Beyond Groceries: Financial Confidence and the Gender Gap in Inflation Expectations

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Why do women have higher inflation expectations?

Groceries:

Experience

Traditional gender norms imply women observe more volatile food prices (Jonung,1981; D'Acunto et al., 2021)

Beyond Groceries:

Experience x Financial Confidence

Only those with low financial confidence rely on grocery signals.

Traditional gender norms and a gender gap in financial literacy jointly cause the gender gap in inflation expectations.

Why does it matter?

Distributional Concerns of Monetary Policy

Gender gaps matter for investment and consumption inequalities and may not disappear even when traditional gender norms are weakened.

Price Signals and Forecaster Confidence in a Bayesian Framework

A representative agent is asked to forecast inflation θ.

She has a **prior**: $\log\theta \sim \mathcal{N}\left(\mu_0, \frac{1}{\tau_0}\right)$ — Financial Confidence → $\frac{d\mathbb{E}(\theta|x)}{d\tau_0} < 0 \iff \mu_0 - \log x < \frac{1}{2\tau_x}$

And receives an **unbiased signal**: $\log x = \log\theta + \epsilon,$ where $\epsilon \sim \mathcal{N}\left(0, \frac{1}{\tau_x}\right)$ — Experience → $\frac{d\mathbb{E}(\theta|x)}{d\tau_x} < 0 \iff \log x - \mu_0 < \frac{1}{2\tau_0}$

Her **Bayesian posterior**: $\log\theta|x \sim \mathcal{N}\left(\hat{\mu}, \frac{1}{\hat{\tau}}\right)$

Consumer inflation expectations are increasing in prior imprecision whenever either

- Average signals exceed the average of the prior
- Signals are sufficiently volatile

Consumer inflation expectations are increasing in signal volatility whenever either

- Average prior expectations exceed the average of the signal
- Priors are sufficiently imprecise: **low confidence fascilitates the experience channel**

For a given log x, whenever $\mu_0 \in [\log x - \frac{1}{2\tau_0}, \log x + \frac{1}{2\tau_x}]$ the agent's inflation expectation are increasing in both, higher signal volatility and prior imprecision.

Otherwise, the agent's inflation expectation are increasing in either higher signal volatility or prior imprecision.

Grocery Shopping and Financial Confidence in the Data

Bundesbank Online Panel (BOP-HH)

April 2020-September 2022

2.000 German households/month

Grocery Shopping

In your household, who is primarily respondsible for everyday purchases (e.g. grocery shopping)?

Financial Literacy + Confidence

Big Three: Lusardi & Mitchell 2008 (Januray 2022)

Rounding (Binder 2017), repeated participation (Binder & Kim, 2017) and survey feedback

Inflation

What do you think the rate of inflatin/deflation in Germany will roughly be over the next 12 months?

External Validity

NY FED Survey of Consumer Expectations

June 2013 - November 2020

Michigan Survey of Consumers

January 1978 - January 2023

Traditional gender norms persist

	shop_groceries	shop_major	prep_meals	decide_finance	single
Men	0.47	0.59	0.35	0.70	0.41
Women	0.75	0.56	0.76	0.60	0.50

Non-single sample: N=26,595
Full sample: N=48,146

Gender gaps in financial confidence...

	Men	Women
qeasy	3.28	3.01
	(0.86)	(0.86)
qinterest	3.78	3.59
	(0.86)	(0.89)
refresher	0.65	0.63
	(0.48)	(0.48)
round	0.18	0.25
	(0.38)	(0.43)
$P(\hat{test} = 3)$	0.71	0.53
	(0.13)	(0.15)

N=91501. Standard deviation in parentheses.

Confidence scores used to predict financial literacy (out-of-sample)

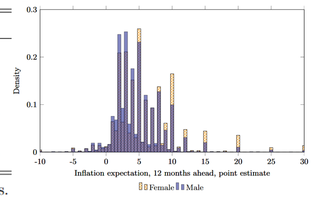
↓

Predicted probability of 3 correct answers

... matter for inflation expectations

	Men	Women
π_t^E	4.66	5.64
	(4.42)	(6.31)
π_t^E (low $P(\hat{test} = 3)$)	4.98	5.84
	(5.17)	(6.68)
π_t^E (high $P(\hat{test} = 3)$)	4.51	4.87
	(4.02)	(4.56)

N=91501. Standard deviation in parentheses.

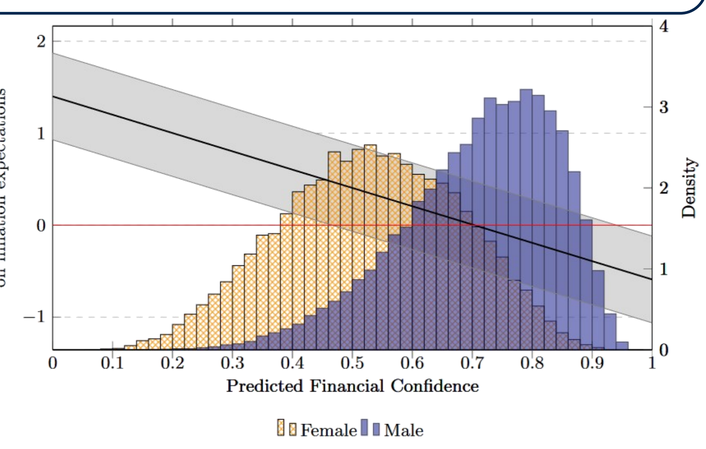


Result I:

Grocery shopping increases inflation expectatins only for individuals in the lowest quintile of the financial literacy distribution, dominated by women.

	Inflation expectation (12 months ahead, point estimate)				
	(1)	(2)	(3)	(4)	(5)
female	0.80***	0.53***	0.71***	0.45***	0.42***
	(0.06)	(0.08)	(0.07)	(0.08)	(0.08)
$P(\hat{test} = 3)$		−1.68***		−1.67***	−1.49**
		(0.30)		(0.30)	(0.62)
shop_groceries			0.05	0.06	1.40***
			(0.09)	(0.09)	(0.42)
decide_finance			−0.18*	−0.14	−0.02
			(0.11)	(0.11)	(0.46)
$P(\hat{test} = 3)$×shop_groceries					−1.99***
					(0.62)
$P(\hat{test} = 3)$×decide_finance					−0.20
					(0.68)
Observations	26,595	26,595	26,595	26,595	26,595
R^2	0.14	0.14	0.14	0.15	0.15

*p<0.1; **p<0.05; ***p<0.01
Standard errors in parentheses.

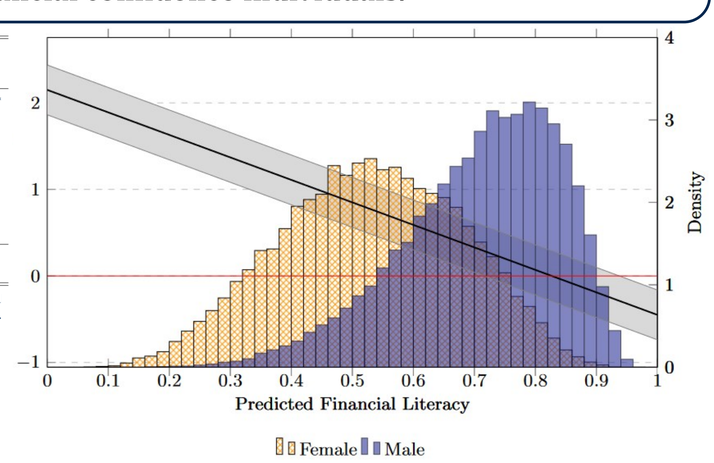


Result II:

The gender gap in inflation expectations diminishes as financial confidence increases and is zero (or negative) for high financial confidence individuals.

	Inflation expectation (12 month ahead, point estimate)				
	(1)	(2)	(3)	(4)	(5)
female	0.87***	0.54***	2.15***	0.43***	1.30**
	(0.03)	(0.04)	(0.15)	(0.16)	(0.58)
$P(\hat{test} = 3)$		−2.03***	−0.73***		
		(0.16)	(0.20)		
$P(\hat{test} = 3)$×female			−2.60***		
			(0.24)		
Observations	91,501	91,501	91,501	2,916	2,916
R^2	0.16	0.16	0.16	0.03	0.03

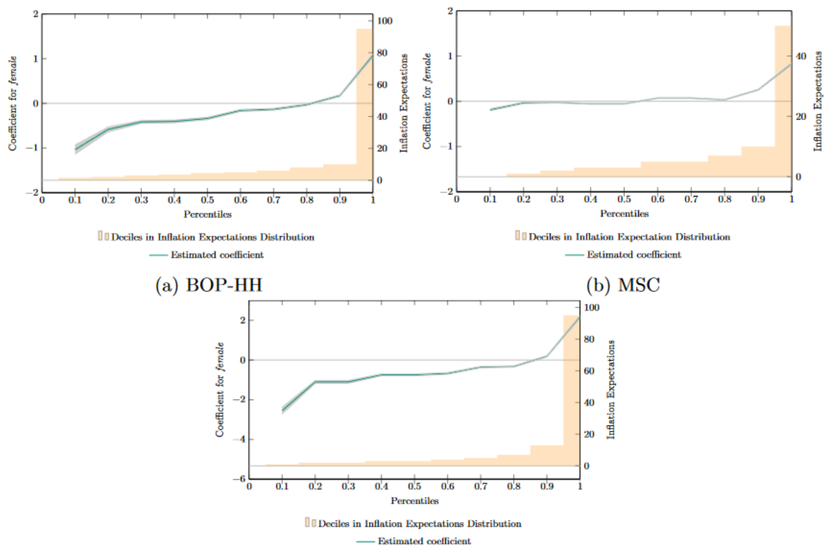
*p<0.1; **p<0.05; ***p<0.01
Standard errors in parentheses.



Robustness Exercises

Outlier impact:

The gender gap in means is driven by the heavy tail in the female distribution. At lower percentiles a significantly negative gender gap emerges.



(a) BOP-HH (b) MSC

(c) SCE

Singles Analysis:

The gender gap is significant and no different between singles and non-singles.

	Inflation expectation (12 months ahead, point estimate)					
	BOP-HH		SCE		MSC	
	N	S	N	S	N	S
	(1)	(2)	(3)	(4)	(5)	(6)
female	1.30***	1.27***	1.39***	2.01***	0.85***	0.89***
	(0.04)	(0.08)	(0.08)	(0.13)	(0.03)	(0.05)
	0.0281		*-0.613****		*-0.0398*	
	(0.092)		*(0.154)*		*(0.057)*	
Observations	83,704	27,381	74,385	41,106	195,107	66,268
R^2	0.13	0.11	0.03	0.03	0.13	0.10

*p<0.1; **p<0.05; ***p<0.01
Standard errors in parentheses.

Correlation with Historical Food Prices

The magnitude of the gender gap is unresponsive to the size of food price inflation relative to total inflation.

	Inflation expectation (12 months ahead, point estimate)		
	BOP-HH	SCE	MSC
female	1.32***	1.61***	0.75***
	(0.05)	(0.07)	(0.02)
CPI_t^{food} - CPI_t^{total}	0.44***	0.03	-0.06***
	(0.01)	(0.02)	(0.01)
female x (CPI_t^{food} - CPI_t^{total})	−0.01	−0.03	−0.09***
	(0.01)	(0.03)	(0.01)
$\rho_{t,6}^{food}$ - $\rho_{t,6}^{total}$	0.10***	-0.01	-0.03***
	(0.005)	(0.01)	(0.01)
female x ($\rho_{t,6}^{food}$ - $\rho_{t,6}^{total}$)	-0.001	0.01	-0.01
	(0.01)	(0.02)	(0.01)
Observations	111,085	115,491	259,755
R^2	0.08	0.03	0.03

*p<0.1; **p<0.05; ***p<0.01
Standard errors in parentheses.

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