Inflation Disasters and Consumption

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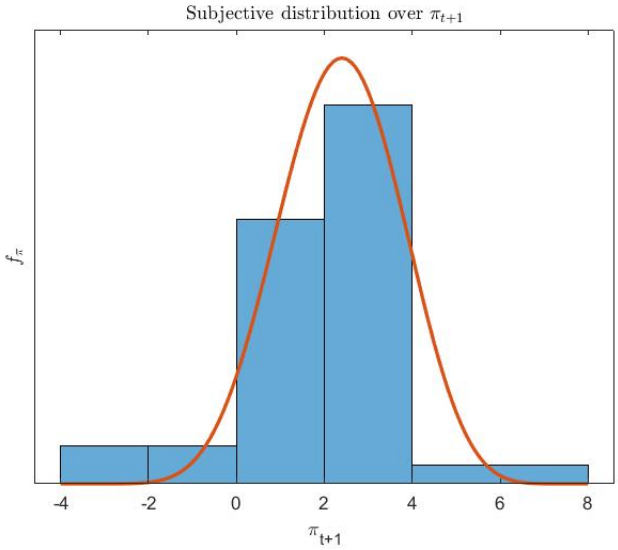
ECB/NYFed Conference

Motivation - NYFed SCE Subjective Inflation Distributions



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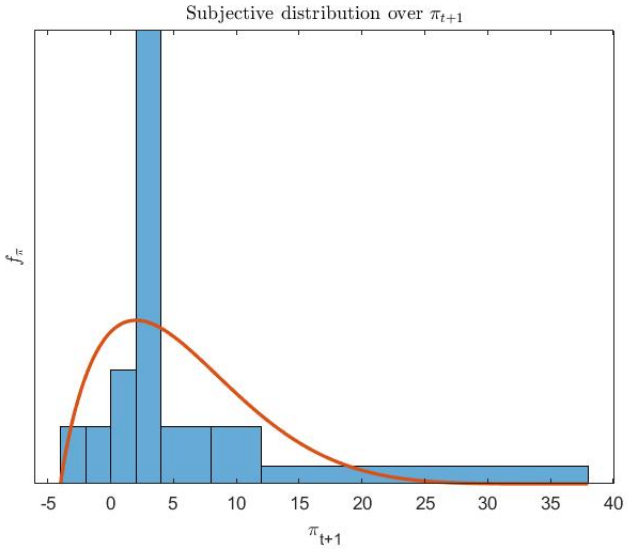


Motivation

- Tail risks - low probability but potentially catastrophic outcomes - have a long history in macroeconomics.
  - Rare disasters: Rietz (1988), Barro (2006)
  - Asset pricing anomalies: Gabaix (2012), Gourio (2012), Wachter (2013)
- Expected tail risk in inflation.
  - Consumers' subjective distributions have long tails.
  - Monetary policymakers often communicate in terms of *risks to the inflation outlook*.
  - Are these anticipated risks correlated with household consumption plans?

Main Findings

- Households with longer-tailed distributions:
  1. Report lower expected consumption growth
  2. Are more likely to plan to buy durables
- Inflation disasters cause an exogenous increase in the cost of credit.
  3. Same households are more pessimistic about future borrowing conditions.

Survey of Consumer Expectations

- Monthly survey run by the Federal Reserve Bank of New York.
  - Includes questions about macroeconomic expectations
  - Multiple supplements several times a year on additional topics, such as spending.
- Nationally representative rotating panel of households heads. ($\sim$ 1300 per month)
  - Households can stay in the survey up to 12 months.
- My sample runs from June 2013 to September 2020.

Inflation Expectations

Point Forecasts

What do you expect the rate of [inflation/deflation] to be **over the next 12 months**? Please give your best guess.

Density Forecasts

Now we would like you to think about the different things that may happen to inflation over the **next 12 months**. We realize that this question may take a little more effort.

In your view, what would you say is the percent chance that, **over the next 12 months...**

the rate of inflation will be 12% *or higher*, *between* 8% *and* 12%, *between* 4% *and* 8%, *between* 2% *and* 4%, between 0% *and* 2% . . .

Variables from Density Forecast

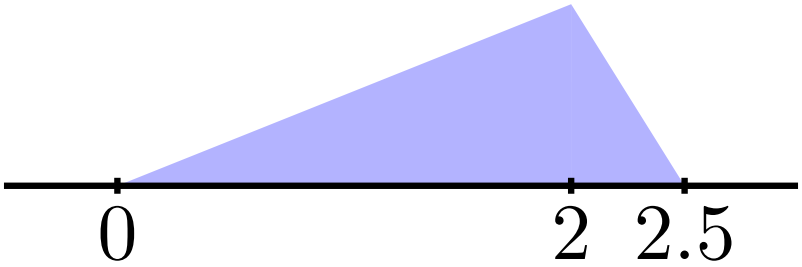
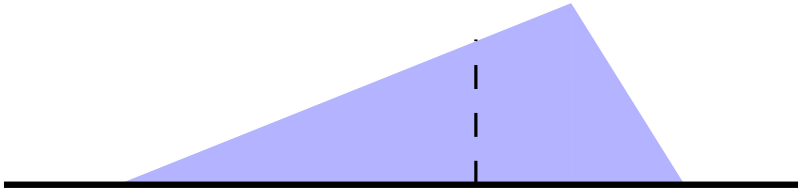


Figure: Bin 0% - 2%: 80%, Bin: 2% - 4%, Best Guess: 2%

Variables from Density Forecast



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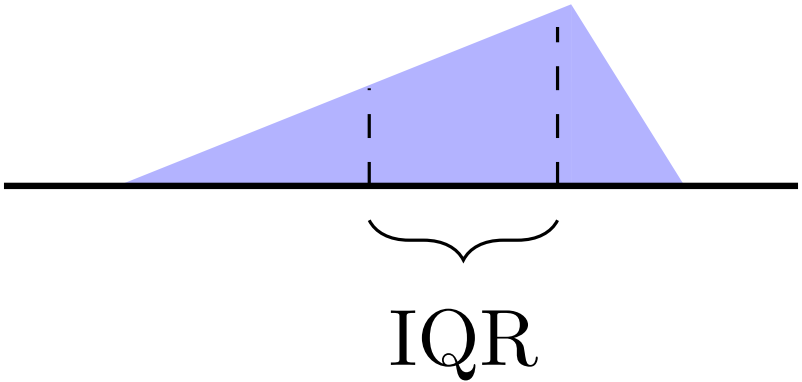

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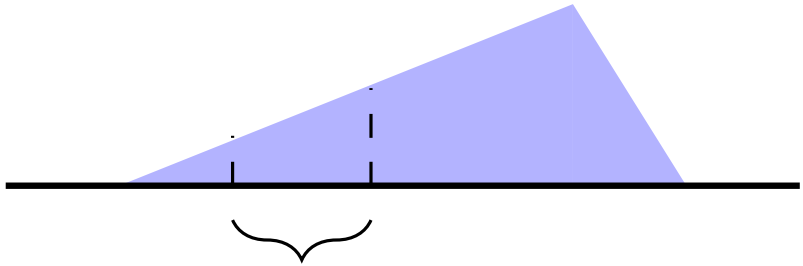
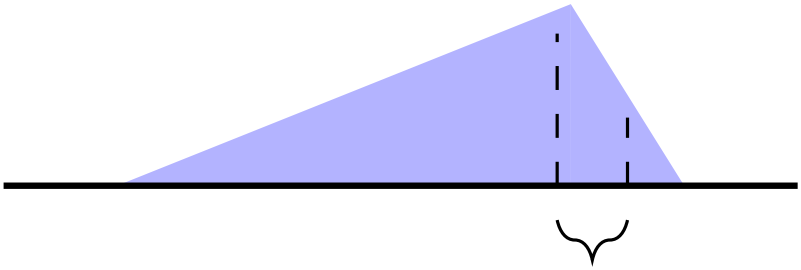


$$\text{Left Tail, } p25 - p5$$

Variables from Density Forecast



Right Tail, $p95 - p75$

Planned Consumption Growth

Change in Nominal Spending

Now think about your total household spending, including groceries, clothing, personal care,housing (such as rent, mortgage payments, utilities, maintenance, home improvements), medical expenses (including health insurance), transportation, recreation and entertainment, education, and any large items (such as home appliances, electronics, furniture, or car payments).

Over the next 12 months, by about what percent do you expect your total household spending to [increase/decrease]? Please give your best guess.

- I subtract from this the median of subjective distribution of inflation for a forecast of real consumption growth.

Planned Consumption Growth

$$E_i[\Delta c_i] = \beta_1 Med_{i,t} + \beta_2 IQR_{i,t} + \beta_3 LT_{i,t} + \beta_4 RT_{i,t} + x_{i,t}\gamma + u_t + \epsilon_{i,t} \quad (1)$$

Controls

Education, income, age, census region, numeracy, marital status, homeownership, race, labor force status of respondent and spouse, household size, debt status, other macroeconomic expectations

Planned Consumption Growth

	$E_i[\Delta c_i]$
Median	-0.504^{***}
	(0.019)
IQR	0.455^{***}
	(0.061)
$p95 - p75$	-0.447^{***}
	(0.082)
$p25 - p5$	-0.216^{***}
	(0.078)
Constant	5.799^{***}
	(2.197)

Purchasing Attitudes Towards Durables

Potential Buyers

Respond with Prob. > 0 for when asked the probability of purchase in any of these categories:

- Appliances
- Electronics
- Furniture

- Roughly 60% of respondents are potential buyers.

Durables

$$PotentialBuyer_{i,t} = \beta_1 Med_{i,t} + \beta_2 IQR_{i,t} + \beta_3 LT_{i,t} + \beta_4 RT_{i,t} + x_{i,t}\gamma + u_t + \epsilon_{i,t} \quad (2)$$

Controls

Education, income, age, census region, numeracy, marital status, homeownership, race, labor force status of respondent and spouse, household size, debt status, other macroeconomic expectations

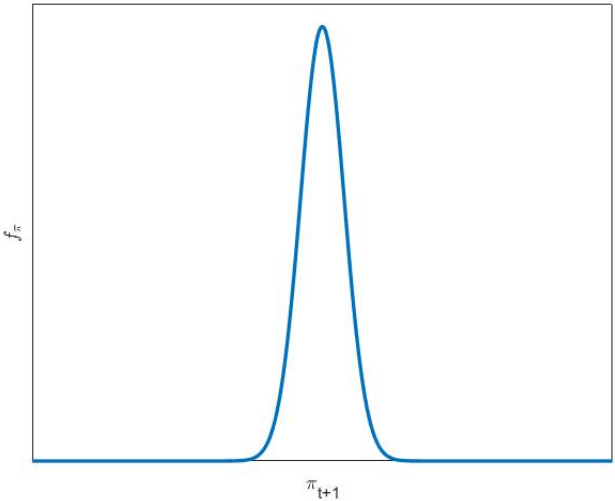
Durables

	Durable Goods	
	Coeff.	ME
Median	-0.0086^{**}	-0.0030^{**}
	(0.0043)	(0.0015)
IQR	-0.0645^{***}	-0.0225^{***}
	(0.0167)	(0.0058)
$p95 - p75$	0.1023^{***}	0.0356^{***}
	(0.0230)	(0.0080)
$p25 - p5$	0.0863^{***}	0.0301^{***}
	(0.0202)	(0.0070)

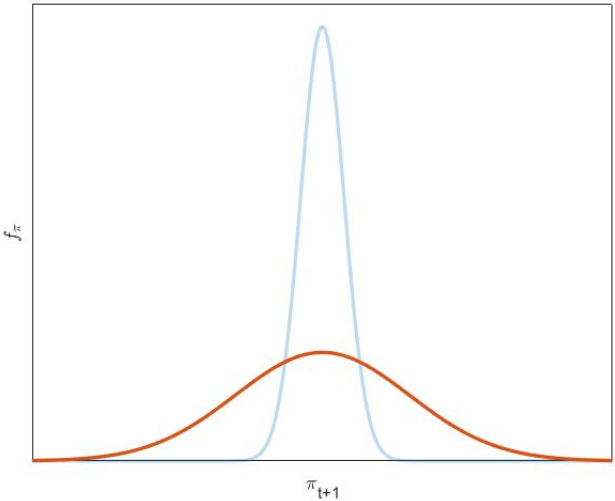
Inflation Disasters

1. Debt issuance costs increase in disaster states.
   - Issuance costs complicate intertemporal tradeoffs in consumption-savings.
2. Consumers condition subjective probability of disaster on realizations of inflation.

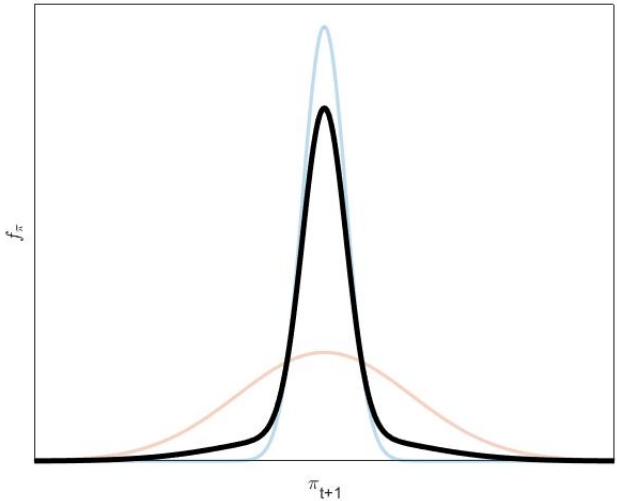
Inflation Disasters - Normal State



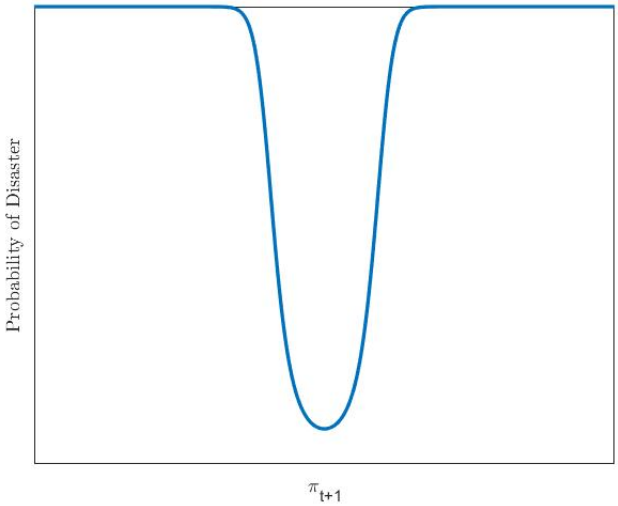
Inflation Disasters - Disaster State



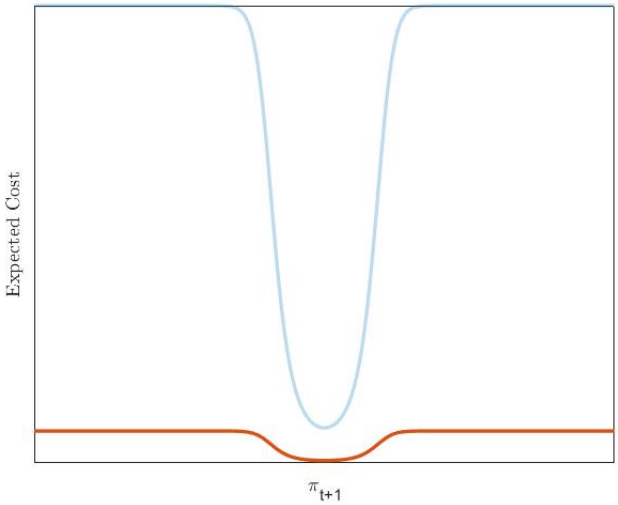
Inflation Disasters - Mixture



Conditional Probability of Disaster



Expected Cost of Credit



Ease of Accessing Credit

Today

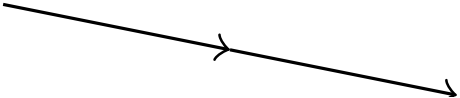
Compared to 12 months ago, do you think it is generally harder or easier these days for people to obtain credit or loans (including credit and retail cards, auto loans, student loans, and mortgages)?

Future

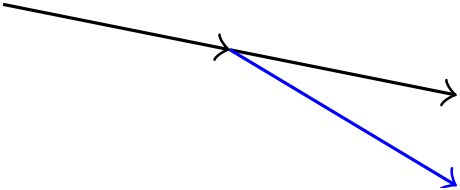
And looking ahead, do you think that **12 months from now** it will generally be harder or easier for people to obtain credit or loans (including credit and retail cards, auto loans, student loans, and mortgages) than it is these days?

- Possible answers: (1) Much harder, (2) Somewhat harder, (3) Equally easy/hard, (4) Somewhat Easier, (5) Much easier
- Average answer is $\sim$ 2.8 for both questions.

Credit Access



Credit Access



Measure of Pessimism

Dummy variable equal to 1 if *Future* $<$ *Present*
Consumers that are more likely to believe

- unemployment will increase,
- interest rates will increase,
- and stock prices will decrease

more likely to have negative outlook.

Negative Credit Outlook

$$Neg.Outlook_{i,t} = \beta_1 Med_{i,t} + \beta_2 IQR_{i,t} + \beta_3 LT_{i,t} + \beta_4 RT_{i,t} + x_{i,t}\gamma + u_t + \epsilon_{i,t} \quad (3)$$

Controls

Education, income, age, census region, numeracy, marital status, homeownership, race, labor force status of respondent and spouse, household size, debt status, other macroeconomic expectations

Negative Credit Outlook

	Coeff.	ME
Median	0.0027	0.0005
	(0.0019)	(0.0004)
IQR	-0.0142^{*}	-0.0028^{*}
	(0.0074)	(0.0015)
$p95 - p75$	0.0205^{**}	0.0041^{**}
	(0.0095)	(0.0019)
$p25 - p5$	0.0250^{***}	0.0049^{***}
	(0.0089)	(0.0018)

Conclusion

- The tails of consumers' inflation beliefs have implications for their consumption plans.
- Consumers view inflation not only as a component of real interest rates but also as a barometer of their access to financial markets.
  - Failures to maintain price stability associated concerns of credit crunch.
  - Consumption-savings decisions react accordingly.
- Changing U.S. consumers' inflation expectations may increase their beliefs that negative macroeconomic outcomes will occur.