

Speaking of Inflation: The Influence of Fed Speeches on Expectations

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The '70s are Back:
Determinants and Implications of High Inflation

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"I think monetary policy is 98% talk and 2% action, and communication is a big part."

- Ben Bernanke, former Fed Chair

Central Bank communication essential for policy making:

- Increased demand of transparency from public
- Larger set of tools
- Useful to steer or anchor expectations

Motivation

Some skepticism about effectiveness of central banks' communication:

“Central banks will keep trying to communicate with the general public, as they should. But for the most part, they will fail.”

“Many economic models presume that central bank communication is aimed at wage-setters, price-setters, consumers, or investors—maybe all of them. But are they listening?”

- Alan Blinder (2018), former Fed Vice Chair

Research Question

Are Agents Listening?

Are Agents Listening?

- Are FOMC speeches affecting **inflation expectations**?
 - **Households**: basis for consumption and savings decisions (Coibion, Gorodnichenko, and Weber, 2022)
 - **Professional Forecasters**: used to estimate the slope of the Phillips Curve (Ball and Sandeep, 2018), to increase the accuracy of empirical forecasting models (Gergely and Odendahl, 2021) and fit of structural models (Del Negro et al., 2015)
 - **Market investors**: affect asset prices, e.g. stock prices and interest rates (Bernanke and Kuttner, 2005)

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 - Market investors: affect asset prices, e.g. stock prices and interest rates (Bernanke and Kuttner, 2005)
- Why analyze **speeches** rather than minutes or statements?
 - real-time publicly accessible information
 - communication towards outsiders
 - longer time series than statements (January 2000) or SEP (October 2007)
 - different speakers: diversity of opinions (cross-section and time series)

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 - Fed sentiment steers expectations of both experts and non-experts
 - (soft) communication efforts effective after the Great Financial Crisis
 - heterogeneous effect across "types"

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 - Specific speakers: Troika vs Non Troika
 - experts affected by Troika and non-Troika
 - households affected by non-Troika: focus on regional conditions

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 - State Dependence: Recessions vs Expansions
 - Fed speeches affect expectations more in bad times than in good times

Related Literature

Role of central bank communication

- Impact on financial market instruments

Gürkaynak et al. (2005), Boukus and Rosenberg (2006), Blinder et al. (2008),
Carvalho et al. (2016)

- Information conveyed through language

Lucca and Trebbi (2009), Bholat et al. (2015), Hansen and McMahon (2016), Shiller
(2017), Haldane and McMahon (2018), Gardner, Scotti, and Vega (2022) , Shapiro
and Wilson (2022)

Managing expectations

Pedemonte (2019), Coibion et al. (2021), Coibion, Gorodnichenko, and Weber (2022),
D'Acunto et al. (2022), Kumar, Coibion, Afrouzi, and Gorodnichenko (2015),
McMahon and Rholes (2022)

Fed speeches

Neuhierl and Weber (2019), Ehrmann, Tietz, and Visser (2021), Malmendier, Nagel,
and Yan (2021), Istrefi, Odendahl, and Sestieri (2021), Ahrens and McMahon (2021)
Swanson (2023), Swanson and Bauer (2023)

Data: Inflationary Pressure Index and Inflation Forecasts

Who speaks within the Fed?

- 12 Federal Open Market Committee (FOMC) members
 - Seven members of the Board of Governors (Chair+Vice Chair+5 governors)
 - President of the Federal Reserve Bank of New York
 - Four of the remaining eleven regional Reserve Bank presidents
- The FOMC holds eight regularly scheduled meetings during the year
 - Chair releases statement immediately after
 - Minutes released with a 3 week lag
- All members speak publicly all year round (except for blackout periods-2 weeks around FOMC meetings)

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We focus on:

- Speeches by 7 members of Board of Governors and 12 regional Fed presidents
- Speeches from 1995 until today (\approx 4890 speeches)
 - Collected from the federal reserves web pages, the regional Fed's online archives including the FOMC Speak repository from St. Louis Fed.

Constructing Inflationary Pressure Index

- Split all the speeches into sentences
- Identify a sentence as being about inflation if it contains one of the topic keywords (**identifiers**):
 - *inflation*
 - *price*
 - *cost*
- Pair each keyword with the closest (**modifier**)
new dictionary based on economic intuition
- Score each pair based on modifier (+1) additive or (-1) subtractive

Identifiers and Modifiers: List

Identifiers

inflation, price, cost

Additive Modifiers (+1)

boost, elevat, expand,
foster, height, high, increas,
persist, pressure, moderate,
rise, risk remain, rising,
rose, risen, soar, solid, spik,
sustain, strong, strength,
surg, upward, up, upside
risk

Subtractive Modifiers (-1)

below, collapse, damp,
ease, easing, declin,
diminish, down, drop, fall,
low, modest, moderated,
muted, reduction, restrain,
set back, slow, soft,
subdued, weak

Identifiers and Modifiers: Example Sentences

Date	Speaker	Inflation Pressure	Example sentences
2004-10-29	Total	-5	
	R. Ferguson	-5	<i>That should gradually return the economy to full utilization of its resources, while inflation remains subdued.</i>
2005-10-18	Total	94	
	J. Yellen	27	<i>And a key question is whether higher energy prices also will elevate core inflation.</i>
	A. Greenspan	20	<i>Additionally, the longer-term crude price has presumably been driven up by renewed fears of supply disruptions in the middle east and elsewhere.</i>
2015-11-12	Total	-14	
	W. Dudley	-13	<i>It is possible that factors such as very low headline inflation and weak productivity growth are holding down what workers receive in compensation.</i>
	J. Bullard	-4	<i>In that case, policymakers may wish to lower the inflation target to remain more consistent with the actual inflation outcomes.</i>

Inflationary Pressure Index

- The algorithm gives a total of 82,850 sentences
- Sum the scores across speeches at the daily frequency
- The monthly inflation pressure is the monthly sum of daily inflation pressure

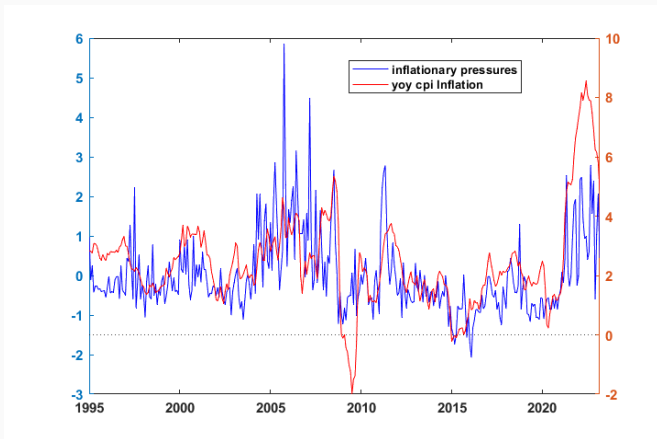


Figure 1: Monthly standardized inflationary pressure index (blue) and year over year monthly CPI all inflation (red), January 1995-April 2023.

What does inflationary pressure index capture?

- Higher index reflects higher current or future inflationary pressures
- Not an assessment of whether outlook is good or bad (inflation close or far from target)
- Index captures both number of speeches and tone

	Contemporaneous Correlations					
	Troika	Non-Troika	CPI: All Items	PCE	Oil Prices	SEP
IPI	0.63	0.90	0.51	0.53	0.40	0.56
Troika	1	0.32	0.23	0.22	0.20	0.25
Non-Troika		1	0.48	0.50	0.36	0.51
CPI-All Items			1	0.98	0.66	0.86
PCE				1	0.69	0.82
Oil Prices						0.52

Table 1: Contemporaneous correlation for monthly indices and variables: 1995M1-2023M4. Troika: Chair of the Board of Governors, Vice and the President of the New York Fed), Non-Troika: regional Fed presidents excluding the New York Fed president.

Inflation forecasts and timing assumptions

Michigan Survey of Consumers (MSC): monthly frequency

- Median of 12 months ahead inflation forecasts
- Inflation Pressure: Previous month

Survey of professional forecasters (SPF): quarterly frequency

- Median of implied 1 year ahead CPI forecasts
- Inflation Pressure: First month of the quarter when the SPF is released

Market expectations (MKT): monthly frequency

- Market based one year expected inflation constructed by Haubrich, Pennacchi, and Ritchken (2012, FRB of Cleveland)
- Inflation Pressure: Previous month

Methodology

Regression Model

$$E_t \pi_{t+h} = \alpha + \beta \underbrace{s_{t-1}}_{\text{MSC, SPF or MKT}} + \gamma' \underbrace{X_{t-1}}_{\text{controls selected with LASSO}} + u_t$$

Timing:

- s_{t-1} is the inflationary pressure index of previous month (MSC, MKT) or of the first month of the quarter (SPF)

Controls:

- X_{t-1} selected through LASSO among ≈ 120 macro-financial variables from FRED data set by McCracken and Ng (2016)
- FOMC projections from SEP

Rationale: Belloni and Chernozhukov (2013)

- smaller bias compared to one step LASSO regression even when OLS post-LASSO model is misspecified

Regression Model

Identification of causal effect:

- Issue if some confounding variable is affecting both expectations at time t and the IPI
- LASSO: control for relevant macro-financial variables but in a parsimonious way

Further exercises:

- PCA analysis
- Revisions of forecasts

Regression results

LASSO: controls

MSC	PPI by Commodity: Final Demand: Finished Goods
	CPI: Commodities
	PCE: Durable goods
	Manufacturers' Unfilled Orders: Durable Goods

SPF	Capacity Utilization: Manufacturing
	CPI : All Items Less Food and Energy
	Real Revolving Credit Owned and Securitized

MKT	CPI: All Items Less Food
	Civilian Labor Force Level
	New Privately-Owned Housing Units Started: Total Units in the Midwest
	New Privately-Owned Housing Units Authorized in Permit-Issuing Places: Total Units in the Midwest

Table 2: Variables selected from the LASSO estimation.

Results: Michigan Survey of Consumers

$$\text{Model 1: } E_t \pi_{t+h} = \alpha + \beta s_{t-1} + \gamma' X_{t-1} + u_t$$

$$\text{Model 2: } E_t \pi_{t+h} = \alpha + \beta s_{t-1} + \gamma' X_{t-1} + \delta \text{ SEP} + u_t$$

	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Inf Pressure Indx	0.12***	0.13**	0.07**	0.12*	0.27***	0.22**
SEP		0.22		-0.14		0.50**
R-Squared	0.64	0.71	0.42	0.51	0.72	0.76
Observations	339	85	155	24	184	61
Tuning Parameter	0.005	0.005	0.005	0.005	0.005	0.005

Table 3: The dependent variable is the twelve month ahead expectations (median) from the MCS. '*', '**' and '***' indicate significance levels at the 10, 5 and 1 percent respectively. Tuning parameter is the regularization parameter in the LASSO regression.

- 1σ \uparrow inflationary pressure index: hhs expect 0.22pp \uparrow inflation next 12 months
- 1pp \uparrow SEP: hhs expect 0.50pp \uparrow inflation next 12 months

Results: Survey of Professional Forecasters

$$\text{Model 1: } E_t \pi_{t+h} = \alpha + \beta s_{t-1} + \gamma' X_{t-1} + u_t$$

$$\text{Model 2: } E_t \pi_{t+h} = \alpha + \beta s_{t-1} + \gamma' X_{t-1} + \delta \text{ SEP} + u_t$$

	1995:Q1-2023:Q2		1995:Q1-2007:Q4		2008:Q1-2023:Q2	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Inf Pressure Indx	0.06***	0.07***	0.05*	0.04	0.11***	0.07**
SEP		0.19***		0.07		0.18**
R-Squared	0.80	0.87	0.75	0.64	0.88	0.91
Observations	114	80	52	23	62	57
Tuning Parameter	0.01	0.01	0.01	0.01	0.01	0.01

Table 4: The dependent variable is the one year ahead expectations (median) of CPI all items inflation from the SPF. '*', '**' and '***' indicate significance levels at the 10, 5 and 1 percent respectively. Tuning parameter is the regularization parameter in the LASSO regression.

Results: Market-based expectations

$$\text{Model 1: } E_t \pi_{t+h} = \alpha + \beta s_{t-1} + \gamma' X_{t-1} + u_t$$

$$\text{Model 2: } E_t \pi_{t+h} = \alpha + \beta s_{t-1} + \gamma' X_{t-1} + \delta \text{ SEP} + u_t$$

	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Inf Pressure Indx	0.09***	0.17***	-0.07*	-0.08	0.16***	0.11*
SEP		0.53***		0.48***		0.65***
R-Squared	0.58	0.72	0.29	0.70	0.55	0.73
Observations	339	85	155	24	184	61
Tuning Parameter	0.003	0.003	0.003	0.003	0.003	0.003

Table 5: The dependent variable is the market based one year expected inflation constructed by Haubrich, Pennacchi, and Ritchken (2012, FRB of Cleveland). '*', '**' and '***' indicate significance levels at the 10, 5 and 1 percent respectively. Tuning parameter is the regularization parameter in the LASSO regression.

Takeaway

- We find that Fed speeches affect inflation expectations of
 - households
 - professional forecasters
 - markets
- Higher Fed inflationary pressure implies that agents' have higher inflation expectations
- More effective starting from the Great Financial Crisis
- Even after controlling for
 - “quantitative” information provided by the Fed in the projections
 - Lagged CPI, among other macro variables

Baseline results are robust to:

- using **mean** forecast rather than median forecast
- taking out **index outliers** (5% of the sample)
- using **principal components** instead of LASSO
- including **lags** of the inflation pressure and controls
- using **forecast revisions** instead of forecasts
- alternative household expectations **NY Fed SCE**
- excluding identifiers/modifiers

Further analysis

Additionally, we look at:

- different “types” of forecasters
- state dependence
- long run inflation forecasts
- different speakers

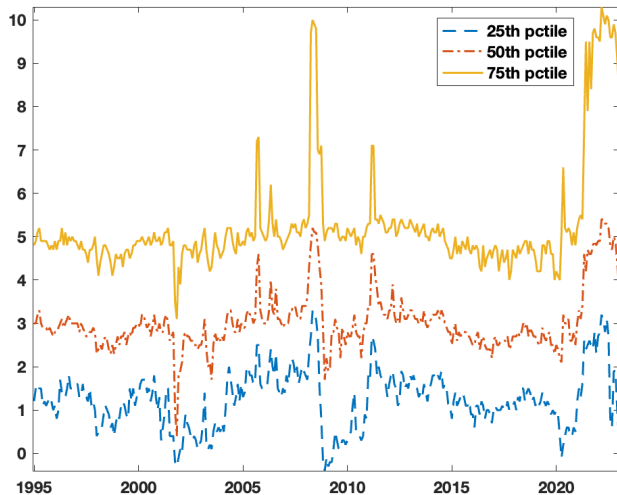
Percentiles analysis

Are some agents more affected than others?

→ analysis by respondent type:

- types are those in specific percentiles of the time t survey forecast distribution
 - follows Bianchi, Ludvigson and Ma (2022)
- does not assume types are invariant over time, not about optimistic vs pessimistic

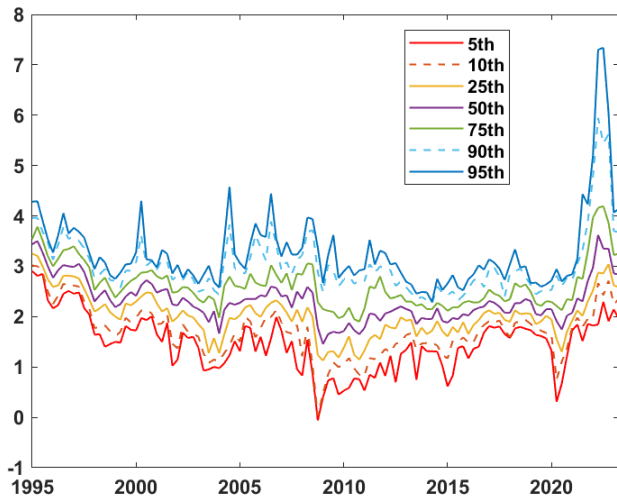
Percentile Types: MSC



Percentile Types: MSC

Pctile		1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
25th							
	Inflation Pressure	0.17***	0.20**	0.17***	0.29***	0.15**	0.15
	SEP		0.22		-0.07		0.66**
	R-Squared	0.42	0.46	0.51	0.61	0.41	0.46
50th							
	Inflation Pressure	0.12***	0.13**	0.07**	0.12*	0.27***	0.22**
	SEP		0.22		-0.14		0.50**
	R-Squared	0.64	0.71	0.42	0.51	0.72	0.76
75th							
	Inflation Pressure	0.09*	0.07	0.01	0.07	0.44***	0.26
	SEP		0.54*		-0.23**		0.95*
	R-Squared	0.69	0.70	0.36	0.63	0.76	0.73
	Observations	339	85	155	24	184	61

Percentile Types: SPF



Percentile Types: SPF

Pctile		1995:Q1-2023:Q2		1995:Q1-2007:Q4		2008:Q1-2023:Q2	
10th	Inflation Pressure	0.02	0.01	-0.02	0.03	0.18**	-0.10
	SEP		0.03		0.55***		0.53***
25th	Inflation Pressure	0.03*	0.04**	-0.01	0.02	0.11***	0.02
	SEP		0.12**		0.47***		0.28***
75th	Inflation Pressure	0.06**	0.07***	-0.00	0.04	0.13***	0.08**
	SEP		0.21***		0.39***		0.26***
90th	Inflation Pressure	0.13***	0.13***	0.10**	0.16***	0.20***	0.16**
	SEP		0.13		0.33***		0.28

State dependence

Are the effects different in [different phases of the business cycle](#)?

We look at:

- NBER recession dates
- CBO output gap
positive vs negative
- Output growth
year over year growth rate of real GDP below or above 3% average

State dependence: MSC

	NBER		CBO Output Gap		Output Growth	
	Recession	Expansion	Negative	Positive	Below Average	Above Average
Inflation Pressure	0.60***	0.10***	0.19***	-0.00	0.18**	-0.01
R-Squared	0.57	0.74	0.66	0.66	0.55	0.86
Observations	31	307	248	90	221	117
Tuning Parameter	0.005	0.005	0.005	0.005	0.005	0.005

Table 6: Recessions defined as: NBER recession dates; CBO estimates of the output gap; year over year growth rate of Real Gross Domestic Product below 3%. ‘*’, ‘**’ and ‘***’ indicate significance levels at the 10, 5 and 1 percent respectively.

State dependence: SPF

	NBER		CBO Output Gap		Output Growth	
	Recession	Expansion	Negative	Positive	Below Average	Above Average
Inflation Pressure	0.21*	0.04**	0.11***	0.04	0.05**	0.07*
R-Squared	0.66	0.80	0.83	0.19	0.83	0.67
Observations	11	103	84	30	74	40
Tuning Parameter	0.01	0.01	0.01	0.01	0.01	0.01

Table 7: Recessions defined as: NBER recession dates; CBO estimates of the output Gap; year over year growth rate of Real Gross Domestic Product below 3%. ‘*’, ‘**’ and ‘***’ indicate significance levels at the 10, 5 and 1 percent respectively.

State dependence: MKT

	NBER		CBO Output Gap		Output Growth	
	Recession	Expansion	Negative	Positive	Below Average	Above Average
Inflation Pressure	0.59***	0.06**	0.12**	-0.01	0.15***	-0.04
R-Squared	0.73	0.55	0.53	0.28	0.59	0.47
Observations	31	307	248	90	221	117
Tuning Parameter	0.003	0.003	0.003	0.003	0.003	0.003

Table 8: Recessions defined as: NBER recession dates; CBO estimates of the output Gap; year over year growth rate of Real Gross Domestic Product below 3%. ‘*’, ‘**’ and ‘***’ indicate significance levels at the 10, 5 and 1 percent respectively.

State dependence

Are the effects different in **different phases of the business cycle**?

We look at:

- NBER recession dates
- CBO output gap
positive vs negative
- Output growth
year over year growth rate of real GDP below or above 3% average

Takeaway: effects are significantly larger in bad times compared to good times

Are long-run forecasts affected by Fed inflation pressure?

We use data from:

Michigan Survey of Consumers: 5 year ahead inflation

Survey of Professional Forecasters: 10 year ahead CPI

Market based: 5 year ahead

Long Run Forecasts: MSC

	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Inflation Pressure	0.02	0.02	-0.01	0.02	0.05***	0.06**
SEP		0.02		0.13		-0.09*
R-Squared	0.41	0.52	0.22	0.12	0.57	0.67
Observations	339	85	155	24	184	61
Tuning Parameter	0.006	0.006	0.006	0.006	0.006	0.006

Table 9: The dependent variable is the five year ahead expectations (median) of inflation from the MSC. '*', '**' and '***' indicate significance levels at the 10, 5 and 1 percent respectively. Tuning parameter is the regularization parameter in the LASSO regression.

Long Run Forecasts: SPF

	1995:Q1-2023:Q2		1995:Q1-2007:Q4		2008:Q1-2023:Q2	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Inflation Pressure	0.04***	0.05***	0.01	0.02	0.10***	0.05**
SEP		0.11***		0.02		0.12***
R-Squared	0.70	0.64	0.88	0.80	0.50	0.60
Observations	114	80	52	23	62	57
Tuning Parameter	0.01	0.01	0.01	0.01	0.01	0.01

Table 10: The dependent variable is the ten year ahead expectations (median) of CPI all items inflation from the SPF. ‘*’, ‘**’ and ‘***’ indicate significance levels at the 10, 5 and 1 percent respectively. Tuning parameter is the regularization parameter in the LASSO regression.

Long Run Forecasts: MKT

	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Inflation Pressure	0.03	0.14***	-0.12***	0.04	0.10***	0.05
SEP		-0.04		0.47***		0.14**
R-Squared	0.60	0.62	0.28	0.76	0.58	0.67
Observations	339	85	155	24	184	61
Tuning Parameter	0.004	0.004	0.004	0.004	0.004	0.004

Table 11: The dependent variable is the market based five year expected inflation constructed by Haubrich, Pennacchi, and Ritchken (2012, FRB of Cleveland). ‘*’, ‘**’ and ‘***’ indicate significance levels at the 10, 5 and 1 percent respectively. Tuning parameter is the regularization parameter in the LASSO regression.

Are long-run forecasts affected by Fed inflation pressure?

We use data from:

Michigan Survey of Consumers: 5 year ahead inflation

Survey of Professional Forecasters: 10 year ahead CPI

Market based: 5 year ahead

Takeaway: long-run forecasts are significantly less affected than short-run

→ Good news? We like these to be well anchored

Are some speakers more influential than others?

Build different inflation pressure index by speaker:

- Troika (Chair+Vice Chair+NY Fed President) versus non-Troika (regional presidents)
- Troika considered the most important figures in the Fed System

Troika versus Non Troika: indexes

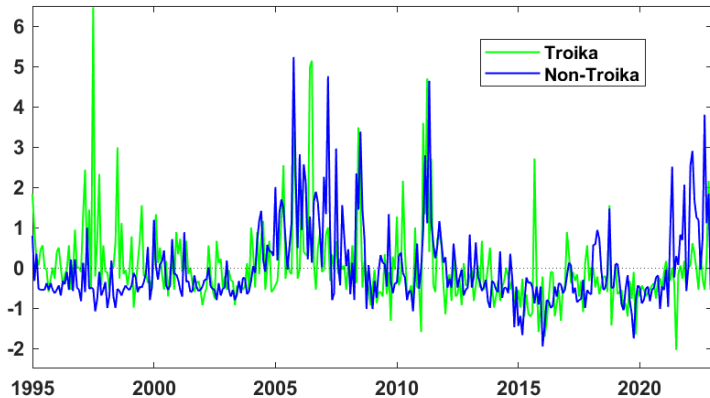


Figure 2: Inflationary pressure index for Troika (Chair+Vice Chair+NY Fed President) and Non-Troika (all other speakers). The contemporaneous correlation between indices is 0.32.

Troika vs. Non-Troika: MSC

$$\text{Model 1: } E_t \pi_{t+h} = \alpha + \beta_1 s_{t-1}^{\text{troika}} + \beta_2 s_{t-1}^{\text{non-troika}} + \gamma' X_{t-1} + u_t$$

$$\text{Model 2: } E_t \pi_{t+h} = \alpha + \beta_1 s_{t-1}^{\text{troika}} + \beta_2 s_{t-1}^{\text{non-troika}} + \gamma' X_{t-1} + \delta \text{ SEP} + u_t$$

	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Troika Infl. Pressure	0.03	0.03	0.01	0.01	0.09**	0.10*
Presidents Infl. Pressure	0.10***	0.07	0.08**	0.16*	0.16***	0.04
SEP		0.25*		-0.15		0.63**
R-Squared	0.63	0.70	0.42	0.51	0.71	0.74
Observations	339	85	155	24	184	61
Tuning Parameter	0.005	0.005	0.005	0.005	0.005	0.005

Table 12: The dependent variable is the one year ahead expectations (median) of inflation from the MSC. ‘*’, ‘**’ and ‘***’ indicate significance levels at the 10, 5 and 1 percent respectively. Tuning parameter is the regularization parameter in the LASSO regression.

Troika vs. Non-Troika: SPF

$$\text{Model 1: } E_t \pi_{t+h} = \alpha + \beta_1 s_{t-1}^{\text{troika}} + \beta_2 s_{t-1}^{\text{non-troika}} + \gamma' X_{t-1} + u_t$$

$$\text{Model 2: } E_t \pi_{t+h} = \alpha + \beta_1 s_{t-1}^{\text{troika}} + \beta_2 s_{t-1}^{\text{non-troika}} + \gamma' X_{t-1} + \delta \text{ SEP} + u_t$$

	1995:Q1-2023:Q2		1995:Q1-2007:Q4		2008:Q1-2023:Q2	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Troika Infl. Press.	0.06***	0.05**	0.04	0.07	0.05*	0.05*
Non-Troika Infl. Press.	0.03*	0.04**	0.01	0.01	0.08***	0.04
SEP		0.16***		0.05		0.18**
R-Squared	0.80	0.87	0.74	0.62	0.88	0.91
Observations	114	80	52	23	62	57
Tuning Parameter	0.01	0.01	0.01	0.01	0.01	0.01

Table 13: The dependent variable is the one year ahead expectations (median) of CPI all items inflation from the SPF. '*', '**' and '***' indicate significance levels at the 10, 5 and 1 percent respectively. Tuning parameter is the regularization parameter in the LASSO regression.

Troika vs. Non-Troika: MKT

$$\text{Model 1: } E_t \pi_{t+h} = \alpha + \beta_1 s_{t-1}^{\text{troika}} + \beta_2 s_{t-1}^{\text{non-troika}} + \gamma' X_{t-1} + u_t$$

$$\text{Model 2: } E_t \pi_{t+h} = \alpha + \beta_1 s_{t-1}^{\text{troika}} + \beta_2 s_{t-1}^{\text{non-troika}} + \gamma' X_{t-1} + \delta \text{ SEP} + u_t$$

	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Troika Infl. Pressure	0.11***	0.09***	0.03	-0.02	0.09*	0.07*
Presidents Infl. Pressure	0.03	0.07	-0.09**	-0.25**	0.11**	0.05
SEP		0.54***		0.37**		0.68***
R-Squared	0.59	0.73	0.30	0.77	0.55	0.74
Observations	339	85	155	24	184	61
Tuning Parameter	0.003	0.003	0.003	0.003	0.003	0.003

Table 14: The dependent variable is the market based one year expected inflation constructed by Haubrich, Pennacchi, and Ritchken (2012, FRB of Cleveland). ‘*’, ‘**’ and ‘***’ indicate significance levels at the 10, 5 and 1 percent respectively. Tuning parameter is the regularization parameter in the LASSO regression.

Media Coverage of FOMC Speeches

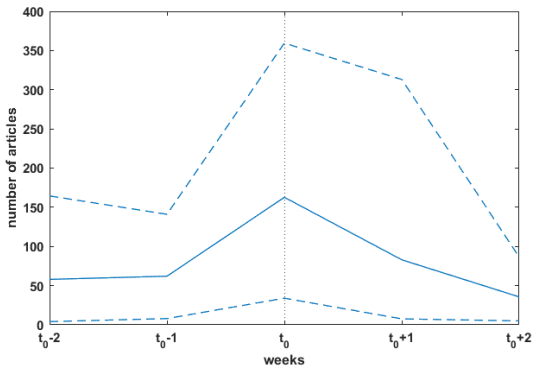


Figure 3: Average number of articles from US journals covering FOMC speeches by all members, excluding Chair and NY-FED president, January 1st to April 10th 2023. t_0 is the week in which the speeches are given. Source: Factiva

Conclusion

- We construct a Fed inflation pressure index
 - identify the “soft” information in Fed communication
- Economic agents are listening
 - Fed communication reaches both experts and non-experts
 - speeches affect inflation expectations
 - quantitative information (SEP) is also useful
- Communication strategies have improved over time
 - larger effectiveness after the Great Financial Crisis
- Heterogeneity across forecasting “type”
 - agents expecting inflation higher than median are more affected by inflation pressure
 - we don't make claims about the accuracy of the forecasts RMSE

Implications

- Lessons for policy-makers
 - switch to transparency pays off: expectations are now affected by Fed communication
 - central banks can rely on speeches as well as SEP to manage expectations
 - speakers matter
- Communication has stronger effects in bad times compared to good times

Thank you

Robustness: Mean

Michigan Consumer Survey

	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
Inflation Pressure	0.12***	0.14	-0.01	0.18*	0.38***	0.30**
SEP		0.46**		0.04		0.95**
R-Squared	0.71	0.73	0.55	0.56	0.78	0.78
Observations	339	85	155	24	184	61
Tuning Parameter	0.005	0.005	0.005	0.005	0.005	0.005

Survey of Professional Forecasters

	1995:Q1-2023:Q2		1995:Q1-2007:Q4		2008:Q1-2023:Q2	
Inflation Pressure	0.07***	0.07***	0.03	0.05	0.13***	0.07**
SEP		0.20***		0.15		0.22***
R-Squared	0.80	0.88	0.70	0.65	0.88	0.90
Observations	114	80	52	23	62	57
Tuning Parameter	0.01	0.01	0.01	0.01	0.01	0.01

Robustness: Outliers

Michigan Consumer Survey						
	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
Inflation Pressure	0.13***	0.17**	0.11**	0.13	0.29***	0.33**
SEP		0.25*		-0.11		0.46*
R-Squared	0.59	0.65	0.41	0.54	0.68	0.71
Observations	322	80	147	22	175	58

Survey of Professional Forecasters						
	1995:Q1-2023:Q2		1995:Q1-2007:Q4		2008:Q1-2023:Q2	
Inflation Pressure	0.09***	0.12***	0.07*	0.12**	0.14***	0.10***
SEP		0.19***		0.07		0.18**
R-Squared	0.80	0.89	0.31	0.72	0.89	0.91
Observations	108	75	49	20	59	54

Market based						
	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
Inflation Pressure	0.10**	0.19***	-0.14***	-0.02	0.20***	0.13
SEP		0.57***		0.48***		0.65***
R-Squared	0.57	0.70	0.31	0.70	0.51	0.66
Observations	322	80	147	22	175	58

Robustness: Principal Components

Michigan Consumer Survey						
	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
Inflation Pressure SEP	0.12***	0.12* 0.43***	0.06*	0.10 -0.16	0.33***	0.26*** 0.53*
R-Squared	0.52	0.63	0.45	0.51	0.69	0.74
Observations	339	85	155	24	184	61
Survey of Professional Forecasters						
	1995:Q1-2023:Q2		1995:Q1-2007:Q4		2008:Q1-2023:Q2	
Inflation Pressure SEP	0.06**	0.07*** 0.44***	-0.11**	-0.01 0.31**	0.15***	0.04 0.50***
R-Squared	0.49	0.80	0.41	0.47	0.68	0.86
Observations	114	80	52	23	62	57
# PC	3	3	3	3	3	3
Market based						
	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
Inflation Pressure SEP	0.06*	0.16*** 0.44***	-0.07**	-0.22*** 0.24	0.13***	0.08 0.75***
R-Squared	0.48	0.62	0.53	0.72	0.53	0.74
Observations	339	85	155	24	184	61

Robustness: Additional Lags

Michigan Consumer Survey						
	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
Inflation Pressure	0.11***	0.12*	0.06*	0.13*	0.23***	0.20*
SEP		0.26*		-0.11		0.56**
R-Squared	0.64	0.71	0.45	0.47	0.72	0.75
Observations	338	85	154	24	184	61

Survey of Professional Forecasters						
	1995:Q1-2023:Q2		1995:Q1-2007:Q4		2008:Q1-2023:Q2	
Inflation Pressure	0.07***	0.07***	0.03*	0.05*	0.12***	0.08**
SEP		0.20***		0.07**		0.19**
R-Squared	0.80	0.87	0.75	0.68	0.88	0.90
Observations	113	80	51	23	61	56

Market based						
	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
Inflation Pressure	0.05	0.10**	-0.07*	-0.06	0.11**	0.06
SEP		0.60***		0.45**		0.69***
R-Squared	0.59	0.77	0.30	0.63	0.58	0.77
Observations	338	85	154	24	184	61

Robustness: Revisions

	Michigan Consumer Survey					
	1995:m1-2023:m4		1995:m1-2007:m12		2008:m1-2023:m4	
Δ Inflation Pressure	0.00	0.01	-0.03	-	0.05	0.05
Δ SEP		0.17		-		-0.06*
R-Squared	0.02	0.03	0.02	-	0.02	0.04
Observations	338	49	154	-	184	181

	Survey of Professional Forecasters					
	1995:Q1-2023:Q2		1995:Q1-2007:Q4		2008:Q1-2023:Q2	
Δ Inflation Pressure	0.05***	0.05***	0.01	-	0.10***	0.10***
Δ SEP		0.09		-		0.08
R-Squared	0.20	0.20	0.10	-	0.33	0.36
Observations	113	113	51	-	61	61
Tuning Parameter	0.01	0.01	0.01	-	0.01	0.01

Robustness: New York Fed SCE

	One Year Ahead		Three Years Ahead	
	Model 1	Model 2	Model 1	Model 2
Inflation Pressure	0.26***	0.29**	0.05**	0.10*
SEP		0.14		-0.02
R-Squared	0.91	0.93	0.81	0.77
Observations	119	39	119	39
Tuning Parameter	0.01	0.01	0.01	0.01

Are expectations accurate?

Sample	MSC			SPF		
	25th	50th	75th	25th	50th	75th
1995-2023	2.18	1.79	3.16	1.67	1.61	1.60
1995-2007	1.81	1.02	2.39	0.96	0.89	0.91
2008-2023	2.47	2.26	3.73	2.06	2.01	2.00

Table 15: Root Mean Squared Error (RMSE) for CPI all items inflation from the MSC and SPF.

Are expectations accurate?

Sample	MSC			SPF		
	25th	50th	75th	25th	50th	75th
1995-2023	2.18	1.79	3.18	1.67	1.61	1.60
1995-2007	1.81	1.02	2.39	0.96	0.89	0.91
2008-2023	2.47	2.26	3.76	2.06	2.01	2.00

Table 16: Root Mean Squared Error (RMSE) for CPI all items inflation from the MSC and SPF.

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