Monetary Policy Communications and Their Effects on Household Inflation Expectations

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MOTIVATION

"Since I've become a central banker, I've learned to mumble with great incoherence. If I seem unduly clear to you, you must have misunderstood what I said."

A. Greenspan, September 22, 1987

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    - Low financial volatility
    - Shape path of long-term interest rates

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- Communication as policy tool when conventional policy constrained

"When inflation expectations go up with zero nominal rates, real rates go down. When real rates go down, investments and the economic activity improves. That's the reasoning [of QE]." Mario Draghi, Mar 23, 2015

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However, expectations of other agents are equally (more?) important:

$$C_t = E_t C_{t+1} - \sigma(i_t - E_t \pi_{t+1})$$
$$\pi_t = E_t \pi_{t+1} + \kappa X_t$$

How can central bank communication reach the general public?

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This paper:
- Field a large-scale survey on 20,000+ households in the U.S.

- Randomize pieces of information to individuals

- Study how different communications shape inflation expectations

OVERVIEW OF RESULTS

- Simple statistics most effective

  - o Current inflation

  - o FOMC target

  - o FOMC inflation forecast

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- To do: reaction in actual consumption (AC Nielsen baskets)

DATA: AC NIELSEN PANEL

- 40,0000 -- 60,000 households across the U.S.
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- Balanced panel along demographics

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- Nielsen runs regular small-scale surveys and larger customized surveys

- Our survey:
  - Three waves in June, September, December 2018
  - All members of AC Nielsen panelist households (response rate ≈25%)
  - Questions are similar to Michigan Survey and NY Fed Survey of Expectations
  - Sample weights from Nielsen

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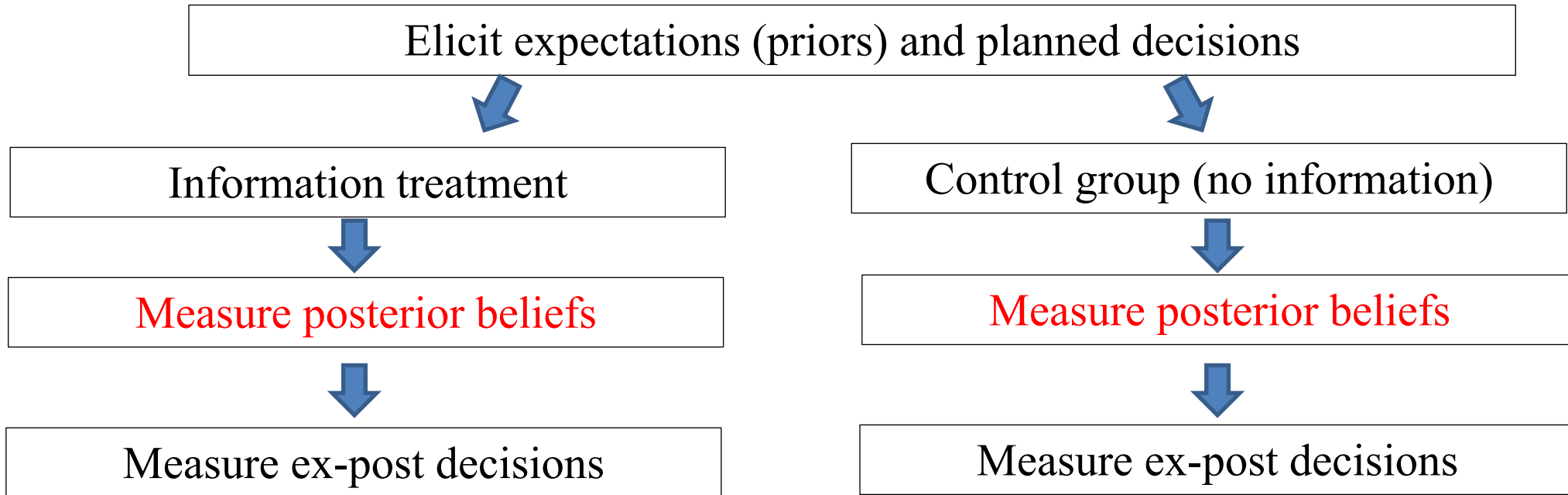| Information treatment	Control group (no information)
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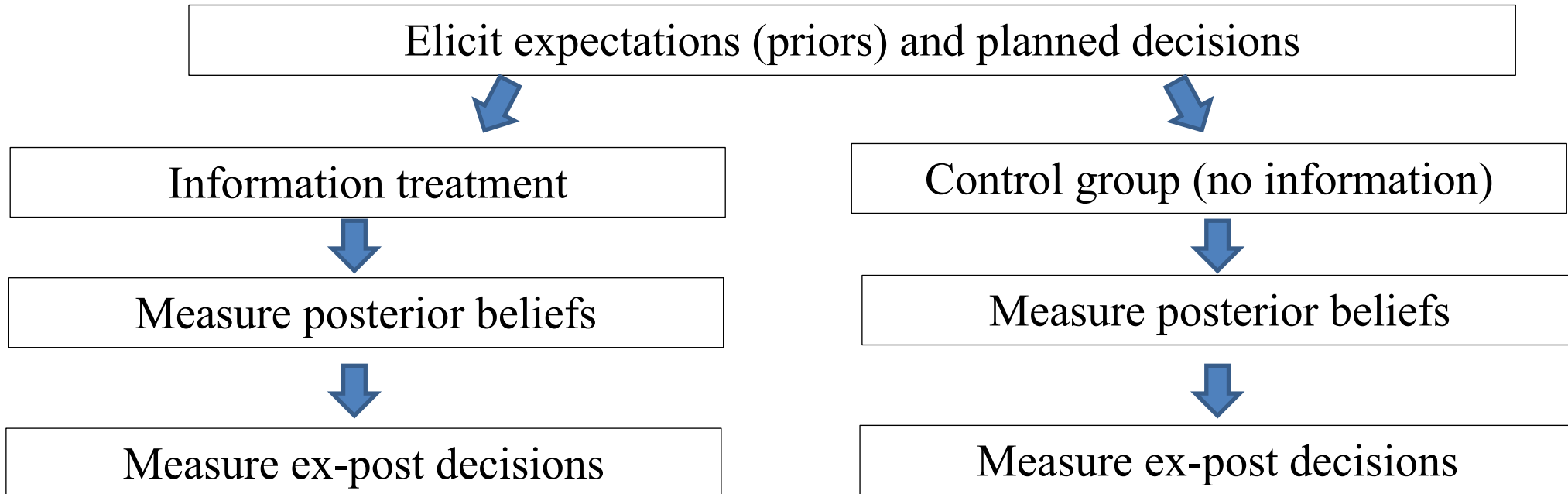
- **Study how different information affects updating**

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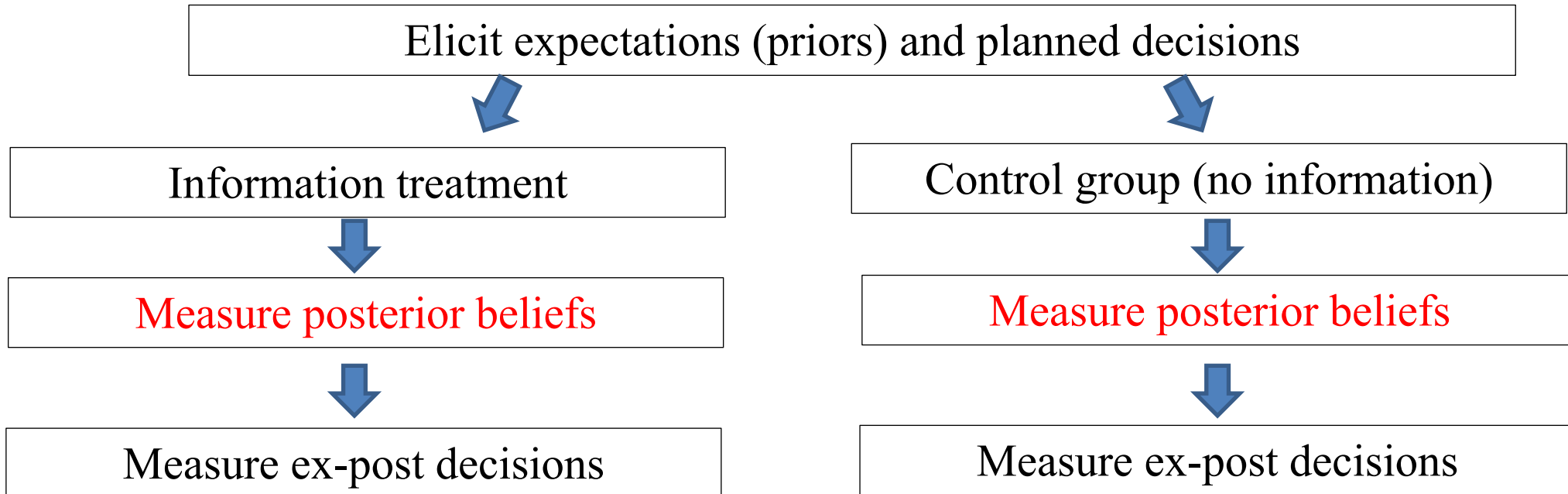- Causal estimates are scarce

Elicit expectations (priors) and planned decisions

Information treatment	Control group (no information)
Measure posterior beliefs	Measure posterior beliefs
Measure ex-post decisions	Measure ex-post decisions

- Study how different information affects updating
- Randomly assign to 9 groups:
  - 7 "real" information treatments
  - 1 control group
  - 1 placebo treatment (to disentangle learning from anchoring effects)

TREATMENTS

1. Actual CPI inflation rate over the last twelve months (2.3%)

2. Inflation target of the Federal Reserve of 2% per year

3. FOMC forecast for inflation in 2018 of 1.9%

4. Most recent FOMC statement

5. Coverage of most recent FOMC decision in USA Today

6. Most recent unemployment numbers (Philipps curve in mind?)

7. Average gas price inflation over the previous three months of 6.4%

8. U.S. population growth of 2% over the last two years (placebo)

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FOMC STATEMENT

Information received since the Federal Open Market Committee met in March indicates that the labor market has continued to strengthen and that economic activity has been rising at a moderate rate. Job gains have been strong, on average, in recent months, and the unemployment rate has stayed low. Recent data suggest that growth of household spending moderated from its strong fourth-quarter pace, while business fixed investment continued to grow strongly. On a 12-month basis, both overall inflation and inflation for items other than food and energy have moved close to 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.

…

In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at 1-1/2 to 1-3/4 percent. The stance of monetary policy remains accommodative, thereby supporting strong labor market conditions and a sustained return to 2 percent inflation.

USA Today

Inflation is creeping higher, and that's making the Federal Reserve more confident about raising interest rates.

…

The Fed held its key interest rate steady Wednesday but noted that inflation has climbed close to its 2% goal, paving the way for another rate hike in June.

…

As expected, the Fed kept its benchmark short-term interest rate at a range of 1.5% to 1.75%. The central bank's policymaking committee lifted the rate by a quarter percentage point in March for the sixth time since late 2015 after holding it near zero for years following the 2008 financial crisis and recession.

…

In a statement after a two-day meeting, the Fed reiterated that it plans to continue to raise rates gradually, a pace that economists have interpreted as roughly every other meeting.

…

Fed policymakers have forecast two more rate increases this year, according to their median estimate, but faster inflation could trigger three additional moves. Before the statement release, Fed fund futures indicated a 90% chance of a hike in June, according to CME Group.

BASIC PRE-TREATMENT FACTS
Perceived inflation target of the Fed
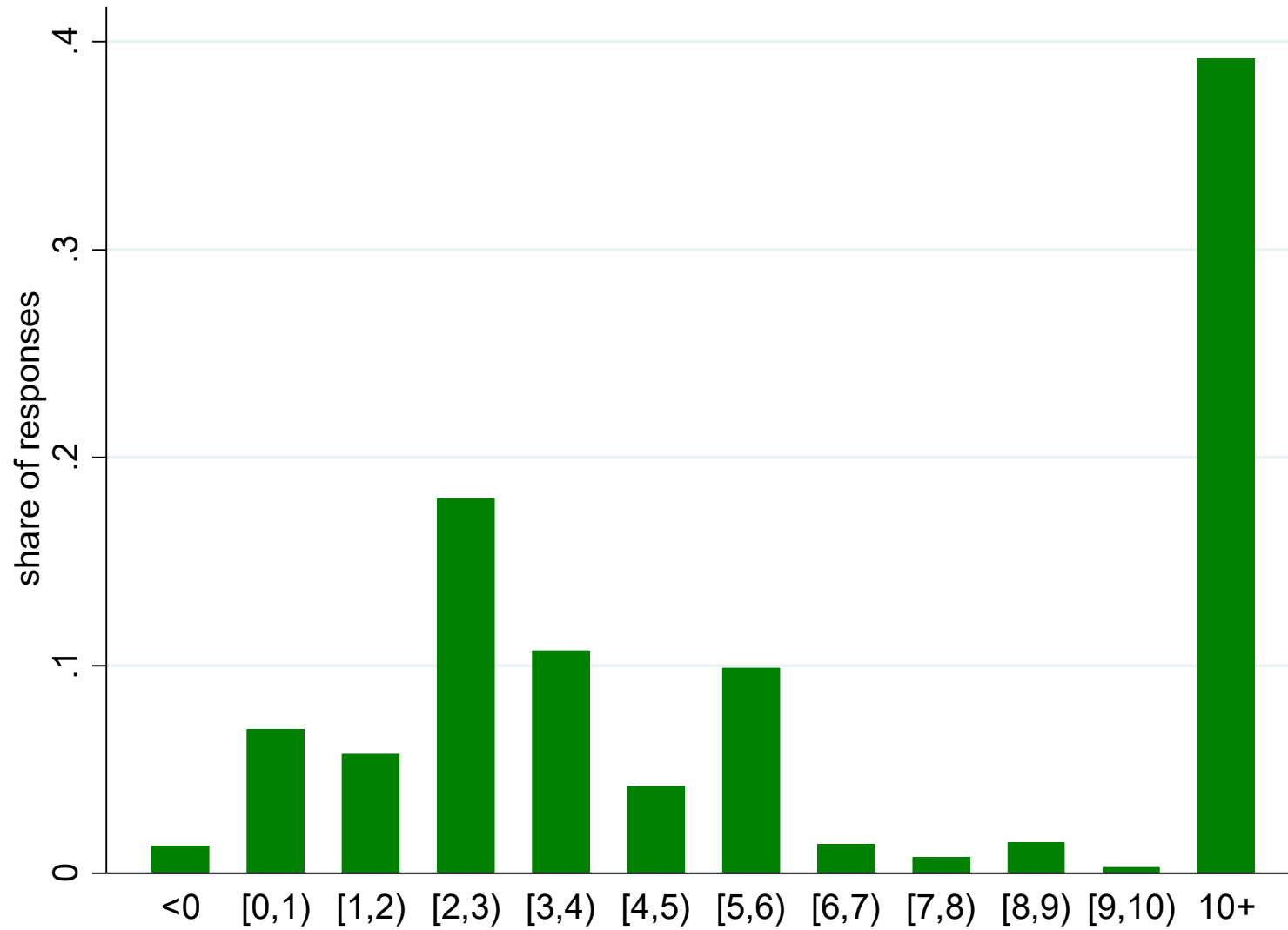
BASIC PRE-TREATMENT FACTS

Sample	Pre-treatment expected inflation		Pre-treatment perceived inflation	
	Mean	St.Dev.	Mean	St.Dev.
	(1)	(2)	(3)	(4)
All	2.47	2.57	2.46	2.66
Male	2.43	2.12	2.50	2.10
Female	2.49	2.75	2.44	2.90
White	2.49	2.59	2.54	2.71
Non-white	2.38	2.50	2.17	2.45

- Upward bias in expectations
- Large cross-sectional dispersion in inflation expectations
- High correlation between perceived & expected inflation: 0.79
- Women have higher and more dispersed expectations

EMPIRICAL SPECIFICATION

Regress forecast revision on treatment dummy & controls for all treatments

$$E_i^{post} \pi - E_i^{pre} \pi = a + {\color{red}b} \times Treatment_i + \beta \times X_i + error_i$$

$E_i^{post} \pi \equiv$ posterior forecast of individual i (point prediction)

$E_i^{pre} \pi \equiv$ prior forecast of individual i (mean of distribution)

$Treatment_i \equiv$ dummy variable for treatment

$X_i \equiv$ vector of controls

- Quadratic polynomial in age
- Dummies for gender, employment status, income, household size, race, census region, lifestyle

RESULTS: FORECAST REVISION

Treatments	Immediate revision	
	(1)	(2)
T5 (pop growth)	-0.218**	-0.269**
	(0.105)	(0.109)
Controls for demographics	No	Yes
Observations	19,269	17,629
R^2	0.048	0.061

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	(1)	(2)
T5 (pop growth)	-0.218**	-0.269**
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T6 (UE)	-0.337***	-0.330***
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T8 (FOMC statement)	-1.197***	-1.213***
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T9 (USA today coverage)	-0.444***	-0.528***
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Controls for demographics	No	Yes
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CREDIBILITY OF INFORMATION SOURCES

	Score		Share of people choosing
	mean	st.dev.	"do not know"
Credibility of news sources (lower score means more credibility)			
Newspapers	3.07	1.16	0.11
TV	2.87	1.12	0.08
Social media	2.12	1.08	0.09
Friends and coworker	2.83	1.02	0.10
Government	2.84	1.14	0.11

Newspapers least credible and social media highest credibility

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Credibility of newspapers (lower score means more credibility)			
New York Times	3.20	1.42	0.36
Wall Street Journal	3.45	1.31	0.35
USA Today	3.05	1.26	0.36
Washington Post	3.14	1.40	0.39
Chicago Tribune	2.91	1.34	0.48
Los Angeles Times	2.92	1.36	0.47

Newspapers least credible and social media highest credibility

USA Today highest credibility among national newspapers

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USA Today highest credibility among national newspapers

More local newspapers higher credibility but also higher shares of don't know

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T5 (pop growth)	-0.218**	-0.269**
	(0.105)	(0.109)
T6 (UE)	-0.337***	-0.330***
	(0.104)	(0.109)
T4 (gas prices)	1.491***	1.430***
	(0.114)	(0.119)
T2 (past inflation)	-1.039***	-1.111***
	(0.104)	(0.109)
T3 (inflation target)	-0.996***	-1.034***
	(0.102)	(0.109)
T7 (Fed inflation forecast)	-1.071***	-1.143***
	(0.102)	(0.108)
T8 (FOMC statement)	-1.197***	-1.213***
	(0.103)	(0.108)
T9 (USA today coverage)	-0.444***	-0.528***
	(0.105)	(0.109)
Controls for demographics	No	Yes
Observations	19,269	17,629
R^2	0.048	0.061

RESULTS: FORECAST REVISION

Treatments	Immediate revision		Revision after 3 months	
	(1)	(2)	(3)	(4)
T5 (pop growth)	-0.218**	-0.269**	-0.074	-0.097
	(0.105)	(0.109)	(0.090)	(0.093)
T6 (UE)	-0.337***	-0.330***	-0.231**	-0.250***
	(0.104)	(0.109)	(0.093)	(0.096)
T4 (gas prices)	1.491***	1.430***	-0.169*	-0.190**
	(0.114)	(0.119)	(0.092)	(0.095)
T2 (past inflation)	-1.039***	-1.111***	-0.014	-0.067
	(0.104)	(0.109)	(0.091)	(0.094)
T3 (inflation target)	-0.996***	-1.034***	-0.329***	-0.394***
	(0.102)	(0.109)	(0.091)	(0.095)
T7 (Fed inflation forecast)	-1.071***	-1.143***	-0.220**	-0.240**
	(0.102)	(0.108)	(0.093)	(0.095)
T8 (FOMC statement)	-1.197***	-1.213***	-0.138	-0.163*
	(0.103)	(0.108)	(0.092)	(0.095)
T9 (USA today coverage)	-0.444***	-0.528***	-0.196**	-0.211**
	(0.105)	(0.109)	(0.092)	(0.095)
Controls for demographics	No	Yes	No	Yes
Observations	19,269	17,629	13,339	12,553
R^2	0.048	0.061	0.002	0.012

RESULTS: FORECAST REVISION

Treatments	Outcome: forecast revision			
	Revisions after 3 months		Revision after 6 months	
	(1)	(2)	(3)	(4)
Panel A: Treatment effect on perceptions of the Fed's inflation target				
T3 (inflation target)	-0.219***	-0.290***	-0.161	-0.184*
	(0.084)	(0.097)	(0.099)	(0.105)
Controls for demographics	No	Yes	No	Yes

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	(0.084)	(0.097)	(0.099)	(0.105)
Panel B: Treatment effect on perceptions past inflation				
T2 (past inflation)	-0.239***	-0.221**	-0.106	-0.107
	(0.089)	(0.097)	(0.099)	(0.103)
Controls for demographics	No	Yes	No	Yes

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	(0.084)	(0.097)	(0.099)	(0.105)
Panel B: Treatment effect on perceptions past inflation				
T2 (past inflation)	-0.239***	-0.221**	-0.106	-0.107
	(0.089)	(0.097)	(0.099)	(0.103)
Panel C: Treatment effect on perceptions of unemployment rate				
T6 (UE)	-0.192**	-0.208*	-0.120	-0.149
	(0.096)	(0.109)	(0.106)	(0.112)
Controls for demographics	No	Yes	No	Yes

TAKING STOCK

- Simple messages can be extremely powerful in moving expectations

- FOMC statements no more powerful than simple statistics

- Simple facts & information about policy instead of "Fed speak"?

- Purely relying on media possible not effective
  - o Many individuals do not read news about monetary policy
  - o Even if exposed, individuals seem to discount information

HETEROGENEITY (TARGETED COMMUNICATION)

Treatment Group:	Female (1)	Male (2)
T5 (pop growth)	-0.31**	-0.06
	(0.13)	(0.17)
T6 (UE)	-0.55***	0.05
	(0.13)	(0.17)
T4 (gas prices)	1.52***	1.39***
	(0.14)	(0.18)
T2 (past inflation)	-1.31***	-0.53***
	(0.13)	(0.17)
T3 (inflation target)	-1.28***	-0.47***
	(0.13)	(0.16)
T7 (Fed inflation forecast)	-1.26***	-0.74***
	(0.13)	(0.16)
T8 (FOMC statement)	-1.44***	-0.74***
	(0.13)	(0.17)
T9 (USA today coverage)	-0.60***	-0.18
	(0.13)	(0.17)

Relevant for policy makers: affect certain/sensitive sub-populations

CONCLUSION

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- Opportunities for targeted communication