89***	0.89***	0.94***	0.95**	0.91***	0.93***	0.90***
	0.86***	0.86***	0.91***	0.92***	0.89***	0.91***	0.87***
FAZ & SZ	0.94**	0.92**	0.98	0.99	0.98	1.00	0.96
	0.95*	0.91**	0.95	0.98	0.98	0.99	0.93
	0.93**	0.91**	0.94*	0.99	0.98	0.99	0.92
	0.91**	0.91**	0.92*	1.00	0.98	0.99	0.91
	0.90**	0.90**	0.92**	1.00	0.97	0.99	0.90*
	0.90**	0.91**	0.91**	1.00	0.98	0.98	0.90*
	age 1	age 2	age 3	age 4	male	female	HICP
	1.00	1.02	1.00	1.02	1.00	1.01	0.99
	0.94***	0.99	0.99	1.00	0.98	0.99	0.98*
	0.91***	0.98	0.97	0.99	0.97*	0.97*	0.97**
	0.88***	0.96**	0.96**	0.99	0.97**	0.95**	0.95***
	0.85***	0.94***	0.94**	0.97**	0.95***	0.93***	0.94***
	0.83***	0.91***	0.92***	0.96***	0.93***	0.91***	0.93***
	0.90**	0.98	0.99	0.99	0.99	1.00	0.89**
	0.85***	0.96	1.00	1.00	0.99	0.99	0.84***
	0.83***	0.95	1.00	1.01	0.99	1.00	0.80***
	0.81***	0.95	1.01	1.01	0.99	0.99	0.75***
	0.79***	0.94	1.01	1.01	0.99	0.99	0.72***
	0.78***	0.94	1.01	1.01	0.99	0.98	0.70***

CSSED: Bild outperforms benchmark more effectively

Bild



FAZ & SZ



Measuring monetary policy shocks with local projections

$$y_{t+h} = \mu_h + \beta_h shock_t + \Delta_h \sum_{l=0}^n W_{t-l} + u_{t+h}.$$

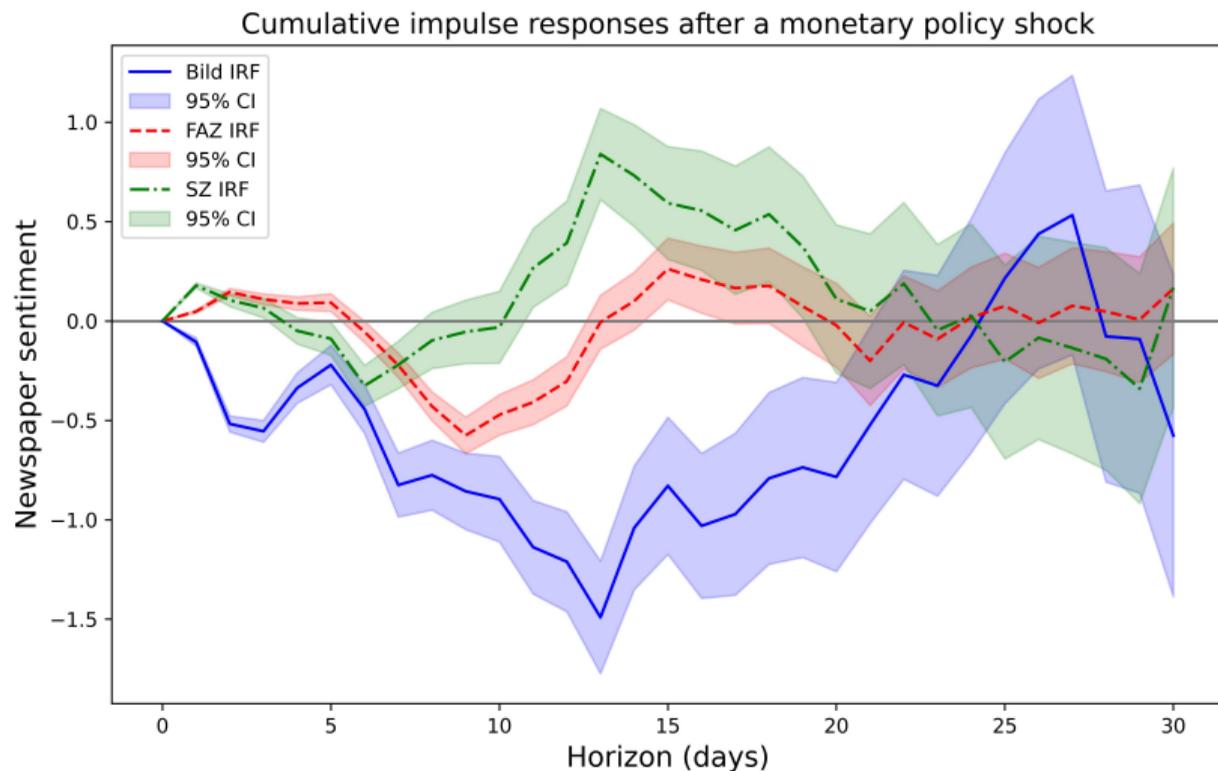
Data: daily, 2014 M01 to 2023 M08, log-differences

y_{t+h} = 7-day MA of mean sentiment indices

$shock_t$ = euro area MP shocks (Jarocinski & Karadi)

W_t = contemp. value and 14 lags of HICP & sentiment

Lagged responses of FAZ & SZ sentiment



→ MP meetings

Measuring news sentiment shocks with local projections

$$y_{t+h}^i = \alpha_h^i + \beta_h^i NSI_t + \mathbf{\Gamma}_h^i \sum_{l=0}^n W_{t-l} + \sum_{l=1}^n \delta_{h,l}^i NSI_{t-l} + u_{t+h}^i$$

Data: monthly, 2014 M01 to 2023 M08, Shapiro et al. (2022)

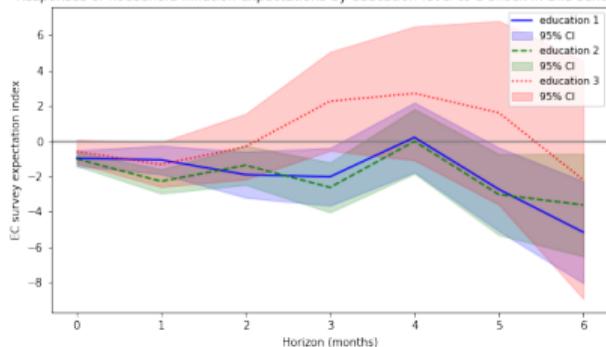
y_{t+h} = EC survey expectations

W_{t-l} = contemp. value and 6 lags of German IP,
HICP & consumer sentiment

Heterogeneous responses per education level

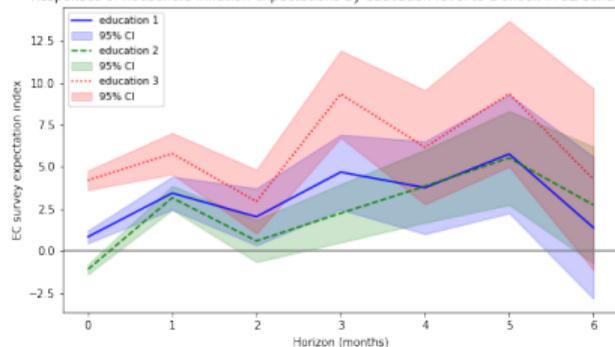
Bild

Responses of household inflation expectations by education level to a shock in Bild sentiment



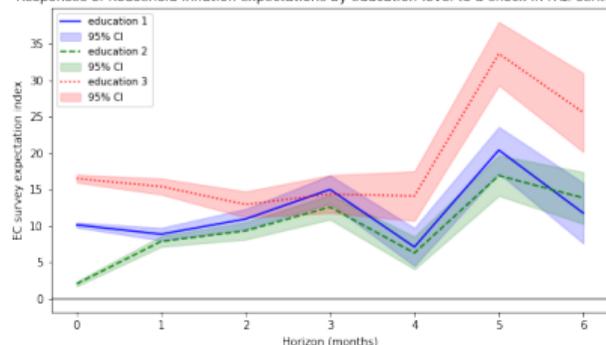
SZ

Responses of household inflation expectations by education level to a shock in SZ sentiment



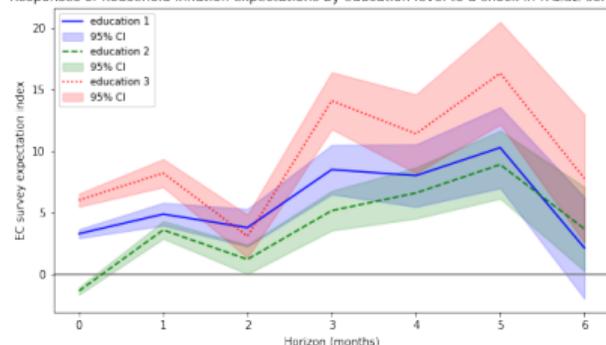
FAZ

Responses of household inflation expectations by education level to a shock in FAZ sentiment



FAZ & SZ

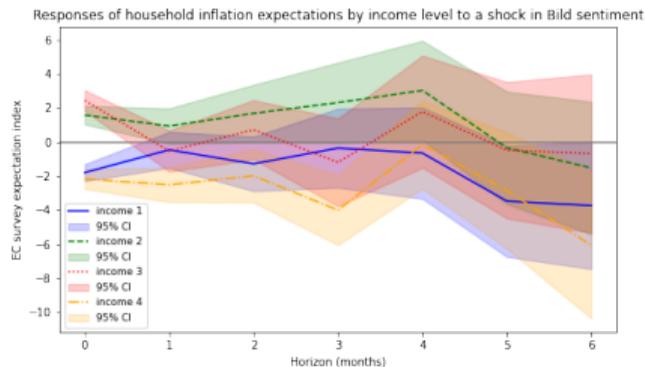
Responses of household inflation expectations by education level to a shock in FAZ&SZ sentiment



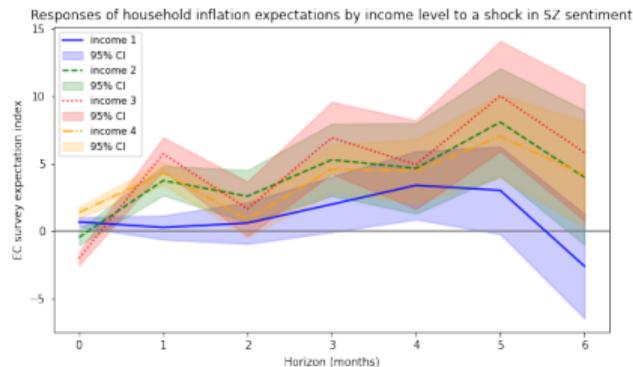
Heterogeneous responses per income level

→ age & gender

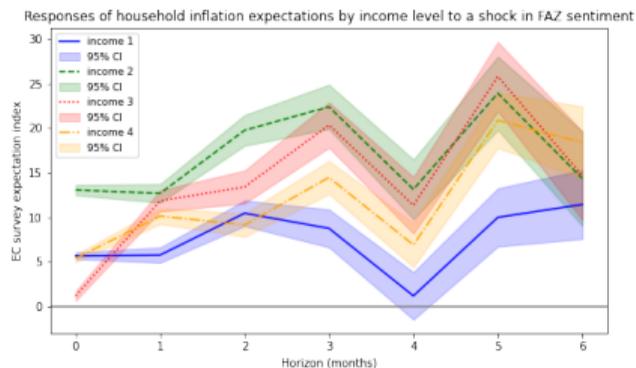
Bild



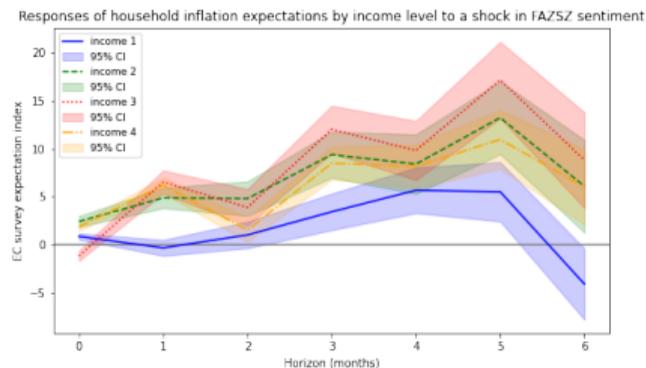
SZ



FAZ



FAZ & SZ



Pay attention to tabloid's reporting

- Sentiment extracted from newspapers carries useful real-time information for forecasting
- Shocks to newspaper sentiments affect people differently
- Monetary policy influences newspaper reporting in distinct manners

→ Central banks should pay more attention to targeting tabloids in their communication strategy.

Appendix

SZ search query

→ Back

Inflation* OR "niedrige Preise" OR "hohe Preise" OR Disinflation OR Deflation OR Geldpolitik OR Lohn-Preis-Spirale OR Zentralb* OR Stagflation OR Energiepreis* OR Geldsteuerung OR EZB OR Kaufkraftverlust OR Notenb* OR Leitzins OR Kostenan-stieg OR Preissenkung* OR Zinswende OR Preisexplosion OR Preisanstieg OR Lebenshaltungskosten OR Teuerung OR Preisindex AND Deutschland NOT Verlag* NOT Preis-träger* NOT Preissieger* NOT *Film* NOT Oscar NOT Preisverleihung* NOT Preisgeld* NOT Billigung NOT Trainer* NOT Autor* NOT Fußball* NOT preisg* NOT Trump

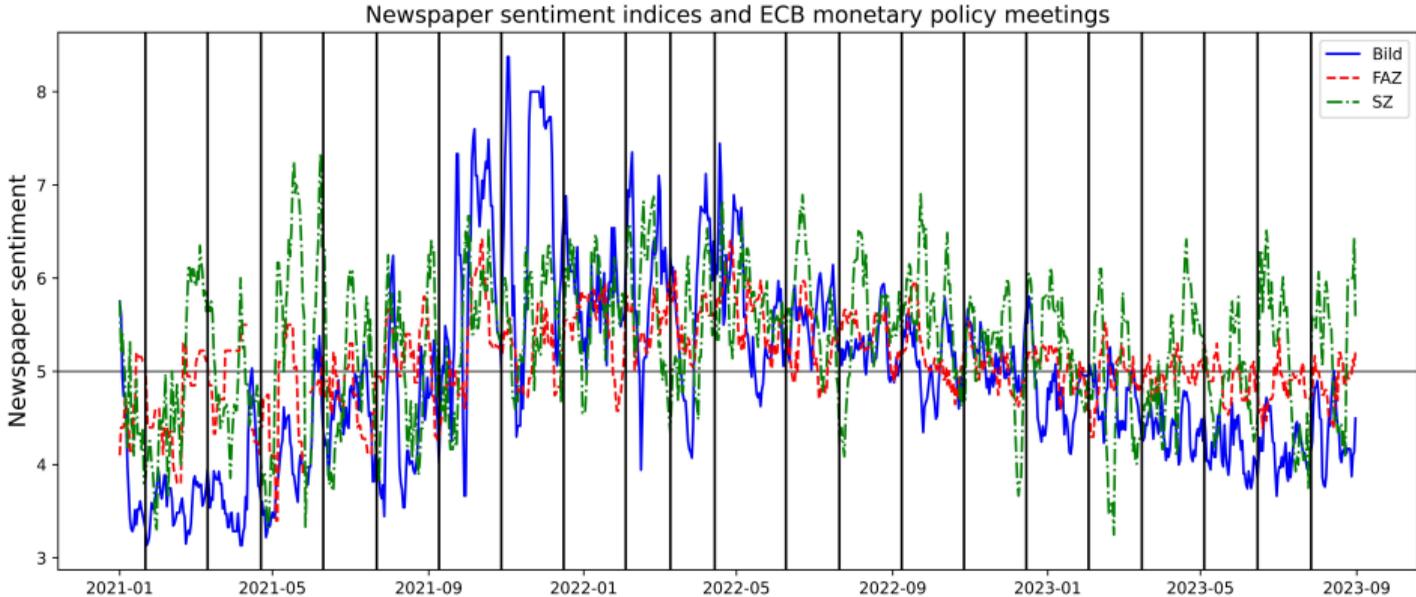
Bild search query (mediacloud)

→ Back

(Zins-Hammer OR steigende Preise OR fallende Preise OR Preischaos OR Bezinpreis* OR Teuerschock OR Inflation* OR niedrige Preise OR hohe Preise OR Disinflation OR Deflation OR Geldpolitik OR Lohn-Preis-Spirale OR Zentralbank OR Stagflation OR Energiepreis* OR Geldsteuerung OR EZB OR Kaufkraftverlust OR Notenban* OR Leitzins OR Kostenanstieg OR Preissenkung* OR Zinswende OR Preisexplosion OR Preisanstieg OR Lebenshaltungskosten OR Teuerung OR Preisindex) AND NOT (Verlag OR Preisträger* OR Preissieger* OR Film OR Oscar OR Preisverleihung* OR Preisgeld* OR Billigung OR Trainer* OR Autor* OR Fußball* OR preisge* OR Trump OR Tor*)

ECB monetary policy meetings

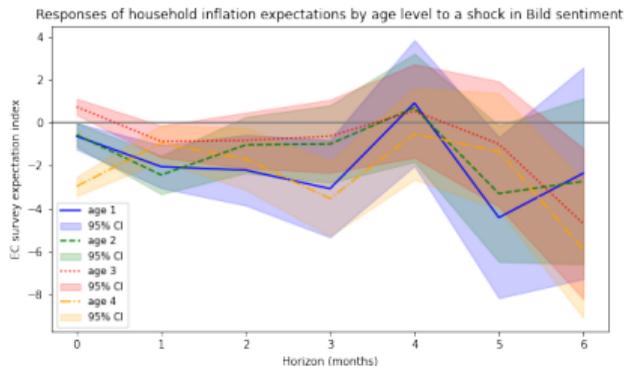
→ Back



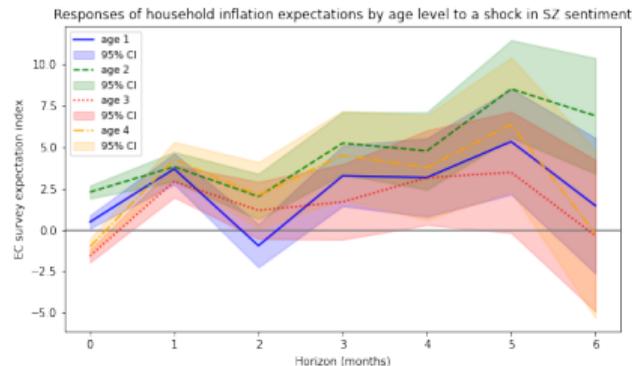
IRFs by age cohort

→ Back

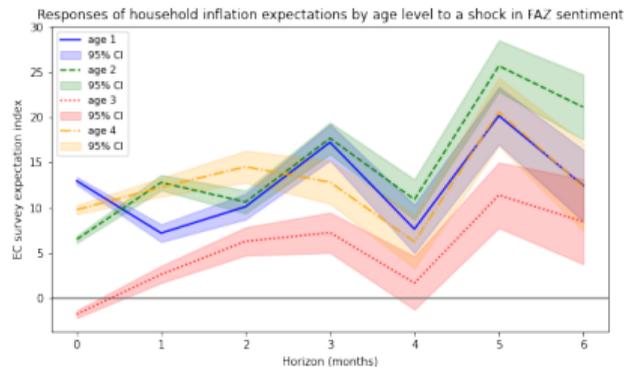
Bild



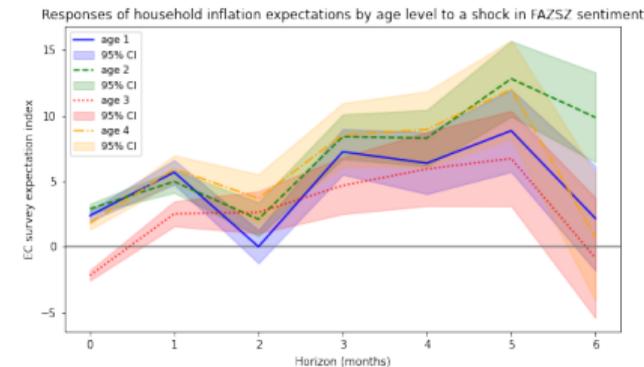
SZ



FAZ



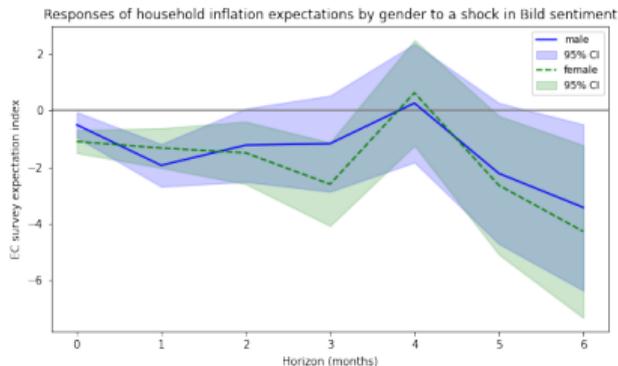
FAZ & SZ



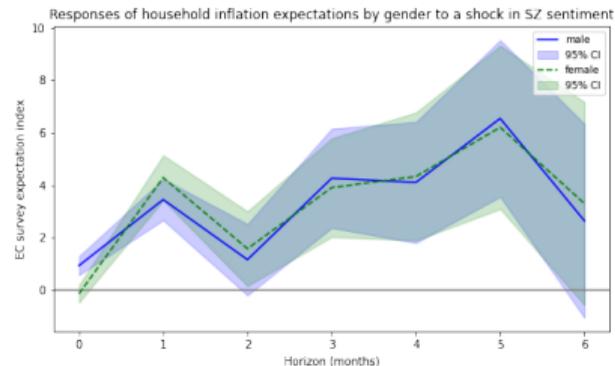
IRFs by gender

→ Back

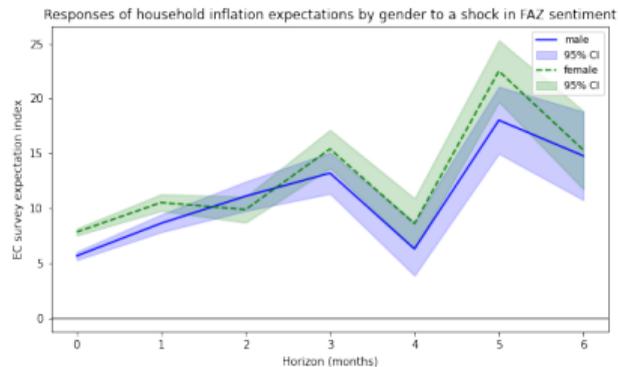
Bild



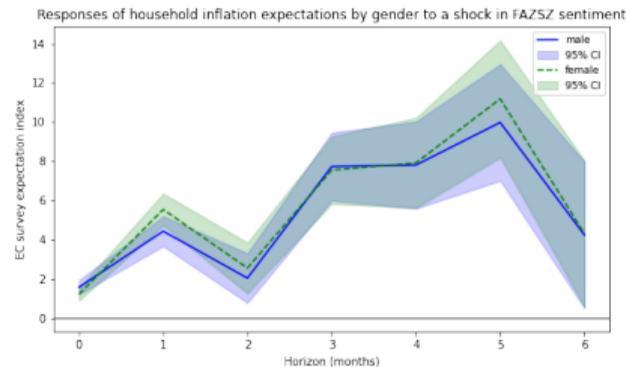
SZ



FAZ



FAZ & SZ



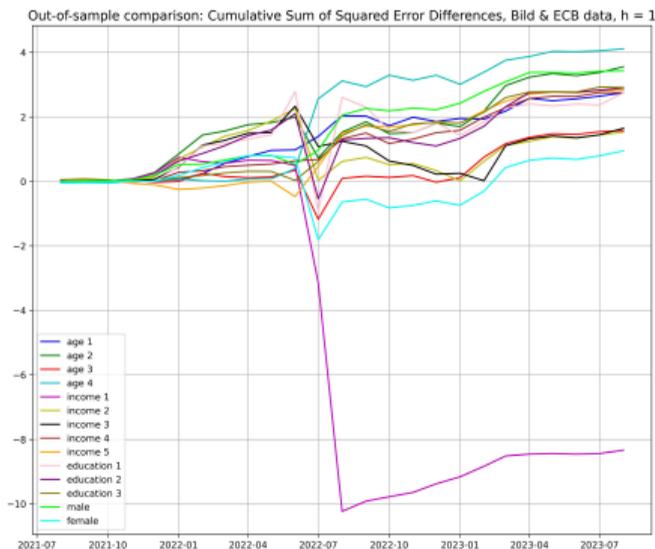
ECB: Slightly smaller RMSE ratios with FAZ & SZ indices

News	age 1	age 2	age 3	age 4	income 1	income 2	income 3	income 4	income 5
Bild	0.89***	0.92*	0.96	0.91*	1.12	0.97	0.97	0.91***	0.93*
	0.85**	0.92**	0.91**	0.90**	1.13	0.93	0.93	0.89***	0.92*
	0.82**	0.88**	0.88**	0.90***	1.18	0.90**	0.92	0.86***	0.89*
FAZ & SZ	0.88***	0.81**	0.92	0.86***	0.96	0.87*	0.89	0.82***	0.80**
	0.84***	0.79**	0.84**	0.83***	0.93*	0.84**	0.84**	0.79***	0.76**
	0.81***	0.75**	0.78***	0.81***	0.91	0.80**	0.82**	0.75***	0.70*

edu 1	edu 2	edu 3	male	female
0.96	0.93	0.90**	0.86***	0.99
0.95	0.88**	0.89**	0.83**	0.94
0.94	0.85**	0.85**	0.79***	0.91*
0.91	0.86	0.77***	0.79***	0.88
0.88**	0.82**	0.76***	0.76***	0.84**
0.86**	0.79**	0.71***	0.71***	0.81**

ECB CSSED: FAZ & SZ outperform benchmark slightly better

Bild



FAZ & SZ

