We Think That They Think: Political Affiliation and Higher-Order Beliefs

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Preliminary!

- Expectations are everywhere in macroeconomics, and yet we still understand remarkably little about how individuals actually form beliefs

- Case in point: Higher-order beliefs (I think that you think that I think...)
  - Theories of expectation formation make strong predictions about higher-order beliefs
  - Can help rationalize macro puzzles (eg, Angeletos and Lian 2018, Gabaix 2020, Fahri and Werning 2019)

- But almost no empirical measures of higher-order beliefs outside of the lab

Simple Illustration

- Example: noisy signal model with prior $x \sim N(\mu_x, \sigma_x)$ and noise $\varepsilon \sim N(0, \sigma_\varepsilon)$
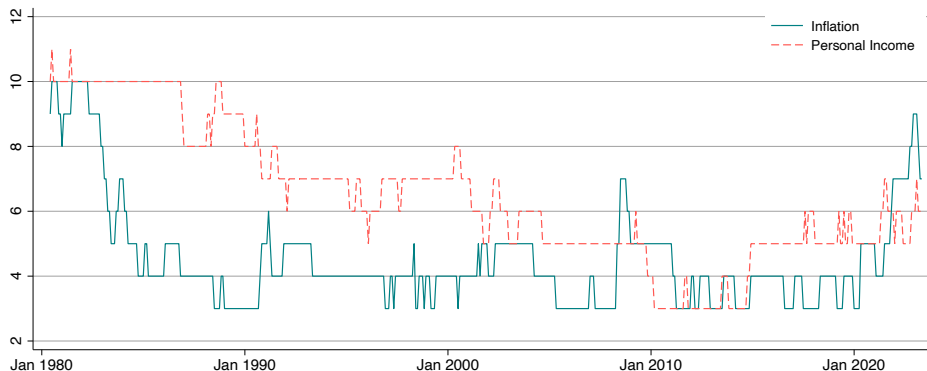
$$s = x + \varepsilon$$

- If the signal s is public, then under RE:

$$E^i[x|s] = E^j[x|s] = \kappa s + (1-\kappa)\mu_x$$
$$\implies E^i\left[E^j[x|s]\Big|s\right] = \kappa s + (1-\kappa)\mu_x$$

- If instead signals s_i, s_j are private:

$$E^i[x|s_i] = \kappa s_i + (1-\kappa)\mu_x$$
$$E^i\left[E^j[x|s_j]\Big|s_i\right] = E^i\left[\kappa s_j + (1-\kappa)\mu_x\big|s_i\right] = \kappa^2 s_i + (1-\kappa^2)\mu_x$$
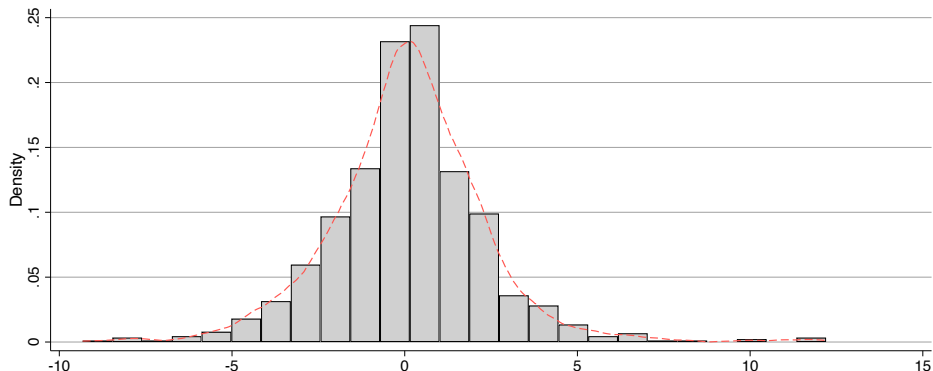
Notes: time series of inter-quartile range of consumer forecasts of inflation rate and personal income growth (Michigan Survey of Consumers).

- Massive disagreement amongst consumers about inflation (comparable to disagreement about *personal* income growth)
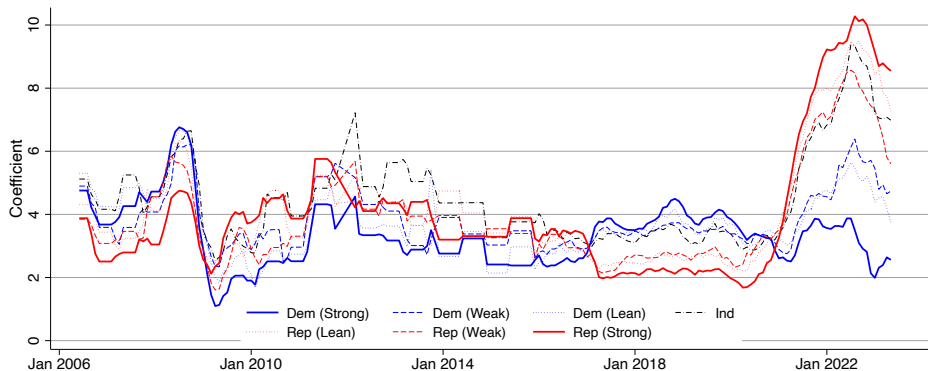
Higher-Order Beliefs?

Notes: distribution of the difference between higher-order and first-order inflation forecasts (Coibion et al 2021, survey of NZ firm managers).

- Coibion et al (2021): higher-order beliefs of inflation also dispersed, but *average* higher-order beliefs nearly identical to first-order beliefs

Belief Dispersion Predictability

Notes: time series of average inflation forecasts by political affiliation (Kamdar and Ray 2023).

- Political affiliation is a strong predictor of consumer beliefs

This Paper

- Conduct a survey soliciting inflation and unemployment forecasts of US households
- Ask respondents to report higher-order beliefs specifically for households across different political affiliations
    - Preliminary results! About to run more waves now
- Findings:
    - Higher-order beliefs differ substantially from own beliefs
    - Quantitatively, consumers correctly understand the "partisan gap" in inflation and unemployment forecasts
    - Providing consumers information from partisan news can move own- and higher-order beliefs of consumers (of either affiliation)
- Implications:
    - "Group identity" is an important driver of own and higher-order beliefs
    - Our results provide important guidance for expectation formation models (and are inconsistent with some commonly used models)

Survey Details

- Survey run through Prolific
  - Pool of panelists who are available to complete surveys (over 100,000 active panelists)
  - Each panelist is paid per survey
  - Similar to MTurk, but higher quality/less bots
  - Selection issues compared to traditional polling
- Survey waves in July 2023 and September 2023
  - Various information treatments: reports from partisan news sources about inflation
  - Each wave sent to 100 Democrats, 100 Republicans, 100 Independents as classified by Prolific
  - Note: for our analysis, many "independents" are actually "closet partisans"

- Inflation and unemployment expectations over the next year
- Information treatment (or control)
- Distributional questions about inflation and unemployment expectations
- Higher order beliefs about "the typical Democratic voter," "the typical Republican voter," and "the typical Independent voter"
    - Inflation and unemployment expectations
    - Durable purchasing attitudes
- Additional details
    - Strategic game to infer level of thinking
    - Demographics (including political affiliation)

On June 13, 2023, Fox Business reported the following:

Inflation cooled again in May [2023] to the lowest rate in two years, but a spike in the cost of used cars, rent and groceries kept prices uncomfortably high for millions of U.S. households. […] Prices climbed 4% on an annual basis. Although inflation has cooled from a peak of 9.1%, it remains about more than double the pre-pandemic average and well above the Federal Reserve's 2% target rate.

On June 14, 2023, MSNBC reported the following:

Brand new data shows inflation fell to its lowest level in two years last month [May 2023] at just 4%. […] Although that is much slower than the 9% that we saw last year, […] economists are saying that's an encouraging sign. We'd like to get a little closer to 2%, so it's not mission accomplished just yet. But when you look at things like airline fares, they're going down. Gasoline prices also went down between April and May so all of those are welcome news I imagine to a lot of Americans.

Treatments, "High Spin" (September 2023)

On September 1, 2023, Fox News provided the following report on inflation:

Overall, inflation is up nearly 16% from January 2021, when Biden first took office, to last month. Groceries are up nearly 20%. "Real unemployment," which includes those who are discouraged from looking for work or under-employed, spiked to 7.1%.

Steve Moore (Distinguished Fellow in Economics at The Heritage Foundation and former Economic Advisor to President Trump) said, "for 22 of the last 24 months, wages are behind what the rate of inflation [has been], and what that means is that the average family is about 5,000 dollars poorer today than they were when Joe Biden came into office."

On August 16, 2023, MSNBC provided the following report on inflation:

Inflation has gone from 8.5% to 3.2%. Unemployment remains at nearly a 50 year low. Our economy has the lowest inflation rate and the strongest economic recovery of all the G7 nations. The prospect of a recession is diminishing due in part to strong consumer confidence. The 'Bidenomics' score card: 13.2M jobs created, 789,000 manufacturing jobs created, and unemployment at 3.5%.

Robert Reich (Professor of Public Policy at University of California Berkeley and Former Secretary of Labor for President Clinton) said, "the economy is great. It's a 'Goldilocks economy.' I'll tell you, I've been watching or participating in economic policy for at least 30 years, and I don't recall an economy that is this good."

Summary of Results: Inflation

|	July, None	July, MSNBC	July, Fox	Sept, Fox
Panel A: Dems				
$E[\pi_{t+1}]$	3.81	3.28	3.72	2.98
$E[\pi_{t+1}|s] - E[\pi_{t+1}]$	0.63	0.80	0.76	2.56
$E[\bar{\pi}_{t+1}^R|s] - E[\bar{\pi}_{t+1}^D|s]$	2.07	3.21	1.13	5.40
$E[\bar{\pi}_{t+1}^P|s] - E[\pi_{t+1}|s]$	-0.96	-1.85	-1.28	-1.47
Panel B: Reps				
$E[\pi_{t+1}]$	5.36	4.48	5.12	4.71
$E[\pi_{t+1}|s] - E[\pi_{t+1}]$	0.16	0.46	-0.05	3.20
$E[\bar{\pi}_{t+1}^R|s] - E[\bar{\pi}_{t+1}^D|s]$	6.36	5.40	4.46	8.52
$E[\bar{\pi}_{t+1}^P|s] - E[\pi_{t+1}|s]$	0.91	0.64	0.60	1.07

Notes: average own and higher-order inflation beliefs of Democratic respondents (Panel A) and Republican respondents (Panel B). Each column corresponds to a different information treatment.
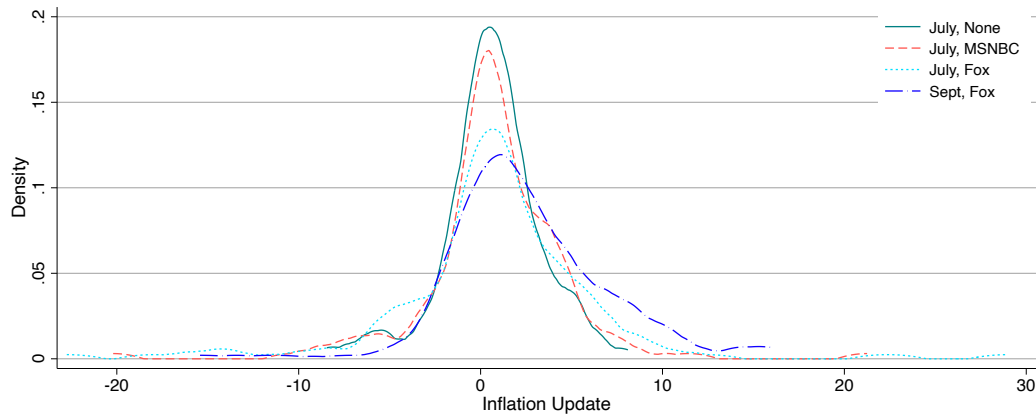
Summary of Results: Unemployment

	July, None	July, MSNBC	July, Fox	Sept, Fox
Panel A: Dems				
$E[u_{t+1}]$	5.22	5.29	5.46	5.65
$E[u_{t+1}|s] - E[u_{t+1}]$	0.25	0.08	0.01	0.43
$E[\bar{u}^R_{t+1}|s] - E[\bar{u}^D_{t+1}|s]$	1.90	1.40	0.72	2.44
$E[\bar{u}^p_{t+1}|s] - E[u_{t+1}|s]$	-0.54	-0.40	-0.10	-0.70
Panel B: Reps				
$E[u_{t+1}]$	6.05	5.83	6.33	6.31
$E[u_{t+1}|s] - E[u_{t+1}]$	0.15	0.00	-0.18	0.68
$E[\bar{u}^R_{t+1}|s] - E[\bar{u}^D_{t+1}|s]$	1.47	1.82	1.15	2.62
$E[\bar{u}^p_{t+1}|s] - E[u_{t+1}|s]$	0.08	0.24	0.04	0.46

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Inflation Beliefs Across Parties
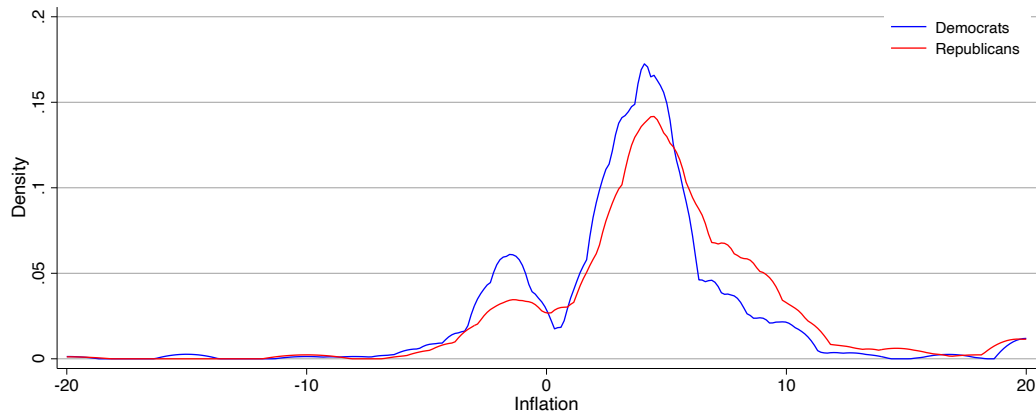
Notes: density plots of own inflation beliefs $E[\pi_{t+1}]$ across political affiliation (pre-treatment, July surveys).

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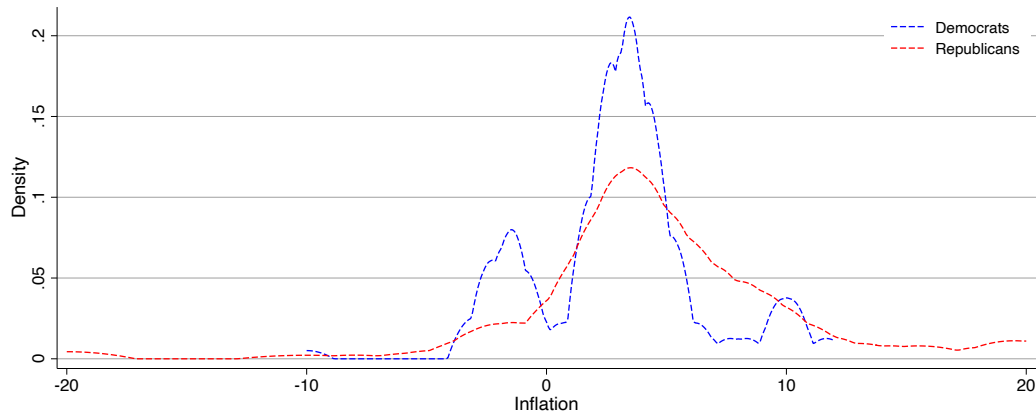
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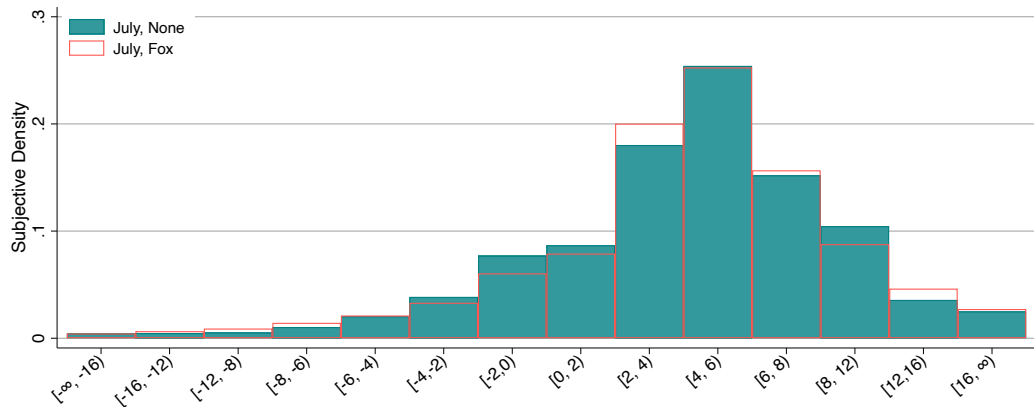
Notes: change in own inflation expectations $E[\pi_{t+1}|s] - E[\pi_{t+1}]$ across survey waves (Democratic respondents).
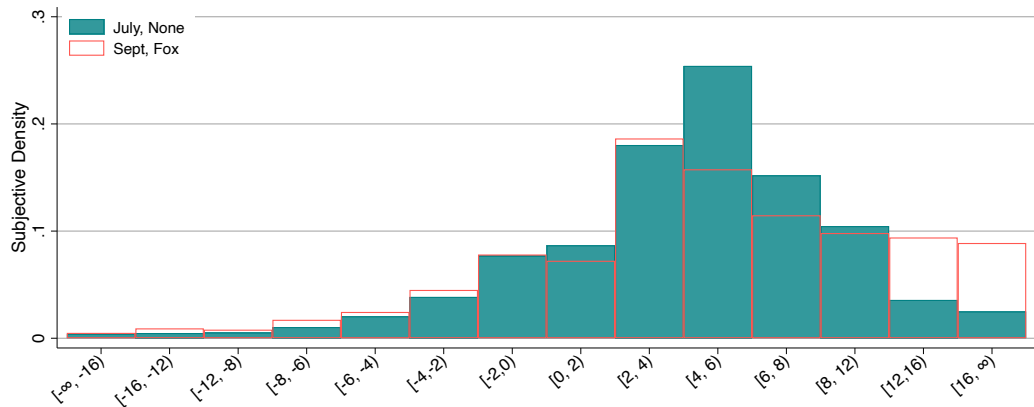
Subjective Distribution Reactions to Information Treatment: Democrats

Notes: subjective distribution of inflation beliefs $P(\pi_{t+1}|s)$ across survey waves (Democratic respondents).

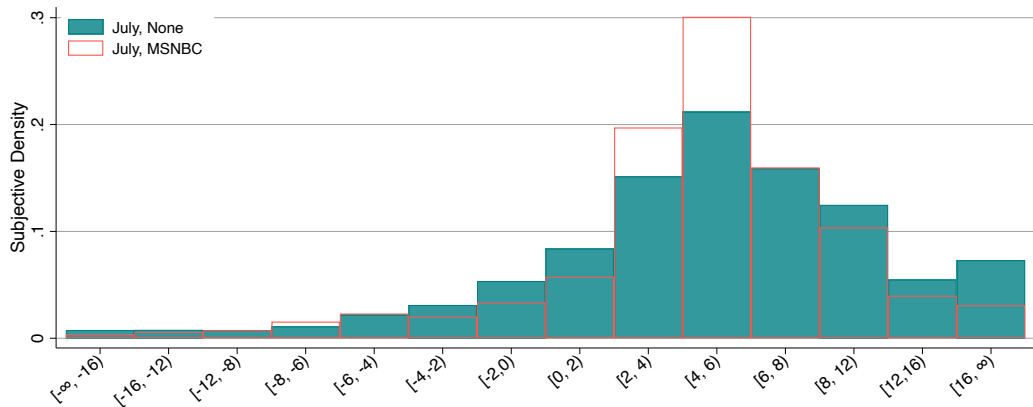# Subjective Distribution Reactions to Information Treatment: Democrats

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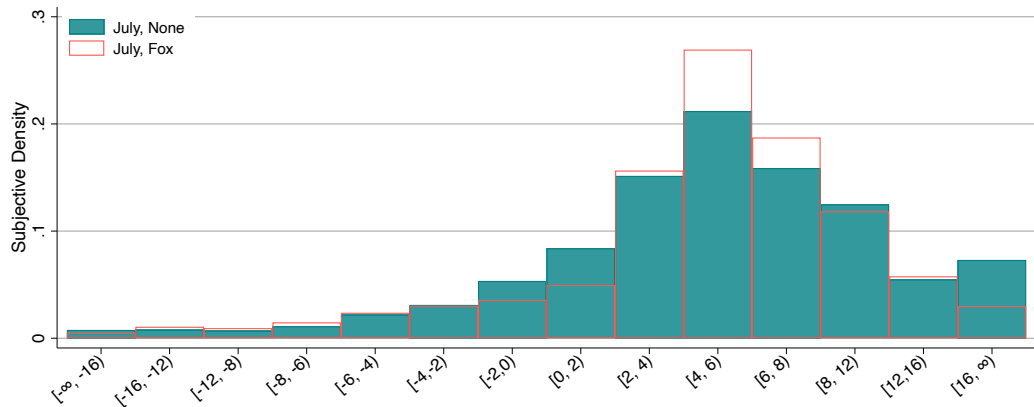
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Subjective Distribution Reactions to Information Treatment: Republicans
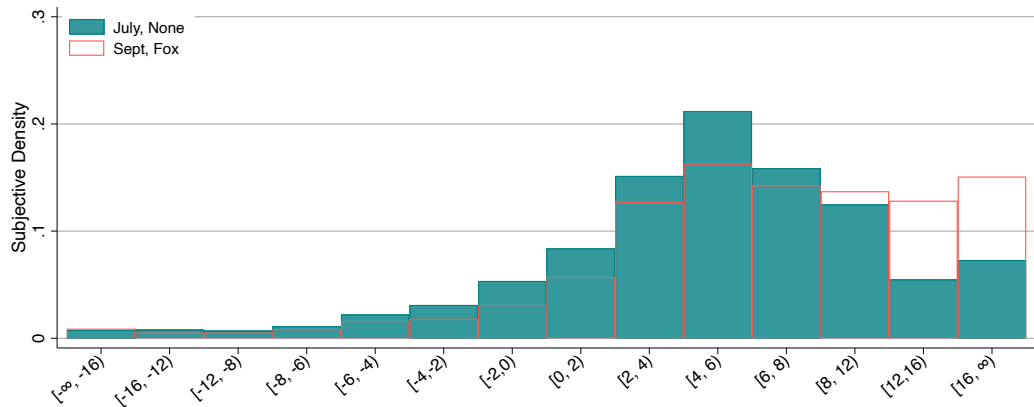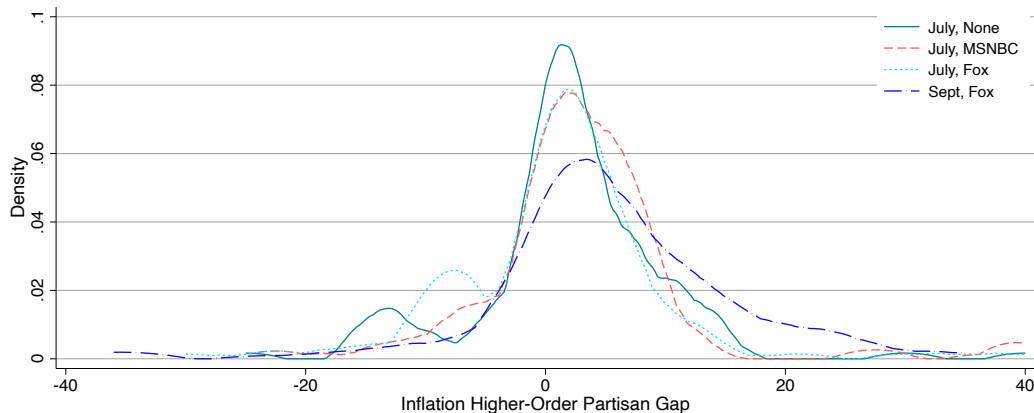

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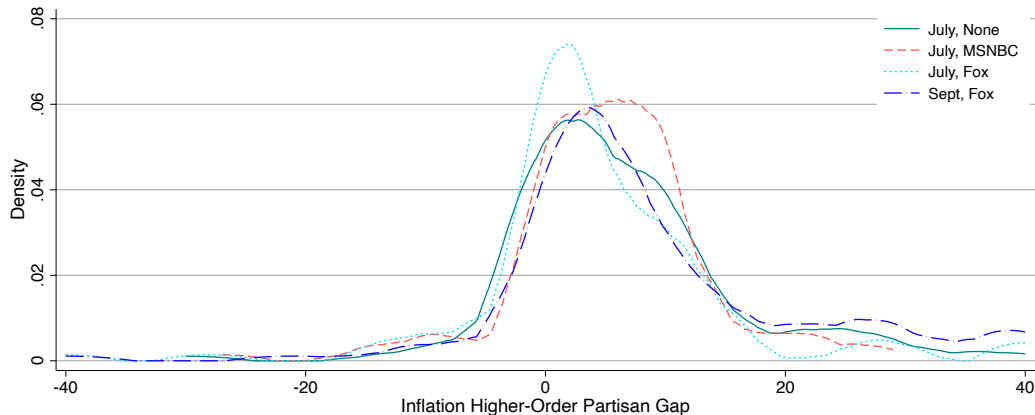Notes: subjective distribution of inflation beliefs $P(\pi_{t+1}|s)$ across survey waves (Republicans respondents).

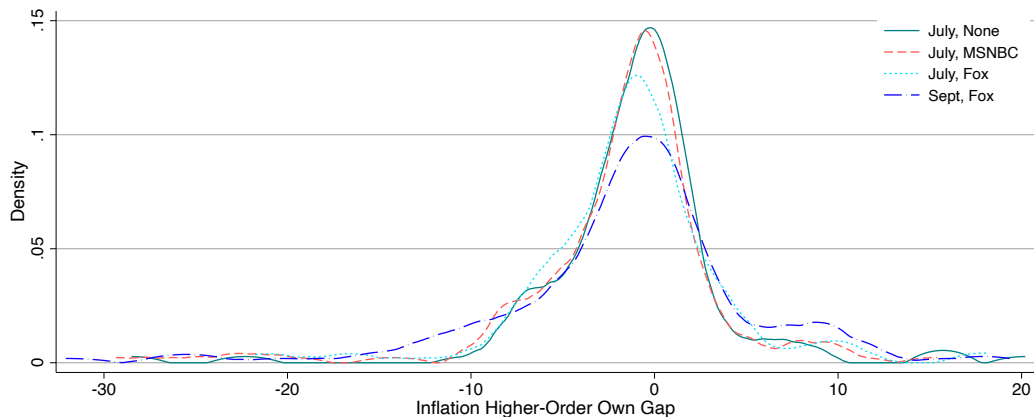Notes: subjective distribution of inflation beliefs $P(\pi_{t+1}|s)$ across survey waves (Republicans respondents).

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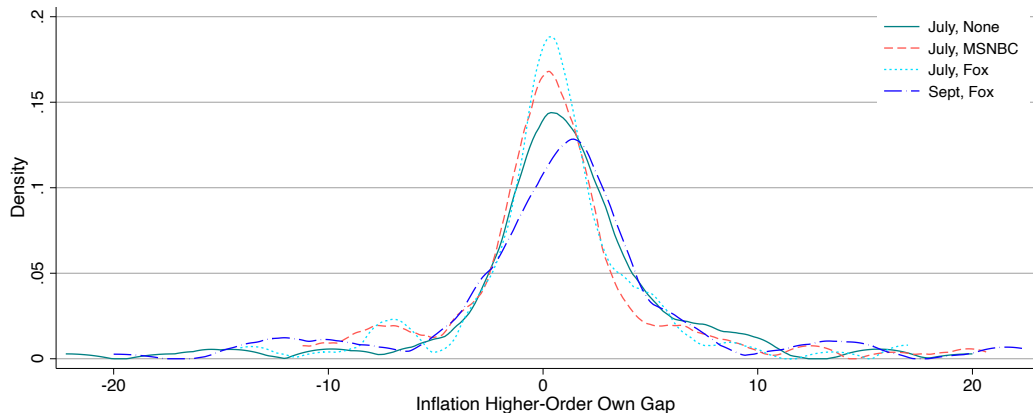
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Notes: "own-party gap" $E[\bar{\pi}_{t+1}^p | s] - E[\pi_{t+1} | s]$ in inflation expectations across survey waves (Democratic respondents).

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- How do changes in first-order beliefs affect higher-order beliefs?
- Estimate the following regression:

$$E[\bar{\pi}_{t+1}^p|s] = \alpha + \beta E[\pi_{t+1}|s] + \varepsilon$$

- β: if own inflation beliefs move by 1ppt, then higher-order beliefs of typical voters of party p move by β
- Estimate $\hat{\beta}$ across political affiliations, and across information treatments

Expectation Pass-Through Summary

|	(1) $E[\bar{\pi}_{t+1}^D|s]$	(2) $E[\bar{\pi}_{t+1}^I|s]$	(3) $E[\bar{\pi}_{t+1}^R|s]$	(4) $E[\bar{\pi}_{t+1}^D|s]$	(5) $E[\bar{\pi}_{t+1}^I|s]$	(6) $E[\bar{\pi}_{t+1}^R|s]$
July, None $\times$ $E[\pi_{t+1}|s]$	0.747***	0.535***	0.260	0.113	0.384**	0.548***
	(0.167)	(0.0963)	(0.163)	(0.181)	(0.175)	(0.128)
July, MSNBC $\times$ $E[\pi_{t+1}|s]$	0.633**	0.775***	0.501**	-0.102	0.163	0.358**
	(0.299)	(0.170)	(0.206)	(0.185)	(0.167)	(0.173)
July, Fox $\times$ $E[\pi_{t+1}|s]$	0.899***	0.487***	0.0142	0.0612	0.640***	0.871***
	(0.171)	(0.171)	(0.226)	(0.268)	(0.144)	(0.170)
Sept, Fox $\times$ $E[\pi_{t+1}|s]$	0.751***	0.466***	0.412***	-0.259	0.575***	0.790***
	(0.174)	(0.141)	(0.145)	(0.188)	(0.151)	(0.142)
Observations	555	555	555	473	473	473
R^2	0.176	0.182	0.130	0.0133	0.176	0.296
Sample	D	D	D	R	R	R

Notes: "pass-through" regression results.

Expectation Pass-Through: Democrats
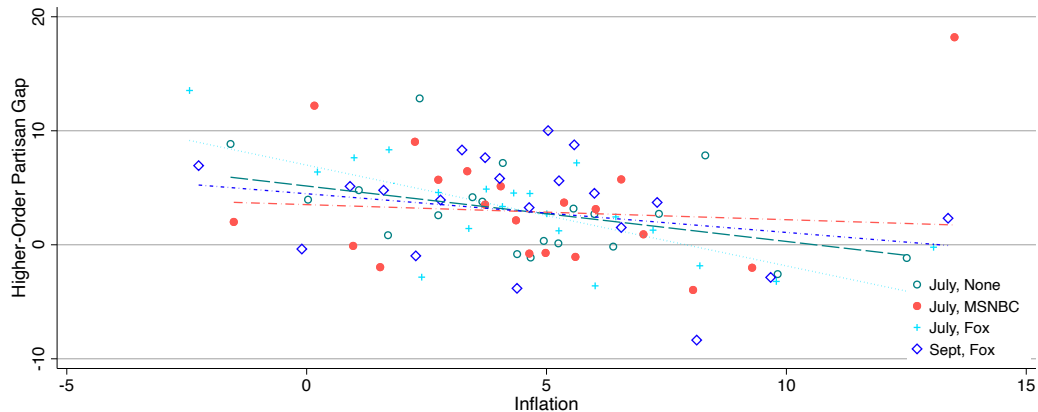
Notes: binscatter of own inflation expectations and "partisan gap" (Democratic respondents).

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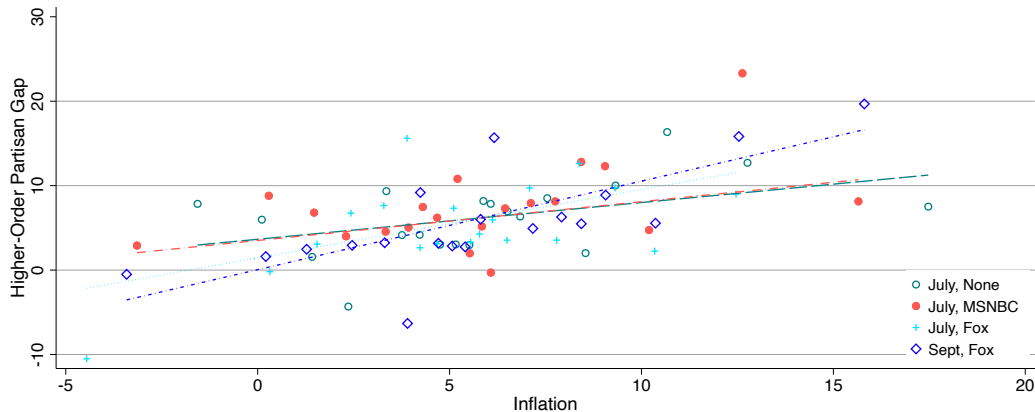
Notes: binscatter of own inflation expectations and "partisan gap" (Republican respondents).

Concluding Remarks

- Large dispersion in macroeconomic expectations across political affiliation. Currently:
  - Republicans believe inflation will remain elevated and unemployment will increase
  - Democrats believe inflation will continue falling and unemployment will stay low
- This dispersion is correctly understood by households: higher-order beliefs reflect this "partisan gap"
- Large gaps between own- and higher-order beliefs, even within "own-affiliation" higher-order beliefs
- Own and higher-order beliefs react to partisan news sources
- Running more waves now, so suggestions very welcome!