

Average Inflation Targeting and Household Expectations

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- On August 27th, 2020, Chairman Powell announced such a change to Average Inflation Targeting at Jackson Hole annual conference.
- “If inflation runs below 2% following economic downturns but never moves above 2% even when the economy is strong, then over time inflation will average less than 2%. Households and businesses will come to expect this result, which means that inflation expectations would tend to move below our inflation goal and bring realized inflation down.... Therefore, following periods when inflation has been running below 2%, appropriate monetary policy will likely aim to achieve inflation moderately above 2% for some time.”

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- In New Keynesian models, AIT is *extremely* powerful in stabilizing economic activity, especially at the ZLB, since it generates higher inflation expectations in downturns which stimulate consumption via low interest rates.
- How powerful is this mechanism in practice?

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What we do

Run a *daily* survey of households starting before the announcement and continuing for days afterwards to study:

- Did households hear about the announcement? **NO**
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This suggests that the powerful effects of AIT in New Keynesian models are unlikely to apply to the U.S. economy, both currently or in the future.

The Survey

- Extension of Federal Reserve Bank of Cleveland's daily tracking survey.

- Expanded to include:
 - Wed. Aug. 26th: 1,000 households
 - Thur. Aug. 27th (day of announcement): 500+500 households
 - Fri. Aug. 28th: 1,500 households
 - Aug. 29-30: 500 households each
 - Aug. 31-Sep. 1: 300 households each

- Includes regular Clev. Fed questions plus additional block of questions on news, monetary policy, expectations as well as information treatment on IT/AIT.

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- What were the news about?
 - *International meeting of central bankers*
 - *New leadership at the Fed*
 - *Change in interest rates*
 - *New strategies at the Fed*
 - *New lending facilities*
 - *Other*
 - *Don't remember.*

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- Where did you hear the news?
- When did you hear the most recent news?
- What were the news about?
- Who were the news about?
 - *Powell*
 - *Lagarde*
 - *Yellen*
 - *Bernanke*
 - *None of the above*
 - *Don't remember.*

What they understand about monetary policy

- In terms of the Fed's broader economic objectives, what do you think it views as more important? (pick two)
 - *Low interest rates to reduce govt. cost of borrowing*
 - *Maximum employment*
 - *Stable prices*
 - *High stock prices*
 - *Bailing out financial institutions*
 - *Strong dollar*
 - *Reducing inequality*
 - *Climate change*

What they understand about monetary policy

- In terms of the Fed's broader economic objectives, what do you think it views as more important? (pick two)
- In terms of prices in the economy, which best represents what the Fed is trying to do?
 - *Keep inflation as close to target as possible at all times*
 - *Make inflation equal to the target level on average*
 - *Keep prices from rising*
 - *Ensure inflation is sufficiently high to erode value of gvt. debt*
 - *Keep inflation low to promote a strong dollar*
 - *None*
 - *Don't know.*

What they understand about monetary policy

- In terms of the Fed's broader economic objectives, what do you think it views as more important? (pick two)
- In terms of prices in the economy, which best represents what the Fed is trying to do?
- What rate of inflation do you think the Fed tries to achieve in the longer run?

Results

Question	Share of people choosing a listed response	Date				
		8/26	8/27 AM	8/27 PM	8/28	8/29 – 9/1
		(1)	(2)	(3)	(4)	(5)
Heard any news?	“Yes”	0.24	0.22	0.30**	0.33***	0.29**

We see a small (transitory) uptick in the share of people reporting having heard news about monetary policy/Fed.

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From what source?	Newspapers	0.47	0.42	0.53	0.43	0.43
	Social media	0.27	0.34	0.35	0.28	0.30
	TV news	0.56	0.42**	0.38***	0.47*	0.45**
	Other internet	0.09	0.13	0.08	0.09	0.11
	Coworkers	0.12	0.16	0.09	0.11	0.16
	Friends/relatives	0.20	0.35**	0.18	0.17	0.20
	Official sources	0.20	0.32	0.31*	0.22	0.27*

News are first heard from friends, social media and official sources.

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News about what?	Meeting of central bankers	0.22	0.27	0.24	0.16	0.22
	Change in interest rates announced	0.19	0.28	0.20	0.23	0.24
	Change in Fed leadership	0.20	0.30	0.16	0.21	0.19
	New Fed strategies	0.36	0.42	0.45	0.46**	0.45**
	New lending facilities	0.28	0.33	0.26	0.27	0.23
	I don't remember	0.08	0.08	0.08	0.07	0.08

We see a small rise in news heard about Fed strategies and Powell.

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		(1)	(2)	(3)	(4)	(5)
Fed's Price Objective?	Inflation close to target at all times	0.40	0.32**	0.33*	0.37	0.38
	Average inflation on target	0.27	0.29	0.32	0.30	0.27
	Zero inflation	0.35	0.32	0.32	0.37	0.36
	Erode the value of government debt	0.19	0.22	0.20	0.21	0.21
	Strong dollar	0.50	0.50	0.49	0.46	0.49

There is at best a tiny transitory blip in share of people identifying AIT as Fed's objective with respect to prices, suggesting little understanding.

Effect of Hearing News

Did hearing news about the announcement affect respondents' expectations or understanding of monetary policy?

We employ a diff-in-diff strategy:

- Compare average expectations before and after announcement
- Compare those who heard news vs. those who did not.

$$y_{it} = \alpha + \beta X_i + \gamma \mathbb{I}_t^{post} + \delta \mathbb{I}_{it}^{news} + \theta \mathbb{I}_t^{post} \mathbb{I}_{it}^{news} + error_{it} \quad (1)$$

θ captures whether outcome variable for those hearing news after announcement (relative to those not hearing news after announcement) is different relative to those hearing news before announcement (relative to those not hearing news before the announcement).

Effect of Hearing News

Outcome variable	θ	R^2
	(3)	(4)
Correctly pick Fed's objectives (indicator)	-0.004 (0.022)	0.026
Correctly pick inflation targeting (indicator)	-0.024 (0.048)	0.097
Fed's inflation target	0.167 (0.208)	0.090

Knowledge of monetary policy is unchanged by announcements.

Effect of Hearing News

Outcome variable	θ	R ²
	(3)	(4)
Expected inflation, point prediction, 1-year ahead	-0.428 (0.539)	0.050
Probability of high future inflation (>4%)	-1.175 (2.274)	0.077
Expected GDP growth, 1-year ahead	0.712 (1.192)	0.087
Expected personal income growth, 1-year ahead	-0.906 (0.847)	0.061
Credibility of the Fed	2.591 (2.268)	0.179
Consumption in September relative to pre-crisis	0.967 (2.380)	0.079

Economic expectations are completely unchanged as well by announcements.

Summary

- We find that most households did not hear news about the Fed's new strategy following Powell's announcement.

- Those who did hear about the announcement did not seem to incorporate it into their beliefs.
 - Is this because the Fed strategy was poorly explained in news articles?

 - Or is this because the differences in strategy are too complicated for people to understand?

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- *Average inflation targeting treatment*:
 - The Federal Reserve targets an average inflation rate of 2% per year. Effectively, this means that when inflation is below the target, the Federal Reserve will try to push inflation **above the target for some time**. And vice-versa, when inflation is above the target, the Federal Reserve will try to push inflation **below the target for some time**.

Is AIT Likely to Affect Expectations when Explained?

Outcome variable	Regressor		p-value	N obs.
	$\mathbb{I}(treatIT)$	$\mathbb{I}(treatAIT)$		
	(1)	(2)	(3)	(4)

We regress outcome variables on indicator variables for each treatment.

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Outcome variable	Regressor		p-value	N obs.
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	(1)	(2)	(3)	(4)
Expected inflation, 5-year ahead	-0.475*** (0.096)	-0.467*** (0.117)	0.944	4,266
Probability of expected (1-year ahead) inflation being greater than 5%	-0.863 (0.869)	-0.779 (1.017)	0.935	5,278

The two treatments lead to indistinguishable effects on inflation expectations and uncertainty.

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Probability of expected (1-year ahead) inflation being greater than 5%	-0.863 (0.869)	-0.779 (1.017)	0.935	5,278
Expected GDP growth, 5-year ahead	-0.463** (0.184)	-0.485** (0.218)	0.921	4,618
Expected growth of personal disposable income, 5-year ahead	-0.812*** (0.226)	-0.785*** (0.265)	0.919	4,639
Credibility of the Fed	0.380 (0.658)	-1.028 (0.781)	0.073	5,275
Time when mortgage rates are expected to increase	0.031 (0.041)	0.070 (0.049)	0.422	4,170

The two treatments lead to indistinguishable effects. AIT does not seem to have a larger effect on expectations than IT.

Conclusion

- The AIT announcement had little discernible effect on household inflation expectations, both because few heard the news and because those who heard the news did not understand it. Even when explained, AIT has not marginal effect on expectations relative to IT.
- New Keynesian models predict very powerful stabilization properties for AIT due to expectational mechanisms. Our evidence suggests these are unlikely to materialize.

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- The AIT announcement had little discernible effect on household inflation expectations, both because few heard the news and because those who heard the news did not understand it. Even when explained, AIT has not marginal effect on expectations relative to IT.
- New Keynesian models predict very powerful stabilization properties for AIT due to expectational mechanisms. Our evidence suggests these are unlikely to materialize.
- How expectations are formed matters for understanding macroeconomic dynamics and optimal policy design. Inattention by households and firms is pervasive and needs to be more systematically incorporated into macroeconomic models.

What we know about agents' inflation expectations

- Both households and firms disagree lots about future inflation:

Survey Date	Recent data(c)	1-year ahead CPI forecasts, USA						
		Central Bank	Professional forecasters		Households		Firms	
			Mean	SD	Mean	SD	Mean	SD
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
2018Q2	2.4	2.1	2.4	0.4	3.1	2.7	3.4	1.7
2018Q3	2.9	2.0	2.3	0.4	3.4	3.0	3.3	2.0
2018Q4	2.5	1.9	2.3	0.3	3.4	2.8	3.3	1.7
2019Q1	1.5	1.9	2.3	0.3	3.0	2.5	3.0	1.4
2019Q2	2.0	1.7	2.1	0.3	2.9	2.6	2.2	1.1
2019Q3	1.8	1.8	2.1	0.3	3.1	2.7	2.4	1.0
2019Q4	1.8	1.9	2.1	0.3	2.9	2.6	2.1	1.2
2020Q1	2.5	-	2.1	0.4	2.9	2.6	2.3	0.9
2020Q2	0.0	1.2	1.8	0.7	3.2	3.4	2.6	2.2
2020Q3	-	-	-	-	4.1	3.4	2.0	1.2

What we know about agents' inflation expectations

- Both households and firms disagree lots about future inflation.
- Their beliefs about future inflation are closely tied to their beliefs about *recent* inflation.
 - This suggests that *inattention* is an important characteristic of both household and firm expectations.

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- Their beliefs about future inflation are closely tied to their beliefs about *recent* inflation.
- Their forecasts of future inflation *under-respond* to economic shocks and display *very gradual learning* toward full-information rational expectations beliefs.
 - This is consistent with noisy information models where agents receive noisy signals about the state.

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- **What drives the disagreement among agents?**
 - Among households, everyday shopping experiences are strongly predictive of beliefs about aggregate inflation (D'Acunto et al. 2018).
 - Among firms, *industry-specific* shocks have strong predictive power for their beliefs about *aggregate* inflation, consistent with Lucas (1972).

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- Their forecasts of future inflation *under-respond* to economic shocks and display *very gradual learning* toward full-information rational expectations beliefs.
- What drives the disagreement among agents?
- **How do large monetary policy announcements affect inflation expectations?**

