Inflation Preferences

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Federal Reserve Mandate

Congress defines goals of US monetary policy

▶ *The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall [...] promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.*

— Federal Reserve Act of 1977

Yet, definition of *stable prices* at discretion of Federal Reserve:

▶ Federal Reserve sets long run inflation target to 2% (FOMC, 2023)
▶ Economic models suggest that some inflation can be beneficial
  ▶ Higher inflation provides room for ELB (Coibion et al., 2012)
  ▶ Inflation greases the wheels of the labor market (Tobin, 1972)
  ▶ Svensson (1999): Price-level targeting optimal for loss-function minimizing central bank

Consumers View on Inflation

Survey evidence suggests that US consumers strongly dislike inflation (Shiller, 1997)

- ▶ Inflation reduces purchasing power; consumers associate inflation with bad economic outcomes
- ▶ Stantcheva (2024): Consumers blame businesses and government for inflation

Additional evidence suggests higher inflation correlates with lower life satisfaction

- ▶ Frey (2008), Huebner and Klemm (2015), Di Tella et al. (2001)

Consumers have a different perception of inflation than economists (Shiller, 1997)

- ▶ Few consumers see positive impacts of inflation on the economy (Stantcheva, 2024)

This Paper

Which inflation rate do US consumers prefer in the long run?

- ▶ Does a wedge exist between consumer preferences and actual policies?
- ▶ Which factors explain the heterogeneity in preferences?

What is the role of economic narratives for inflation preferences?

- ▶ Can communication shape inflation preferences?

New representative survey on preferences

- ▶ Quantify inflation preferences of US consumers
- ▶ Elicit economic narratives on inflation consumers have in mind
- ▶ Randomized Control Trial (RCT) to establish link between narratives and preferences

Results

US consumers consider 0.20% (0% median) inflation p.a. as the optimal level

- ▶ More than 80% state preferences below the current inflation target
- ▶ Most respondents consider a narrative where inflation erodes real wages
- ▶ Preferences correlate with socio-economic factors, as well as economic narratives

RCT provides causal evidence on the role of economic narratives

- ▶ Communication about several narratives alters inflation preferences
- ▶ Information on inflation eroding real wages, as well as cash holdings, reduces inflation preferences
- ▶ Communication may also work through shifting the set of economic narratives considered

Inflation Preferences

Inflation preference corresponds to π^* in central bank loss function (i.e., Svensson, 2014)

$$min\ W_t = (\pi_t - \pi^*)^2 + \lambda(u_t - u^*)^2$$

Public preferences over inflation relevant for monetary policy in the long run

▶ Public opinion relevant for policy in the long run (Hayo, 1999)

▶ Political pressure on monetary policy (Drechsel, 2024)

Inflation preferences are a determinant of expectations and decisions

▶ Inflation expectations tilted towards inflation outcomes disliked more by consumers (Michelacci and Paciello, 2023)

▶ Trust in central bank correlates with inflation preferences close to policy targets (Draeger et al. 2024)

Literature

1. Survey evidence on inflation aversion
   - Shiller (1997), Scheve (2004), Stantcheva (2024) provide ample evidence on inflation aversion

2. Inflation and life satisfaction
   - Frey (2008), Huebner and Klemm (2015), Ruprah and Luengas (2011), Di Tella et al. (2001) provide cross-country evidence on the link between inflation and life satisfaction

3. Economic narratives
   - Narratives about the economy shape perception of macroeconomic outcomes (Andre et al., 2022, 2024)
   - Hajdini et al. (2022) and Jain et al. (2024) study economic narratives in relation to labor market outcomes and inflation
   - Consumers understand inflation through supply-side narratives (Candia et al., 2020)

Data

New online survey (Qualtrics) on U.S. consumer inflation preferences

- ▶ $N = 3,520$ respondents asked in February and March, 2024
- ▶ Representative according to several dimensions (age, gender, income, education, region)
- ▶ Survey weights to adjust for sampling inaccuracy

Sample Demographics

Five Steps:

1. Inflation preference (Prior)
2. Treatment (RCT) and demographic characteristics
3. Inflation preference (Posterior)
4. Consideration of economic narratives
5. Questions on economic situation, and policy perceptions, and additional vignettes

1) Inflation Preference (Prior)

Consider the economy you live in. Its prices tend to move up or down over time. What would you prefer the inflation rate to be for these goods and services, in a typical year? On average, the inflation rate should be:

O *positive*
O *zero*
O *negative*

In a typical year, what rate of **[inflation/deflation]** *would you prefer?*

O *more than 0% and less than or equal to 1%*
O *more than 1% and less than or equal to 2%*
O *more than 2% and less than or equal to 3%*
O *more than 3% and less than or equal to 5%*
O *more than 5% and less than or equal to 8%*
O *more than 8%, please specify* ____

2) Economic Narratives - Treatments

T1 (Friedman) *You don't earn interest on your cash at home and only little interest on money in your checking account. But if goods and services become more expensive over time (inflation), your cash becomes less valuable. Hence, lower inflation can be beneficial when you hold cash.*

▶ Friedman (1969): Determine optimal inflation via the (opportunity) cost of producing currency, which is (approximately) zero; hence deflation optimal in the long run

2) Economic Narratives - Treatments

T2 (ELB) *When prices increase over time (inflation), interest rates tend to be high. But in times of economic crisis, lower interest rates are needed to the boost the economy. Higher inflation, therefore, gives central banks more opportunities to lower interest rates and help the economy to recover.*

▶ Andrade et al. (2019); Coibion et al. (2012): Effective lower bound (ELB) on nominal interest rates makes it difficult to stabilize inflation with conventional tools

▶ Positive trend inflation is optimal to mitigate the risk of policy becoming constrained by ELB

2) Economic Narratives - Treatments

T3 (Labor Market) *In times of crisis, it is sometimes necessary for firms to reduce wages in order to keep people employed. But if they cannot cut wages, they might fire employees instead. Higher inflation reduces wages implicitly. Thus, firms are not forced to reduce wages explicitly or fire workers in times of crisis.*

▶ Tobin (1972): Inflation "greases the wheels of the labor market"

2) Economic Narratives - Treatments

T4 (Wage inflation) *When prices increase over time (inflation), worker's wages may not immediately adjust in proportion. Inflation, therefore, affects the amount of goods and services that workers can buy with their wages. By keeping inflation low, workers can buy a similar amount of goods and services over time.*

▶ As wages are sticky, inflation erodes the purchasing power of workers

2) Economic Narratives - Treatments

T5 (Asset inflation) *When prices increase over time (inflation), the dollar value of your assets (such as real estate, retirement savings, stocks, bonds and so on) may not immediately adjust in proportion. Inflation, therefore, affects the amount of goods and services that you can buy with your assets. By keeping inflation low, you can buy a similar amount of goods and services with your assets over time.*

▶ Fama and Schwert, (1977): Value of real assets might not immediately adjust to changes in the prices level

3) Inflation Preference (Posterior)

Inflation rates tend to vary from year to year. Imagine for a moment that you could pick the inflation rate for the economy. In your opinion, what would be the optimal inflation rate, in a typical year? On average, the inflation rate should be:

- O *positive*
- O *zero*
- O *negative*

In a typical year, what would you say is the optimal rate of **[inflation/deflation]***?*

- O *more than 0% and less than or equal to 1%*
- O *more than 1% and less than or equal to 2%*
- O *more than 2% and less than or equal to 3%*
- O *more than 3% and less than or equal to 5%*
- O *more than 5% and less than or equal to 8%*
- O *more than 8%, please specify ____*

4) Consideration of Inflation Theories

When you were thinking about your answer to the previous question, did your thoughts relate to any of the following ideas?
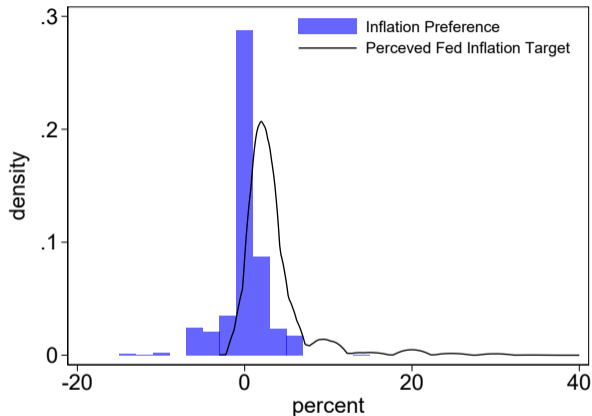*Please read each statement and choose yes or no. The next statement will appear after you choose your answer.*

[Inflation Narrative (T1-T5)]

O *Yes, I thought about this*
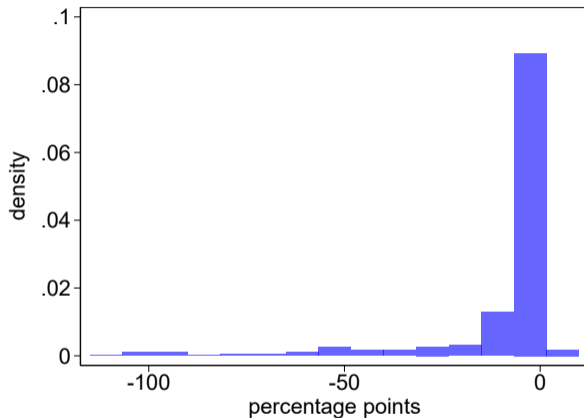O *No, I didn't think about this*

Consumers Prefer Prices To Be Stable ...

- ▶ Consumers prefer 0.20% inflation on average (median 0%)
- ▶ Perceived inflation target of the Fed 3.38% (median 2%)

... and Inflation To Be Below Current Targets

- ▶ 88.50% of consumers prefer less inflation than what they perceive the target to be
- ▶ 83.47% of consumers prefer less than 2% inflation

Demographic Factors

	π_i^* (Prior)
Female	-0.0653
	(-0.83)
35 to 55 years	-0.281***
	(-2.66)
over 55 years	-0.951***
	(-8.35)
College degree or above	-0.0298
	(-0.28)
Economics major	0.906***
	(8.58)
Hispanic	-0.0542
	(-0.45)
Black	0.213*
	(1.73)
Asian	-0.283*
	(-1.76)
Republican	-0.258***
	(-2.80)
Independent	-0.326***
	(-3.59)
N=3520; $R^2 = 0.113$	

How do inflation preferences correlate with demographic characteristics D_i?

$$\pi_i^* = \beta_0 + \delta D_i + \zeta E_i + \epsilon_i$$

- ▶ Older respondents prefer significantly less inflation
- ▶ Formal economic education correlates with higher preferences (e.g., Shiller, 1997)
- ▶ Democrats prefer more inflation than Republicans or Independent voters

Socioeconomic Factors

	π_i^* (Prior)
50k to 100k income	-0.321***
	(-2.60)
over 100k income	-0.0757
	(-0.53)
Labor income (share)	-0.00647***
	(-5.17)
Pens./Trans. income (share)	0.00186
	(1.26)
20K to 200k assets	0.309***
	(3.07)
over 200k assets	0.867***
	(6.76)
Investment assets (share)	-0.344
	(-1.60)
Retirement assets (share)	-0.225
	(-1.25)
Home Owner	-0.263**
	(-2.28)
Home Mortgage	0.391***
	(4.06)
N=3520; $R^2 = 0.113$	

How do inflation preferences correlate with economic characteristics E_i?

$$\pi_i^* = \beta_0 + \delta D_i + \zeta E_i + \epsilon_i$$

- Middle income households prefer less inflation
- Higher labor income share on total income correlates with lower inflation preferences
- Asset-poor households prefer lower inflation (e.g., Easterly and Fisher, 2001)
- Home mortgage: More inflation considered optimal

Which Narratives do Consumers Have in Mind?

Survey elicits the consideration of five narratives about inflation and the economy

- ▶ $\bar{\mathbb{I}}(m_k) \in (0,1)$ indicates if survey respondent i considered narrative m_k
- ▶ Table displays the average consideration of narratives by respondents in the control group
- ▶ Scale by total number of theories considered

$$p_i(m_k) = \frac{\mathbb{I}_i(m_k)}{\sum_{j=1}^{5} \mathbb{I}_i(m_j)}$$

	$\bar{\mathbb{I}}(m_k)$	$\bar{p}(m_k)$
Friedman	69.7%	18.1%
ELB	64.5%	16.9%
Labor market	56.6%	14.5%
Wage inflation	77.4%	21.5%
Asset inflation	74.8%	20.0%

Structural model

- ▶ $p(m_k)$ indicates the relative *mental weight* placed by respondents on narrative m_k (assuming equal weighting between all models considered)
- ▶ Consumers most likely to consider "wage inflation"-narrative; positive effects of inflation play relatively minor role

Economic Narratives and Inflation Preferences

	π_i^* (Prior)
$\mathbb{I}_i(\textit{Friedman})$	0.139
	(0.78)
$\mathbb{I}_i(\textit{ELB})$	0.533***
	(3.16)
$\mathbb{I}_i(\textit{Labor market})$	0.0429
	(0.26)
$\mathbb{I}_i(\textit{Wage inflation})$	-0.734***
	(-3.71)
$\mathbb{I}_i(\textit{Asset inflation})$	-0.190
	(-0.92)
N	1002
R^2	0.145

How do inflation preferences correlate with economic narratives?

$$\pi_i^* = \beta_0 + \delta D_i + \zeta E_i + \sum_{k=1}^{5} \alpha_k \mathbb{I}_i(m_k) + \epsilon_i$$

▶ Considering ELB correlates with higher inflation preferences
▶ Considering inflation eroding the purchasing power of wages correlates with lower preferences

Randomized Control Trial

Inflation preferences correlate with the consideration of economic narratives

▶ Ex-post justification of preferences possible

RCT to provide causal evidence on the link between preferences and economic narratives

▶ Survey respondents are randomly assigned to one of six groups – a control group or one of five information treatments

▶ Potential avenue for policy communication: D'Acunto et al. (2020) find that communication about *policy targets* more effective with harder-to-reach socio-demographic groups

Randomized Control Trial

	π_i^* (Posterior)
Inflation Preference (Prior)	0.657***
	(39.40)
$\mathbb{T}_i(Friedman)$	-0.187**
	(-2.33)
$\mathbb{T}_i(ELB)$	0.0344
	(0.41)
$\mathbb{T}_i(Labor\ market)$	0.0446
	(0.56)
$\mathbb{T}_i(Wage\ inflation)$	-0.146*
	(-1.88)
$\mathbb{T}_i(Asset\ inflation)$	-0.0249
	(-0.31)
Constant	0.283***
	(6.33)
N	3518
r2	0.523

$$\pi_{i,Posterior}^* = \beta_0 + \pi_{i,Prior}^* + \sum_{k=1}^{5} \alpha_k \mathbb{T}_i(m_k) + \epsilon_i$$

▶ Treatments on *"Friedman"*- and *"wage inflation"*-narratives reduce inflation preferences

A Model of Inflation Preferences and Economic Narratives

We propose a model on the structure of beliefs to further understand role of narratives

- ▶ Consumers (of type θ) form preferences $\pi^*(\theta)$ over a set of economic narratives $m \in M$ that each imply a conditional preference $\pi^*(\theta|m)$

$$\pi^*(\theta) = \mathbb{E}^m[\pi^*(\theta|m)] = \sum_{m \in M} p(m|\theta)\pi^*(\theta|m) \tag{1}$$

- ▶ $p(m_k|\theta)$ describes the relative weight placed on economic narrative m_k Empirical weights
- ▶ Communication about model m_0 may shift the probability assigned to economic narratives; by assumption relative probability on other models stays constant

$$\frac{p(m'|\theta)}{1 - p(m_0|\theta)} = \frac{p(m'|\theta, m_0)}{1 - p(m_0|\theta, m_0)} \tag{2}$$

Treatments Change Likelihood of Narratives Considered

$$p_i(m_k) = \beta_0 + \sum_{\theta \in \Theta} \gamma_{k,\theta} \left[\mathbb{T}_i(m_k) \times \theta_i \right] + D_i + E_i + \epsilon_i$$

	p_i(Friedman)	p_i(ELB)	p_i(Labor)	p_i(Wage)	p_i(Asset)
All Respondents					
Treatment	0.0379***	0.0296***	0.0154**	0.0152**	0.00951
	(5.12)	(3.53)	(1.99)	(2.09)	(1.37)
I) Age					
Treatment × below 35	0.0328**	0.00842	0.00164	-0.0114	0.0140
	(2.15)	(0.54)	(0.11)	(-0.89)	(1.04)
Treatment × 35 to 55	0.0303**	0.0182	0.0251*	0.0194	-0.00891
	(2.55)	(1.40)	(1.94)	(1.58)	(-0.78)
Treatment × over 55	0.0487***	0.0549***	0.0185	0.0343***	0.0199*
	(4.10)	(3.79)	(1.48)	(2.69)	(1.77)
II) Gender					
Treatment × Male	0.0303***	0.0211*	0.0241**	0.0164*	-0.00111
	(3.22)	(1.92)	(2.23)	(1.65)	(-0.12)
Treatment × Female	0.0454***	0.0380***	0.00695	0.0141	0.0193*
	(3.97)	(3.02)	(0.63)	(1.34)	(1.90)

▶ Treatments increase the probability of theories considered
▶ Effects are heterogeneous among socio-demographic groups

Treatments Change Likelihood of Narratives Considered

$$p_i(m_k) = \beta_0 + \sum_{\theta \in \Theta} \gamma_{k,\theta} \left[\mathbb{T}_i(m_k) \times \theta_i \right] + D_i + E_i + \epsilon_i$$

	p_i(Friedman)	p_i(ELB)	p_i(Labor)	p_i(Wage)	p_i(Asset)
III) Economic Education					
Treatment × No econ. major	0.0364***	0.0365***	0.0222**	0.0179**	0.0153*
	(4.27)	(3.87)	(2.50)	(2.16)	(1.88)
Treatment × Econ. major	0.0433***	0.0000897	-0.0155	0.00523	-0.0120
	(2.99)	(0.01)	(-1.06)	(0.35)	(-0.95)
IV) Political Affiliation					
Treatment× Democrat	0.0342***	0.0362***	0.0187	0.0263**	0.00617
	(3.15)	(2.89)	(1.63)	(2.33)	(0.56)
Treatment × Republican	0.0445***	0.0267*	0.0334**	-0.000636	0.00553
	(3.25)	(1.76)	(2.51)	(-0.05)	(0.48)
Treatment × Independent	0.0364**	0.0225	-0.0134	0.0157	0.0187
	(2.44)	(1.36)	(-0.82)	(1.08)	(1.34)

▶ Respondents without a major in economics more likely to adjust their consideration of economic narratives

Conclusion

US consumers indicate more hawkish preferences compared to policymakers
- ▶ Consumers prefer 0.20% (median 0%) inflation p.a. on average

Significant heterogeneity in inflation preferences
- ▶ Both socio-demographics but also consideration of normative theories relevant

RCT provides causal evidence on the link between economic narratives and inflation preferences
- ▶ Potential angle for policy communication

Results warrant future research into the wedge between preferences and targets
- ▶ Can policy communication align public preferences with policy targets?

Extra Slides

Survey Respondent Characteristics

	Survey	US population		Survey	US population
Age			**Race**		
18-34	33.1%	29.8%	non-Hispanic white	72.7%	60.1%
35-55	33.8%	32.4%	non-Hispanic black	9.3%	12.5%
>55	33.1%	37.8%	Hispanic	10.1%	18.5%
			Asian or other	7.9%	8.9%
Gender					
female	49.9%	50.8%	**Household Income**		
male	49.7%	49.2%	less than 50k$	47.8%	37.8%
other	0.4%	-%	50k$ - 100k$	29.5%	28.6%
			more than 100k$	22.7%	33.6%
Region					
Midwest	20.6%	20.7%	**Education**		
Northeast	21.9%	17.3%	some college or less	50.6%	58.3%
South	39.5%	38.3%	bachelor's degree or more	49.4%	41.7%
West	18.0%	23.7%			*N=3,520*