

# Discussion of "Household-level Inflation Expectations Session"<sup>1</sup>

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Understanding Inflation: lessons from the past, lessons for the future?

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<sup>1</sup>The views expressed in this discussion are those of the author and do not reflect those of the Federal Reserve Board.

# Inflation Expectations

*'It seems possible to classify three sorts of influences to which price-expectations may be subject. One sort is entirely non-economic: the weather, the political news, people's state of health their "psychology". Another is economic, but still not closely connected with actual price movements; it will include mere market superstitions, at the one extreme, and news bearing on future movements of demand or supply (e.g., crop reports), at the other. The third consists of actual experience of prices, experience in the past and experience in the present; it is this last about what we can find most to say.'* (Hicks, 1939, p. 204)

# Three papers

- Salient price changes, inflation expectations and household behavior
- Inflation expectations and choices of households: evidence from matched survey and administrative data
- Trust in the central bank and inflation expectations

# Salient price changes, inflation expectations and household behavior: Overview

- The salience of price changes that individuals observe while shopping shapes their inflation expectations, as well as future consumption and saving decisions.
- Constructing different measures of perceived inflation using AC Nielsen Panel.
- Measures of perceived inflation that overweight larger changes in prices and changes in the prices of goods households purchase frequently predict households' inflation expectations negatively.
- Grocery shoppers and less financially literate drive the results.
- Salient price changes also reduce households' readiness to buy durable goods, and increase investment in financial instruments that benefit from low inflation, such as bonds.

# Salient price changes, inflation expectations and household behavior

- Do you use one or two waves in your empirical analysis? Number of obs. suggests one wave...
  - ▶ Can you look at changes in expectations?
  - ▶ Did you look at the relationship between perceived inflation derived from scanner data and survey question?
  - ▶ Any explanation why the two survey questions about perceived inflation produce so different answers?
- Formally, the paper is testing the conjecture from Jonung (AER, 1981) that the difference between male and female inflation expectations is due to shopping patterns.
  - ▶ So far, the papers that tried to assess this conjecture were dismissing it due to 'non-persistent' differences between food inflation and overall inflation.

# Salient price changes, inflation expectations and household behavior

- Also the relationship between uncertainty and the level of inflation has been previously studied in the literature (D'Amico and Orphanides, 2008).
  - ▶ Does this result depend on the level of inflation?
- I think some more analysis confirming the negative autocorrelation of inflation is needed.
  - ▶ Does it hold at all frequencies or just for long-run inflation expectations or just for short-run expectations?

# Inflation expectations and choices of households: evidence from matched survey and administrative data: Overview

- Study longitudinal data on household inflation expectations for the period 1993-2016 and find that households have fairly stable inflation expectations at individual-specific levels.
- Link the survey data on inflation expectations to administrative data on assets and liabilities at the household level.
- Households with higher inflation expectations have lower net worth (assets minus liabilities): both less assets and less liabilities; and hold less of all non-liquid assets (savings account, bonds, stocks, mutual funds, and housing).

# Inflation expectations and choices of households: evidence from matched survey and administrative data

- Need more motivation that the official statistics is biased (e.g., perhaps lack of quality adjustment), exposure to different goods can make you think that the official statistics is biased.
- Perhaps it would be better to look at the determinants of updating...
- Great to see that you were able to link the administrative data with inflation expectations survey; this opens the door to study several questions that were not possible to address so far (or with less reliability).
- Causality vs. correlation issues.

# Inflation expectations and choices of households: evidence from matched survey and administrative data

- What could be done to address causality vs. correlation? One needs to think carefully how causality can be 'imposed.'
- I would find it more convincing if there was a lag structure and the paper was studying changes in wealth, net worth, etc. But still....
- Perhaps one could study the impact of exogenous shocks or a natural experiment type of exercise, conditioning the responses of assets, wealth, net worth (changes) on the level (changes) of inflation expectations.

# Trust in the central bank and inflation expectations: Overview

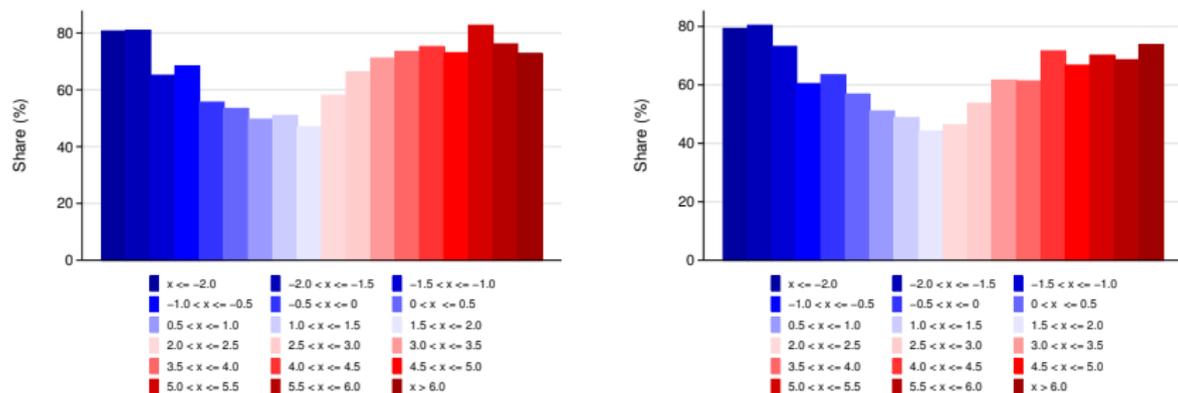
- Examine the relationship between trust in the European Central Bank (ECB) and inflation expectations and uncertainty about future inflation.
- They find that higher trust in the ECB lowers inflation expectations on average, and significantly reduces uncertainty about future inflation.
- Moreover, results from quantile regressions suggest that trusting the ECB increases (lowers) inflation expectations when the latter are below (above) the ECB's inflation target; controlling for people's knowledge about the objectives of the ECB.
- Higher trust in the ECB raises expectations about GDP growth.

# Trust in the central bank and inflation expectations

- Carefully designed survey, they were thinking of instrumental variables ahead of time...
- How do you define trust? Trust in what function of the ECB?
  - ▶ Difference between credibility, reputation, confidence, and trust.
  - ▶ Trust can be defined as: “the belief or perception by one party (e.g., a principal) that the other party (e.g., an agent) to a particular transaction will not cheat” (Knack, 2001).
- Do you have a particular model in mind to produce these results?
- I will cross-check some of these results with YouGov data...

# Trust in the central bank and inflation expectations

Figure: Confidence Level Shares By Inflation Expectations



(a) Short Run

(b) Medium Run

**Table:** Determinants of Short Run Inflation Expectations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	$SR\_INFL_e$						
Not Confident	0.660*** (0.04)	0.650*** (0.04)	0.537*** (0.09)	0.670*** (0.04)	0.454*** (0.09)	0.440*** (0.05)	0.421*** (0.12)
Gov. Mistrust	-0.029 (0.04)	-0.031 (0.04)	-0.032 (0.04)	-0.005 (0.04)	-0.006 (0.04)	-0.145*** (0.05)	-0.007 (0.04)
Female	0.915*** (0.04)	0.916*** (0.04)	0.917*** (0.04)	0.921*** (0.04)	0.919*** (0.04)	0.918*** (0.04)	0.920*** (0.04)
Age: Young	0.558*** (0.06)	0.556*** (0.06)	0.603*** (0.09)	0.573*** (0.07)	0.573*** (0.07)	0.571*** (0.07)	0.610*** (0.10)
Age: Old	-0.414*** (0.05)	-0.410*** (0.05)	-0.554*** (0.07)	-0.433*** (0.05)	-0.433*** (0.05)	-0.433*** (0.05)	-0.537*** (0.07)
Interest Rate <sub>t-1</sub>		-0.355* (0.21)	-0.358* (0.21)	-0.315*** (0.12)	-0.300** (0.12)	-0.367*** (0.12)	-0.294** (0.12)
GDP Growth <sub>t-1</sub>		-0.025*** (0.01)	-0.024*** (0.01)	-0.082*** (0.01)	-0.082*** (0.01)	-0.080*** (0.01)	-0.082*** (0.01)
Inflation <sub>t-1</sub>		0.194*** (0.04)	0.197*** (0.04)	0.146*** (0.03)	0.152*** (0.03)	0.143*** (0.03)	0.151*** (0.03)
Young*Not Confident			-0.076 (0.13)				-0.061 (0.13)
Old*Not Confident			0.249** (0.10)				0.179* (0.10)
Right Wing				-0.199*** (0.06)	-0.202*** (0.06)	-0.378*** (0.07)	-0.203*** (0.06)
Inflation Target				-1.178*** (0.07)	-1.322*** (0.09)	-1.380*** (0.09)	-1.286*** (0.09)
Not Conf*Infl Target					0.263*** (0.10)	0.271*** (0.10)	0.205** (0.10)
Mistrust*Right Wing						0.350*** (0.08)	
Constant	2.923*** (0.10)	2.538*** (0.14)	2.587*** (0.14)	4.086*** (0.14)	4.194*** (0.15)	4.347*** (0.15)	4.210*** (0.16)
Time Fixed Effects	Yes						
Country Fixed Effects	Yes	Yes	Yes	No	No	No	No
N	50074	50074	50074	50074	50074	50074	50074
R-squared	0.070	0.071	0.072	0.065	0.066	0.066	0.066

**Table:** Determinants of Inflation Expectations Conditional of Level of Inflation Expectations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	$SR\_INFL_e$	$SR\_INFL_e$	$SR\_INFL_e$	$SR\_INFL_e$	$SR\_INFL_e$	$LR\_INFL_e$	$LR\_INFL_e$	$LR\_INFL_e$	$LR\_INFL_e$	$LR\_INFL_e$
Not Confident	0.718*** (0.05)	1.122*** (0.07)	2.252*** (0.06)	1.041*** (0.07)	0.097*** (0.02)	0.565*** (0.04)	0.767*** (0.04)	1.129*** (0.04)	0.757*** (0.04)	0.153*** (0.02)
$SR\_INFL_e$						0.909*** (0.01)	0.843*** (0.01)	0.859*** (0.01)	0.838*** (0.01)	0.548*** (0.01)
Gov. Mistrust	-0.038 (0.05)	0.015 (0.04)	-0.039 (0.04)	0.020 (0.04)	-0.131*** (0.04)	0.215*** (0.04)	0.245*** (0.04)	0.239*** (0.04)	0.246*** (0.04)	0.062** (0.03)
Female	0.982*** (0.05)	0.799*** (0.04)	0.835*** (0.04)	0.805*** (0.04)	0.414*** (0.03)	-0.050 (0.04)	0.020 (0.03)	-0.001 (0.03)	0.032 (0.03)	-0.037 (0.03)
Age: Young	0.768*** (0.08)	0.747*** (0.07)	0.779*** (0.07)	0.760*** (0.07)	0.370*** (0.06)	0.080 (0.06)	0.134** (0.05)	0.129** (0.05)	0.140*** (0.05)	-0.005 (0.04)
Age: Old	-0.411*** (0.06)	-0.443*** (0.05)	-0.442*** (0.05)	-0.486*** (0.05)	-0.269*** (0.04)	0.064 (0.04)	0.023 (0.04)	0.023 (0.04)	0.009 (0.04)	-0.013 (0.03)
Right Wing	-0.181*** (0.06)	-0.270*** (0.05)	-0.207*** (0.06)	-0.235*** (0.05)	-0.237*** (0.04)	0.085* (0.05)	-0.044 (0.04)	0.009 (0.04)	-0.037 (0.04)	-0.027 (0.03)
Interest Rate <sub>t-1</sub>	-0.521*** (0.16)	-0.113 (0.15)	-0.048 (0.15)	0.174 (0.15)	-0.602*** (0.12)	-1.256*** (0.13)	-1.036*** (0.13)	-0.990*** (0.13)	-1.003*** (0.13)	-0.409*** (0.10)
GDP Growth <sub>t-1</sub>	-0.069*** (0.01)	-0.076*** (0.01)	-0.091*** (0.01)	-0.090*** (0.01)	-0.006 (0.01)	0.104*** (0.01)	0.068*** (0.01)	0.077*** (0.01)	0.065*** (0.01)	0.050*** (0.01)
Inflation <sub>t-1</sub>	0.152*** (0.04)	-0.011 (0.04)	-0.046 (0.04)	-0.184*** (0.04)	-0.197*** (0.03)	0.089*** (0.03)	-0.004 (0.03)	-0.014 (0.03)	-0.039 (0.03)	-0.007 (0.02)
Below Target		-2.666*** (0.05)		-2.229*** (0.04)			-1.683*** (0.04)		-1.488*** (0.03)	
Below Target * Not Conf		-1.530*** (0.07)	-4.150*** (0.05)	-1.394*** (0.06)			-0.979*** (0.05)	-2.608*** (0.05)	-0.922*** (0.05)	
Below One				-1.865*** (0.04)	-1.619*** (0.02)				-0.887*** (0.05)	-1.547*** (0.03)
Below One * Not Conf				0.113** (0.04)	-0.362*** (0.02)				0.100 (0.07)	-0.315*** (0.04)
Above 75% of Sample					7.048*** (0.15)					5.959*** (0.12)
Above * Not Conf					-0.359** (0.17)					0.452*** (0.14)
Constant	2.786*** (0.13)	3.921*** (0.13)	2.916*** (0.13)	4.283*** (0.13)	2.353*** (0.10)	0.853*** (0.10)	1.568*** (0.10)	1.145*** (0.10)	1.650*** (0.10)	1.398*** (0.08)
Time Fixed Effects	Yes									
N	41340	41340	41340	41340	41340	36542	36542	36542	36542	36542
R-squared	0.050	0.196	0.160	0.213	0.472	0.539	0.575	0.566	0.577	0.738

## Concluding remarks

- Very nice papers with some very relevant and intriguing results regarding the formation of inflation expectations.
- Some more work has to be done to causally relate inflation expectations to economic outcomes and decisions.