



Inflation Expectations and Households Portfolio Choice

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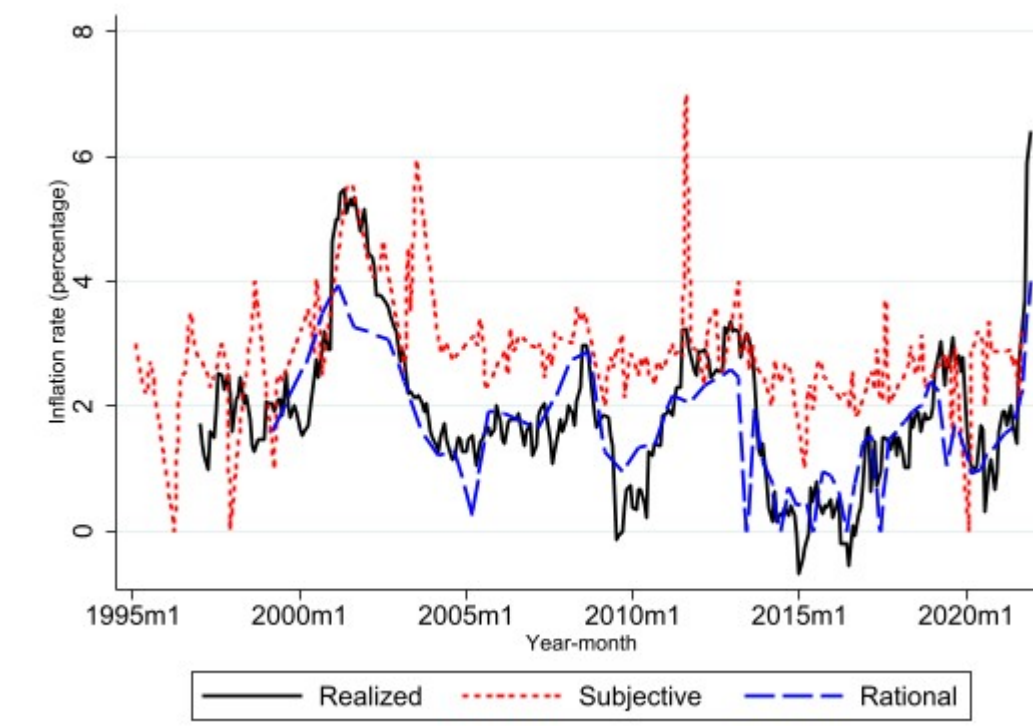
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An Important Problem

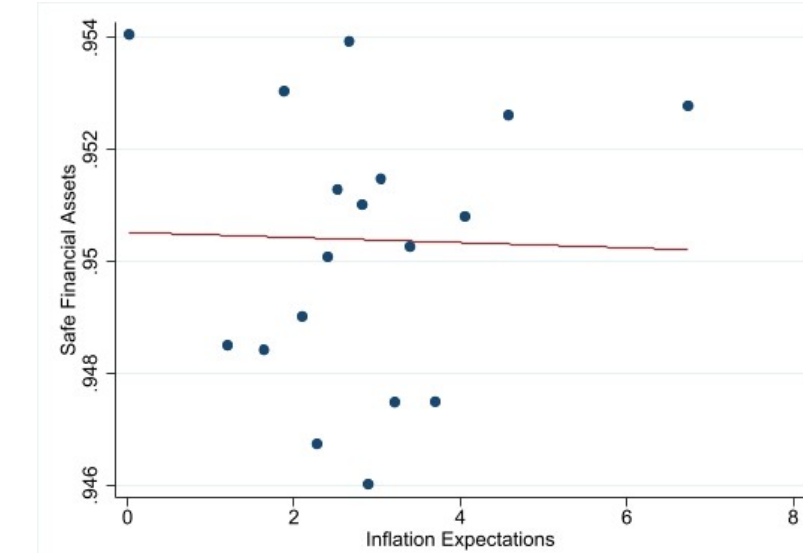
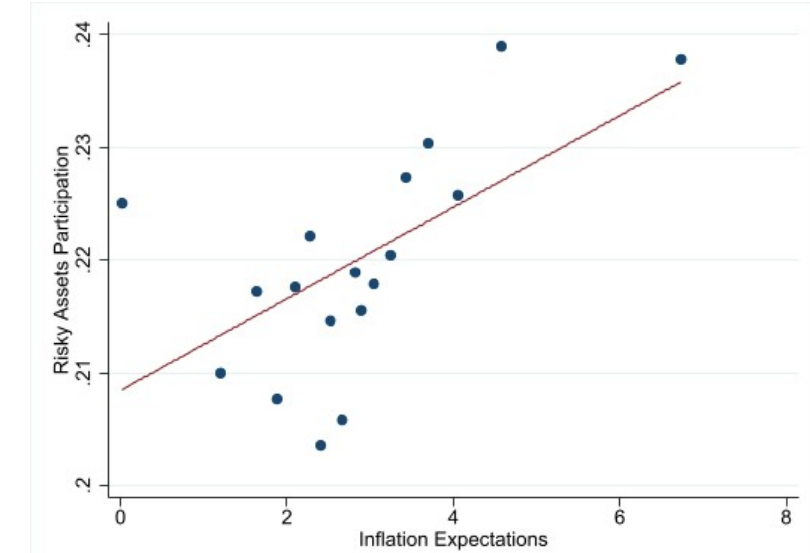
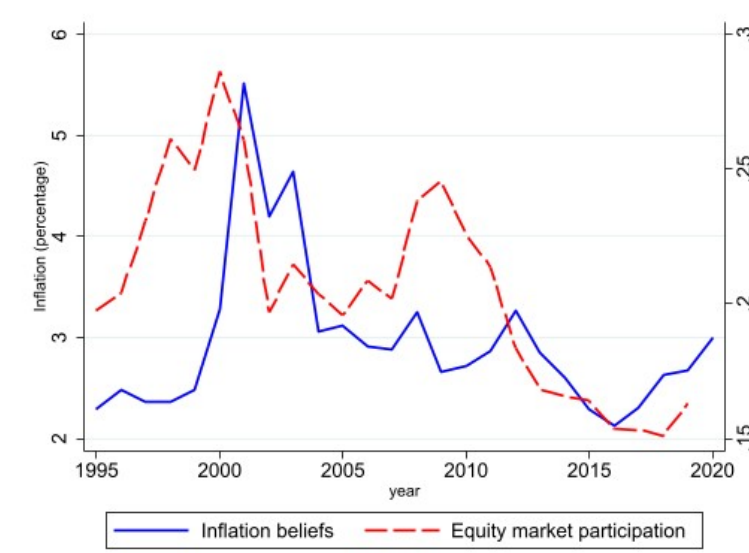
With a recent increase in inflation expectations worldwide, there has been much attention in examining the impact of inflation expectations on households

Still little knows about the causal effect of inflation expectations on household's financial portfolio decisions in practice



Research question: How do inflation expectations affect households' portfolio decisions?

- **External Margins:** Risky Assets participation for all households
- **Internal Margins:** Portfolio strategies for retail investors
- **Heterogeneous:** Expectations and effects on portfolio choice across population subgroups



Data

DNB Household Finance Survey

- Subjective beliefs & portfolio holdings
- Demographics in the individual level and the family level

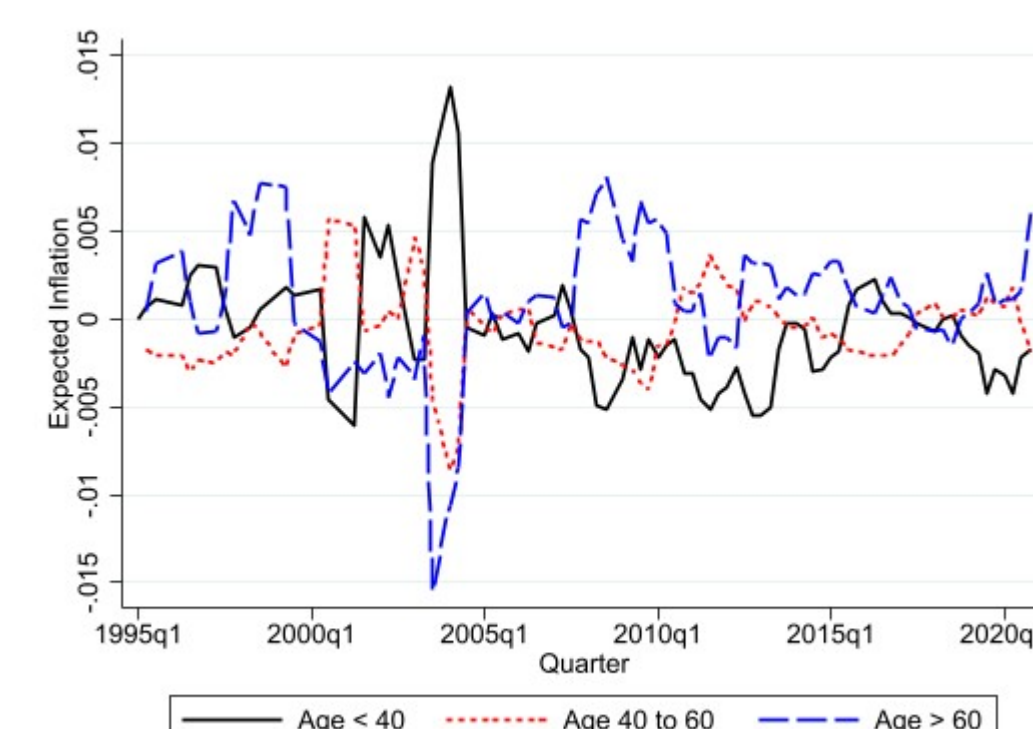
Identification Strategy

Inflation experience (Malmendier and Nagel, 2016): a nonlinear algorithms to capture variations among age cohorts

Cohorts experience different inflation before express distinctive beliefs in future inflation

Use as **Instrument** to estimate the casual effects of a inflation expectations shock

Statistically, the F-statistic of the first stage is >10, no evidence for weak instrument problems



Methodology

Baseline model (OLS):

$$Y_{i,t} = \beta_1 IB_{i,t-1} + \theta Controls_{i,t-1} + \alpha_i + \epsilon_{i,t}$$

Model specifications (2SLS-IV):

$$IB_{i,t} = \eta_1 IE_{i,t} + \theta_1 Controls_{i,t} + \alpha_i + \gamma_t + u_{i,t}$$

$$Y_{i,t} = \beta_1 IB_{i,t-1} + \theta_2 Controls_{i,t} + \alpha_i + \gamma_t + \epsilon_{i,t}$$

Household member level & household (family) level

$Y_{i,t}$: household (member) stock market participation and portfolio choice

$IB_{i,t-1}$: household member/ head inflation expectations

$IE_{i,t-1}$: household member/ head inflation experiences

α_i : households (member) fixed effects, error terms clustered by household

$Controls_{i,t}$: demographics, financial situations, education, risk aversion, and financial literacy

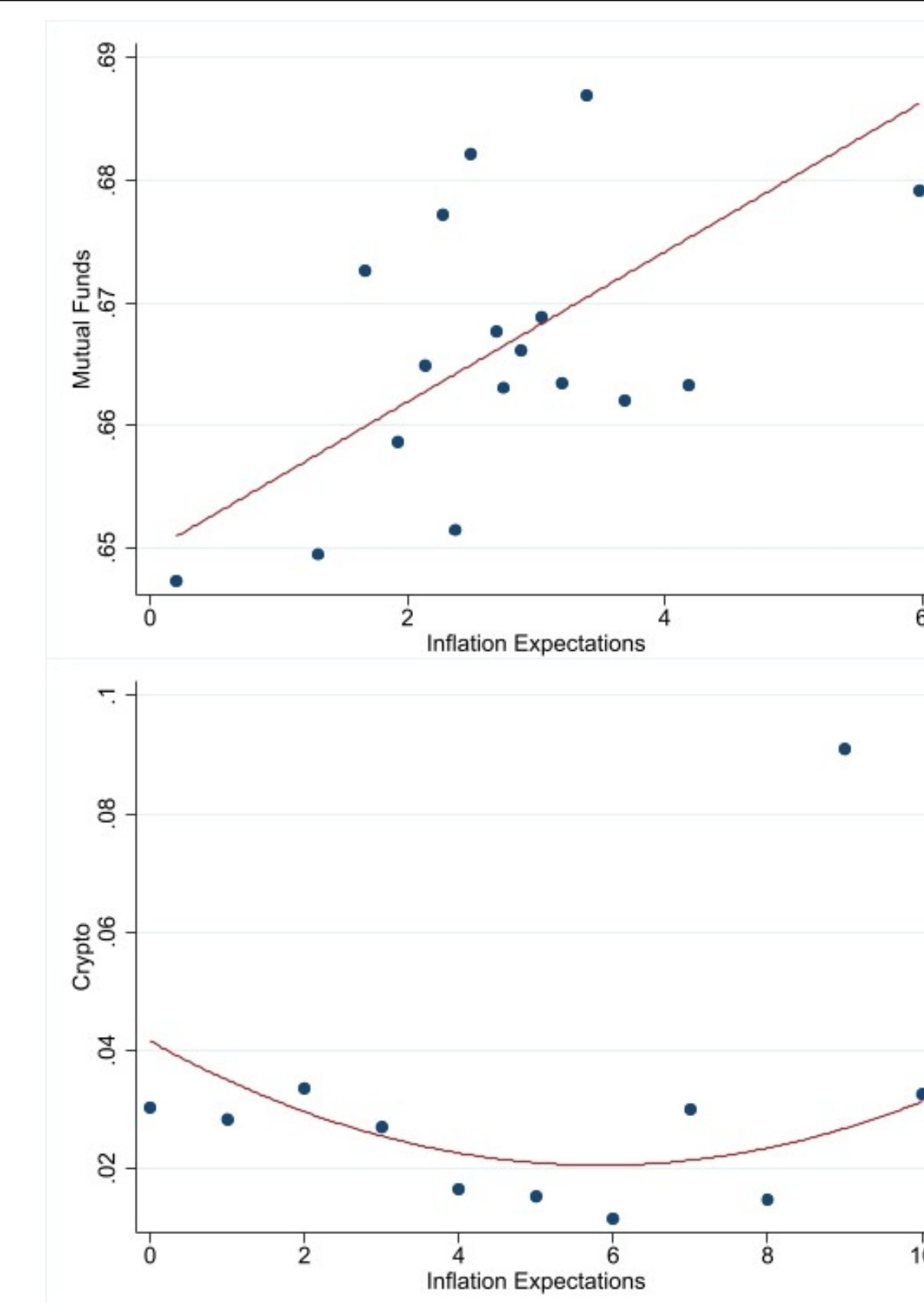
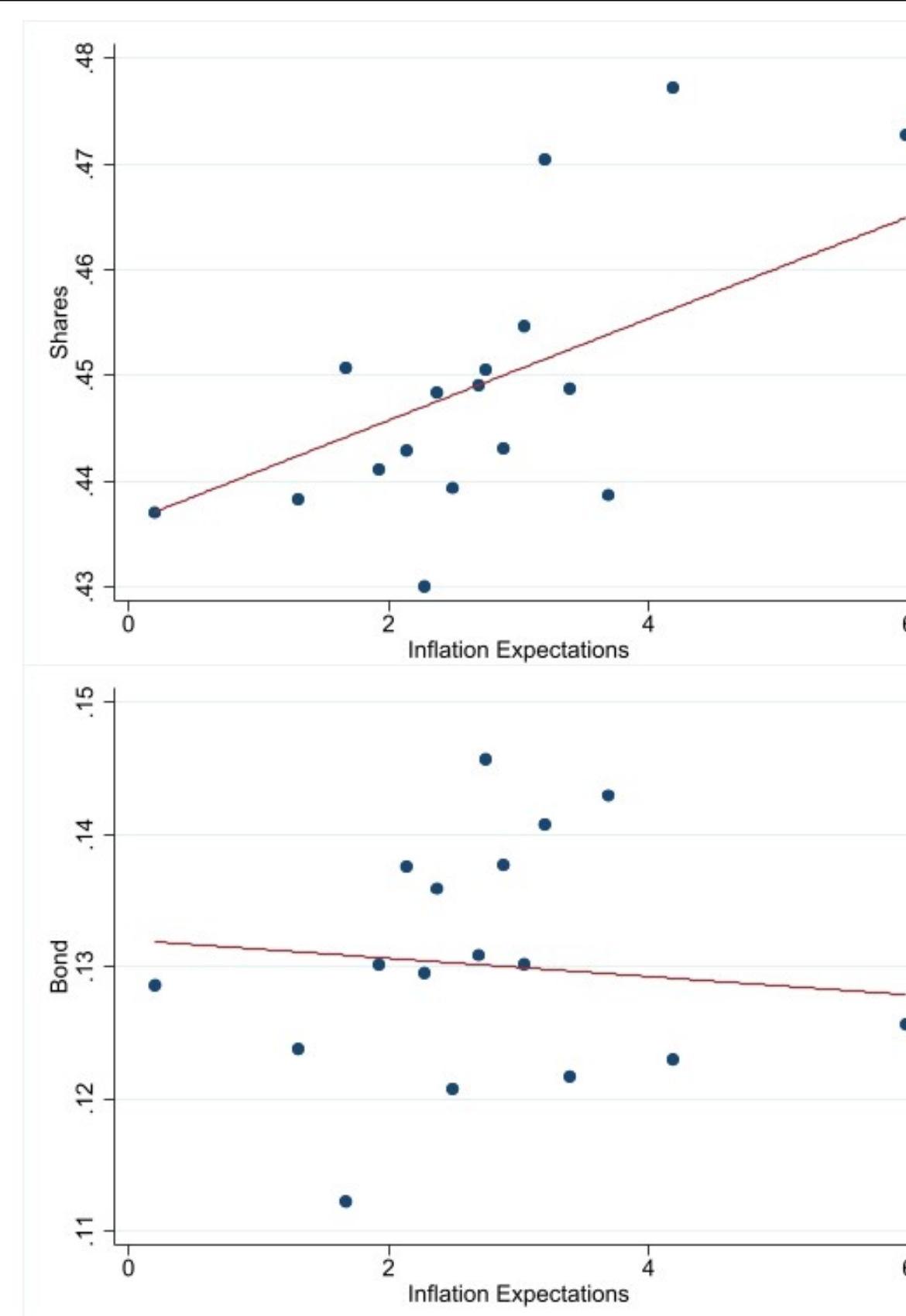
Households' Portfolio Rebalancing Decisions

1 p.p. increase in inflation expectations leads households to

- $\uparrow \approx 3\%$ higher probability to hold risky assets (stocks/funds)
- $\uparrow \approx 30\%$ risky assets holding (stocks/funds)
- $\uparrow \approx 9\%$ risky assets holding (stocks/funds) comparing to income
- $\uparrow \approx 6\%$ risky assets holding (stocks/funds) comparing to liquid assets

An increase in inflation expectations leads retail investors' portfolios to

- obtaining higher holding period return
- exposing to market risk (β)
- reducing under-diversification
- more optimal allocation (Sharpe ratio)
- closer to the mean-varian frontier



Heterogeneous Effects

- **Investment Horizon:** long life expectancy $\Rightarrow \uparrow$ risky assets
- **Financial Literacy:** better financial literacy $\Rightarrow \uparrow$ risky assets
- **Income:** middle & high income households $\Rightarrow \uparrow$ risky assets
- **Gender:** men $\Rightarrow \uparrow$ risky assets

Panel A: Horizon	Participation	Amount	Net Asset Purchase	Asset/income
Inflation Expectations (life expectancy <15)	3.432 (2.958)	26.66 (29.10)	-20.56 (23.83)	2.936 (2.280)
Inflation Expectations (life expectancy >15)	3.050*** (0.0923)	24.69*** (8.016)	12.96** (6.508)	1.630*** (0.590)
Panel B: Financial Literacy	Participation	Amount	Net Asset Purchase	Asset/income
Inflation Expectations* financial literacy	6.360*** (1.610)	56.76*** (13.73)	16.47 (11.42)	2.966*** (0.975)
Inflation Expectations	0.0153 (0.0131)	0.113 (0.116)	-0.0131 (0.0957)	0.00717 (0.00797)
Panel C: Income	Participation	Amount	Net Asset Purchase	Asset/income
Inflation Expectations (high income)	4.692*** (1.719)	42.91*** (13.97)	12.67 (8.435)	49.12 (41.63)
Inflation Expectations (middle income)	2.508 (1.779)	25.64* (14.35)	7.909 (9.855)	10.54** (5.053)
Inflation Expectations (low income)	2.275 (1.614)	16.77 (15.49)	4.231 (14.70)	-5.669 (4.807)
Panel D: Gender	Participation	Amount	Net Asset Purchase	Asset/income
Inflation Expectations (Female)	2.256* (1.180)	20.10* (10.85)	1.449 (8.647)	9.967 (7.087)
Inflation Expectations (Male)	4.292*** (1.631)	39.12*** (13.37)	27.98** (11.01)	20.78 (12.96)

Channels

Nominal Rigidity of Deposit Rate

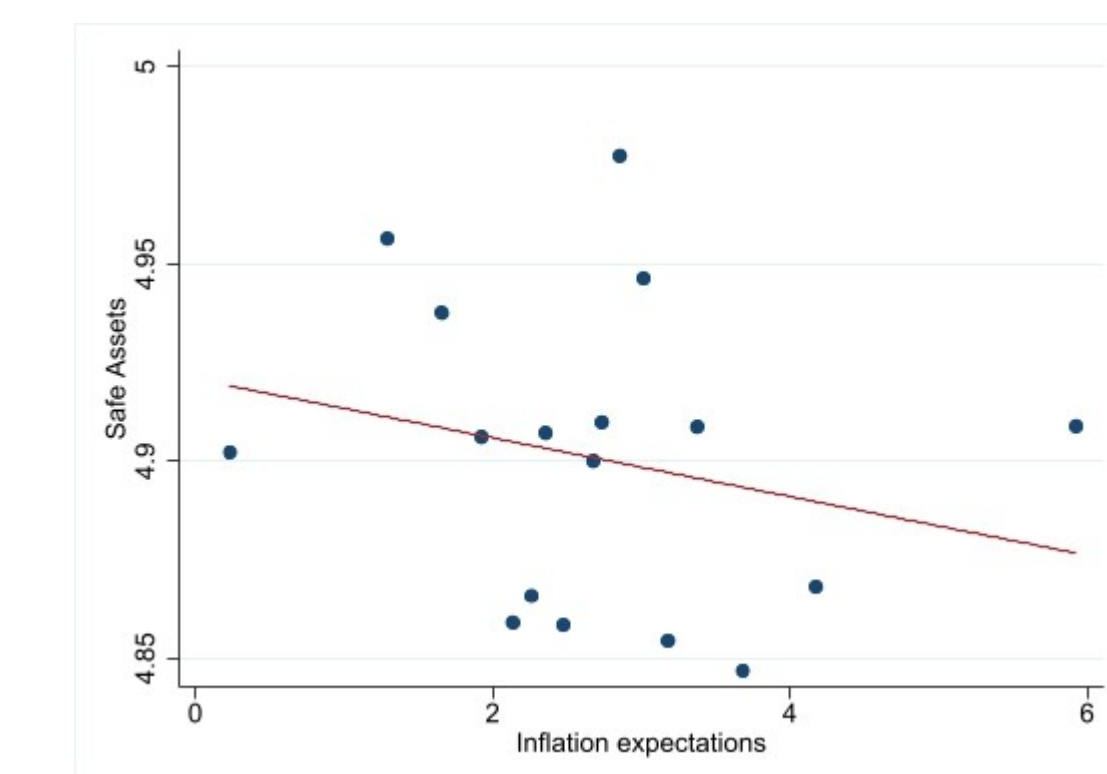
- Maintaining the purchasing power of their nominal savings
- Rigid deposit rate compared to the lending rate

Income Expectations

- Real income beliefs \geq inflation beliefs \Rightarrow more in risky assets allocation
- Real income beliefs $<$ inflation beliefs \Rightarrow less in risky assets allocation

Policy Implication: Risk Profile

Households are more inclined to risky assets instead of safe assets



"I think it is more important to have safe investments and guaranteed returns, than to take a risk to have a chance to get the highest possible returns."
Rating scale: totally disagree (1) \rightarrow total agree (7)

References

- Malmendier, U. and Nagel, S., 2016. Learning from inflation experiences. *The Quarterly Journal of Economics*, 131(1), pp.53-87.