

# Households' Preferences Over Inflation and Monetary Policy Tradeoffs

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## Disclaimer

*The views in this paper are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Federal Reserve Bank of Cleveland, Board of Governors of the Federal Reserve System or of any other person associated with the Federal Reserve System.*

# Motivation

- How should central banks set their objectives and weigh them when they are in conflict?
- So far, answers to this question come from structural macroeconomic models with assumptions on preferences, the degree of competition, the slope of the Phillips curve...
- In this paper, we ask households directly about their preferences.

# What we do

We asked US households about:

- their attention paid to macroeconomic information;
- their views on the inflation target;
- their relative preferences over inflation, unemployment and interest rates.

We use these questions to:

- study the determinants of attention to monetary policy and inflation;
- estimate the determinants of the perceived and optimal inflation target;
- estimate acceptable sacrifice ratios—the amount of unemployment households would find just acceptable to reduce inflation by one percentage point;
- estimate non-linear loss functions as commonly used in the New-Keynesian literature.

## Key findings

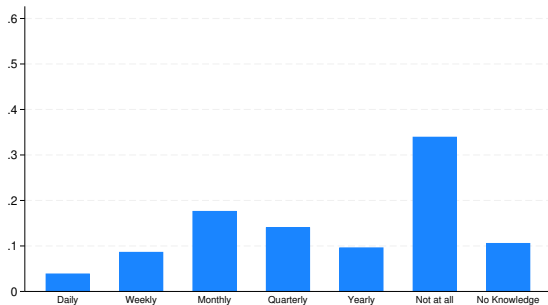
- Many households are highly attentive to news about monetary policy and to interest rates.
- The median household perceives the inflation target to be three percent, but would prefer it to be lower.
- The average acceptable sacrifice ratio is 0.6, implying that households are likely to find disinflation costly.
- Average preferences are well represented by a non-linear loss function with lower weights on inflation than on unemployment.
- These preferences also exhibit sizable demographic heterogeneity.

# Our data

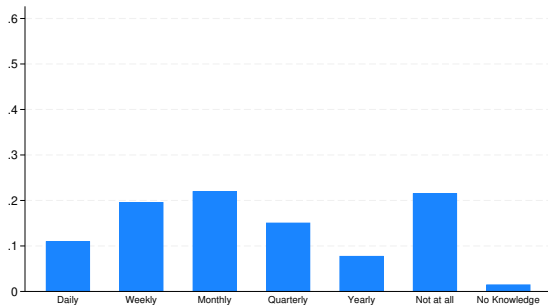
- In June 2023 and June 2024, we conducted a special module in the Survey of Consumer Expectations (SCE) run by FRBNY
  - ▶ Online survey administered by Nielsen
  - ▶ Participants are asked various regular questions every month for up to 12 months, especially about inflation expectations
- Our sample: about 2,000 responses in 2023 and about 1,000 responses in 2024, nationally representative.

# Households are surprisingly attentive to monetary policy

Federal funds rate



News about the Federal Reserve

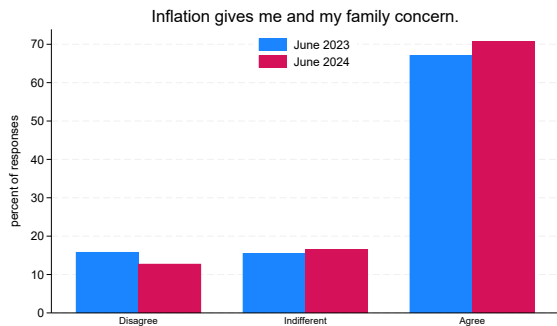


## Some determinants of attention

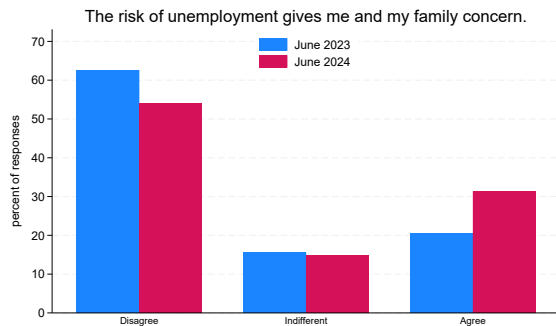
	Fed funds rate	Mortgage rates	Inflation news	Fed news
education	0.034***	0.018	0.046***	0.063***
income	0.003***	0.003***	0.001**	0.002***
retired	0.106	-0.017	-0.143	-0.069
age	0.042***	0.009	0.056***	0.054***
age <sup>2</sup>	-0.000***	-0.000	-0.000**	-0.000**
male	0.400***	0.212***	0.207***	0.364***
Observations	2106	2106	2105	2106
Pseudo $R^2$	0.034	0.030	0.027	0.045



# Inflation and unemployment concerns



((a)) Inflation

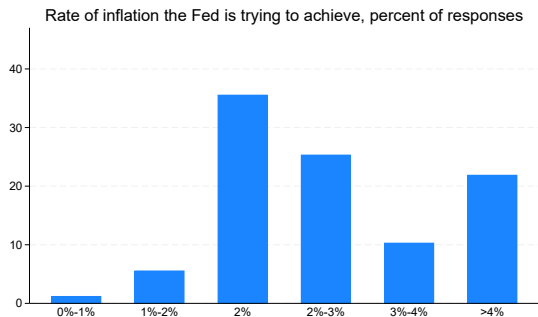


((b)) Unemployment

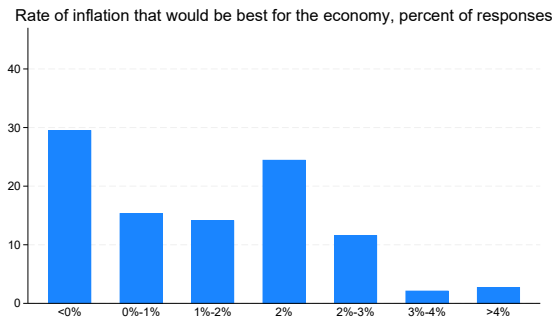
## Perceived and optimal inflation target

(a) *What is the annual rate of inflation that the Federal Reserve is trying to achieve on average [over a 5Y5Y period]?*

(b) *like you to think of the annual rate of inflation that would be best for the American economy [over a 5Y5Y period]?*



((c)) Perceived target.



((d)) Optimal target.

# Targets explain expectations + demographic determinants

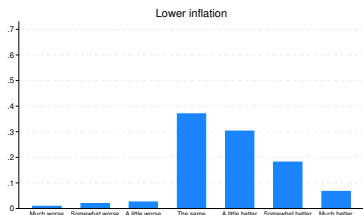
	(1)	(2)	(3)	(4)	(5)
	perceived target	optimal target	difference	1-year exp.	2-year exp.
2-year exp.				0.802***	
perceived target				0.102***	0.454***
optimal target	0.073***			0.030	0.394***
deflation opt.	0.341***			-0.115	-0.475*
education	-0.030**	0.156***	-0.158***	0.058***	0.025
income	-0.001**	0.003***	-0.003***	-0.001	-0.006***
Owning home	0.163*	0.612***	-0.008	-0.401***	0.618***
retired	-0.182*	0.321***	-0.404**	0.131	0.420
female	0.239***	-0.724***	0.886***	-0.218**	-0.036
2024 Dummy	-0.485***	-0.459***	-0.069	-0.541***	0.211
Observations	2669	2884	2805	2791	2847
$R^2$	0.116	0.260	0.177	0.866	0.453

# Tradeoff between unemployment, inflation, and interest rates

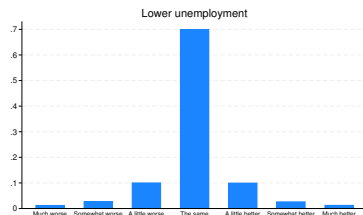
Consider the following three hypothetical scenarios.

In Scenario [A | B | C], the [rate of inflation | unemployment rate | general level of interest rates] over the past 12 months was lower than it actually was by 1 percentage point.

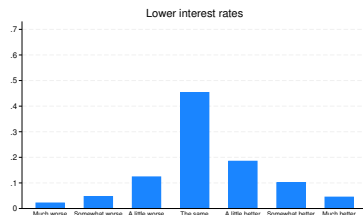
Please rate the impact of each scenario on you and your family's economic and financial situation.



Lower inflation



Lower unemployment



Lower interest rates

## Quantifying the tradeoff between unemployment and inflation

“Think of two hypothetical scenarios. In Scenario A, the rate of inflation is  $[0|2|4|6]\%$ , but the unemployment rate is  $[8|10]\%$  [...].

In Scenario B, the rate of inflation is  $[8|10]\%$ , but the unemployment rate is  $[3|5|7|9]\%$ . [...]

What rate of unemployment would make Scenario A equally good or bad for you and your family as Scenario B?”

- We are asking for  $\underline{u}_{Ai}$  such that:

$$U_i(\pi_{Ai}, \underline{u}_{Ai}) = U_i(\pi_B, u_{Bi}).$$

- We can compute sacrifice ratios:

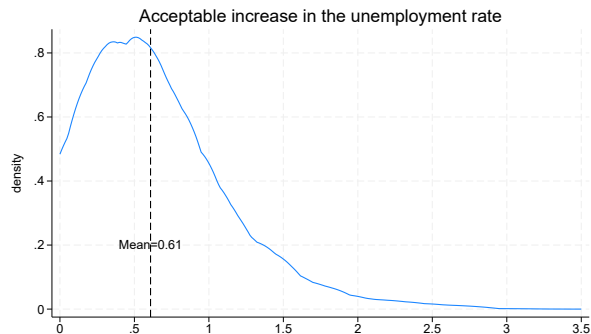
$$S_i = \frac{\underline{u}_{Ai} - u_{Bi}}{\pi_B - \pi_A}$$

- These are *acceptable* sacrifice ratios, in contrast to *necessary* sacrifice ratios in most of the literature.

# Acceptable sacrifice ratio

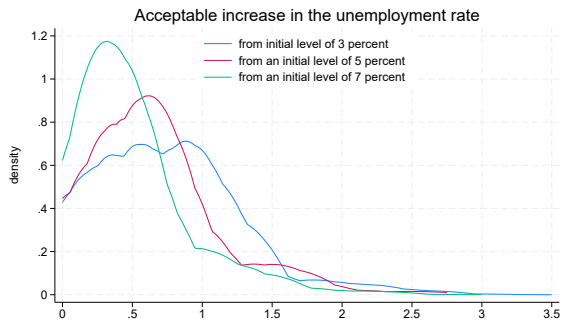
	Sacrifice ratio
$\pi_A$	0.079***
$u_B$	-0.053***
education	0.009*
high numeracy	0.059**
female	-0.050**
Black Americans	-0.151**
Latino Americans	-0.116**
Observations	2183
$R^2$	0.188

## Density estimate of S

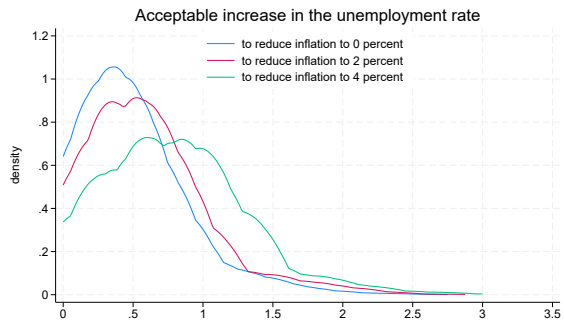


- Acceptable sacrifice ratios are well below estimated necessary sacrifice ratios
  - ▶ Tetlow (2022) meta-study finds a mode of 3.5 across 40 models
  - ▶ Thus, households will likely find disinflation costly

# Inflation and unemployment concerns



((e)) Sacrifice Ratios



((f)) Sacrifice ratios

# Fitting a preference relation

- We can also fit a functional form to the stated preferences:

$$-U(\pi, u) = (\pi - \pi_i^*)^\rho + \lambda (u - u_i^*)^\rho$$

- Standard New-Keynesian models often posit  $\pi^* = 0$  and  $\rho = 2$ , while  $\lambda \approx 0$  from structural model relations.
- Estimate  $(\rho, \lambda, \pi^*, u^*)$  via NLLS:

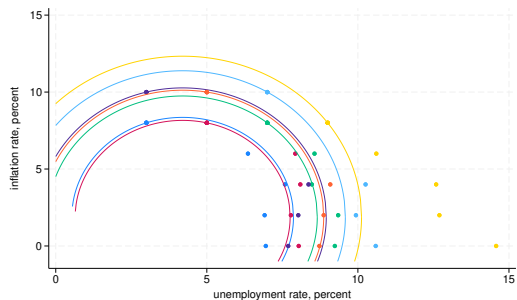
$$\underline{u}_{Ai} = u_i^* + \left| |u_{Bi} - u_i^*|^\rho + \frac{|\pi_B - \pi_i^*|^\rho - |\pi_{Ai} - \pi_i^*|^\rho}{\lambda} \right|^{1/\rho} + \varepsilon_i.$$



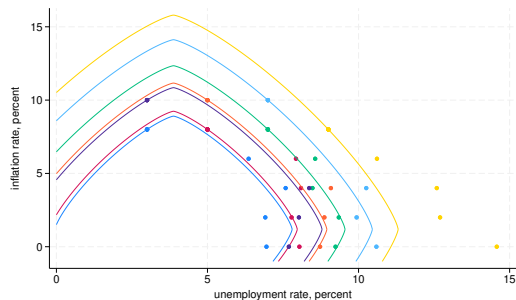
# Estimated preferences

	(1)	(2)	(3)	(4)	(5)
$\lambda$	3.019*** (0.12)	3.113*** (0.46)	2.328*** (0.14)	2.586*** (0.12)	2.364*** (0.11)
$\pi^*$	2	1.884*** (0.54)	1.809*** (0.26)	optimal target	optimal target
$u^*$	4.2	4.2	4.2	4.2	3.875*** (0.12)
$\rho$	2	2	1.319*** (0.09)	1.277*** (0.05)	1.274*** (0.05)
$R^2$	0.917	0.917	0.919	0.909	0.910
$N$	1929	1929	1929	1795	1795

# Indifference curves



(a) Results from Column (2)



(b) Results from Column (5)

# Importance for monetary policy

- Consider optimal monetary policy under discretion in the textbook New-Keynesian model:

$$\min_{\pi_t, u_t} (\pi_t - \pi^*)^2 + \lambda (u_t - u_t^*)^2$$

$$\text{s.t. } \pi_t - \pi^* = \beta (E_t \pi_{t+1} - \pi^*) + \kappa (u_t - u_t^*) + e_t.$$

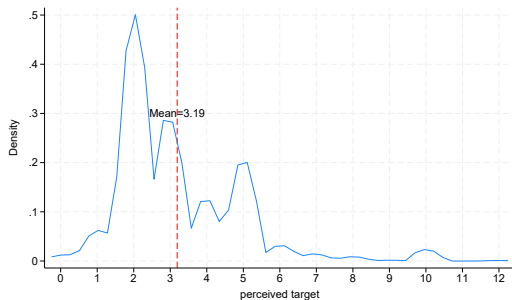
- The necessary sacrifice ratio is  $1/\kappa$  and the acceptable sacrifice ratio varies with  $\pi_t$  and  $u_t$ .
- We compare optimal outcomes under the preferences implied by standard models and the preferences we estimate:

	(1)		(2)		(3)	
$\kappa$	0.048		0.005		0.300	
$\beta$	0.991		0.995		0.995	
$\rho_e$	0		0.8		0.8	
$\lambda$	0.012	2	0.001	2	0.044	2
$\sigma(\pi_t - \pi^*) / \sigma(e_t)$	0.84	1.00	4.20	4.90	0.45	4.02
$\sigma(u_t - u_t^*) / \sigma(e_t)$	3.36	0.02	28.5	0.01	3.03	0.60

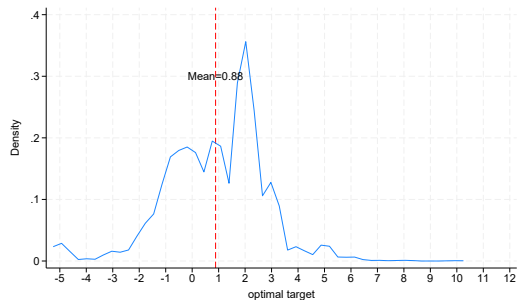
# Conclusion

- U.S. households are attentive to monetary policy.
- The average household thinks the Federal Reserve inflation target is about 3%, but would prefer it to be around to 1%.
- In 2023, households would have preferred lower interest rates, but less so than lower inflation.
- Acceptable sacrifice ratios are lower than what the literature estimates to be necessary.
- Estimated preferences point to a much larger preference for unemployment stabilization than standard New-Keynesian models imply.
- Respondents that have higher education, are retired, or male:
  - ▶ pay more attention;
  - ▶ have lower fed funds rate and inflation target expectations;
  - ▶ lean more toward the inflation side of the dual mandate.

# Appendix

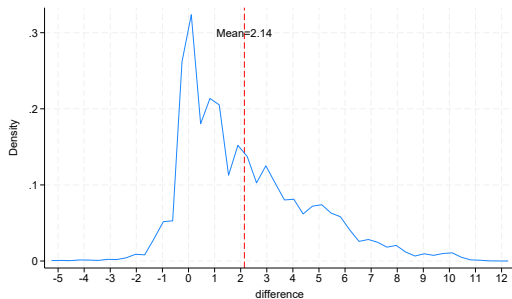


(c) Perceived target

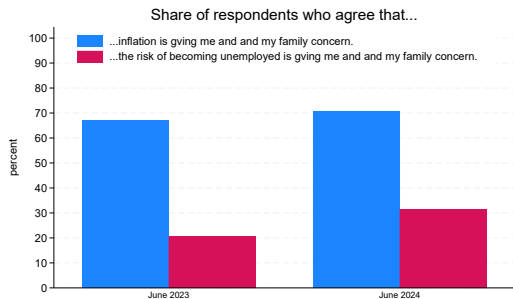


(d) Optimal target

# Appendix



(e) Difference between perc. and optimal target



(f)

# Targets explain expectations + demographic determinants: June 2003

	(1) perceived trg.	(2) optimal trg. (restricted)	(3) difference (restricted)	(4) Tobit reg.	(5) 1-year exp.	(6) 5-year exp.
5-year exp. perceived trg.					0.361***	
optimal target	0.440***				0.278***	-0.005
Deflation optimal	1.126***				0.315***	0.881***
attn to Fed funds rate	0.036	0.112***	-0.039	0.185**	0.276	0.168
attn to Fed news	-0.025	-0.018	-0.046	0.071	-0.114**	-0.020
education	-0.016	0.051***	-0.052***	0.059	0.078	0.171*
income	-0.002**	0.001	-0.000	0.059	0.026	-0.011
ownhome	0.061	0.192**	-0.097	-0.000	-0.001	-0.000
female	0.279***	0.039	0.248***	0.916**	-0.116	0.340
				-0.659**	-0.146	-0.645***
Observations	1858	1138	1103	2028	1947	1932
$R^2$	0.192	0.080	0.076	n/a	0.599	0.312