LOSING THE INFLATION ANCHOR

Ricardo Reis
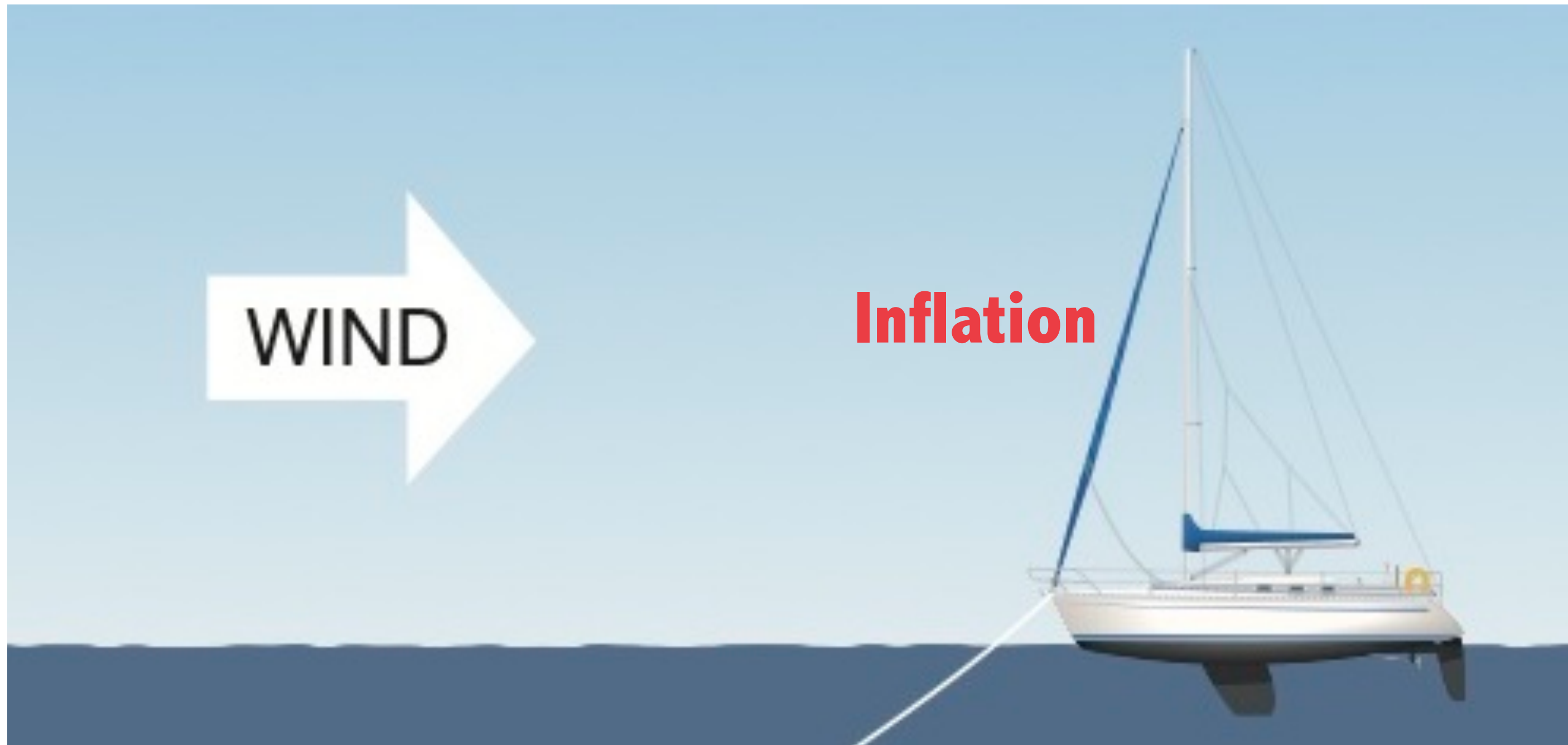LSE

9th of September, 2021
Brookings Papers on Economic Activity
Fall conference, virtual

Is inflation out of control?

Inflation

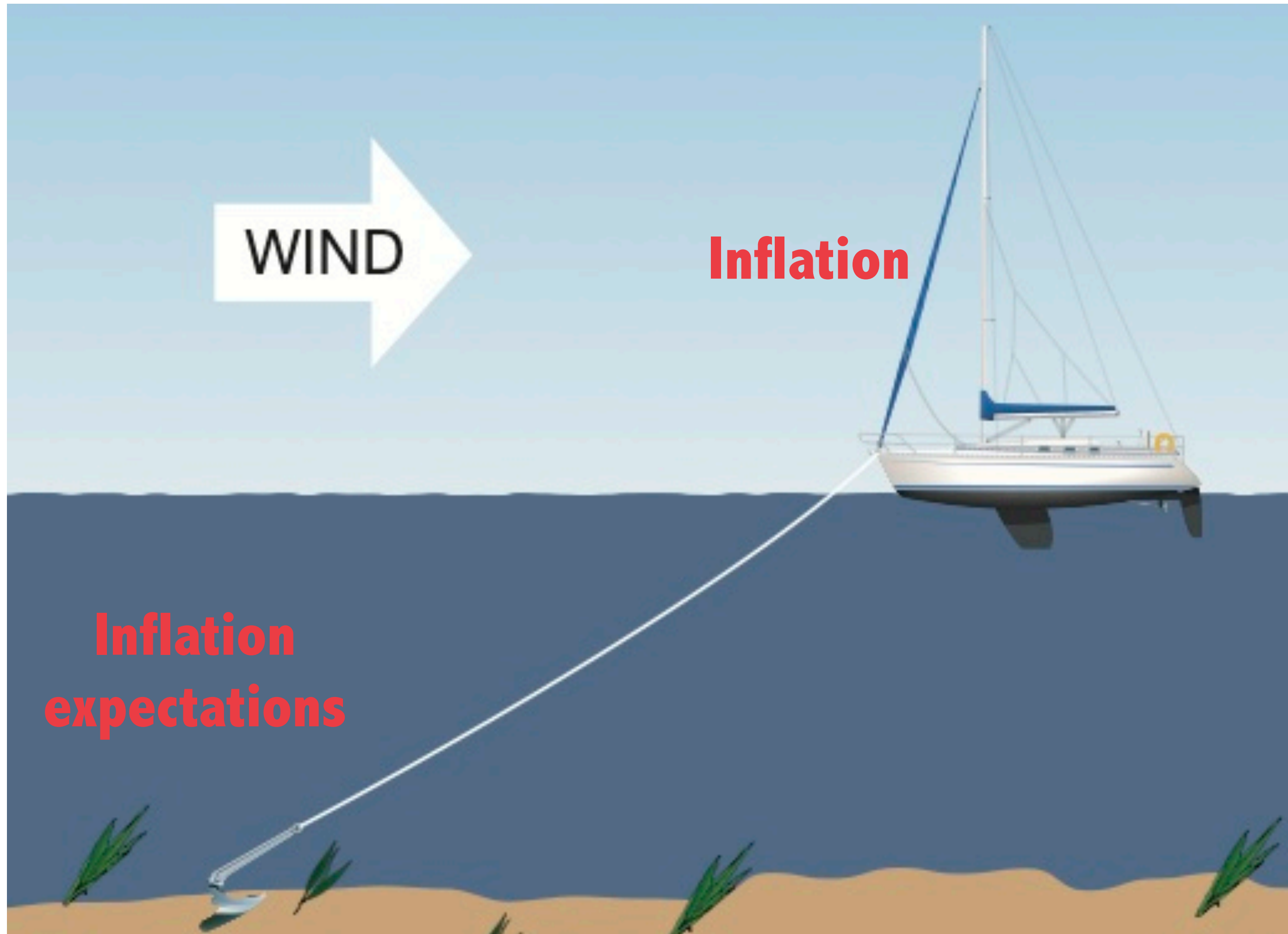Central bank can control the sails that guide the boat

Is inflation out of control?

Central bank can control the sails that guide the boat

But the winds from the recovery, the global shortages, and fiscal policy make the inflation boat float, sometimes straying far from target. Is the boat lost?
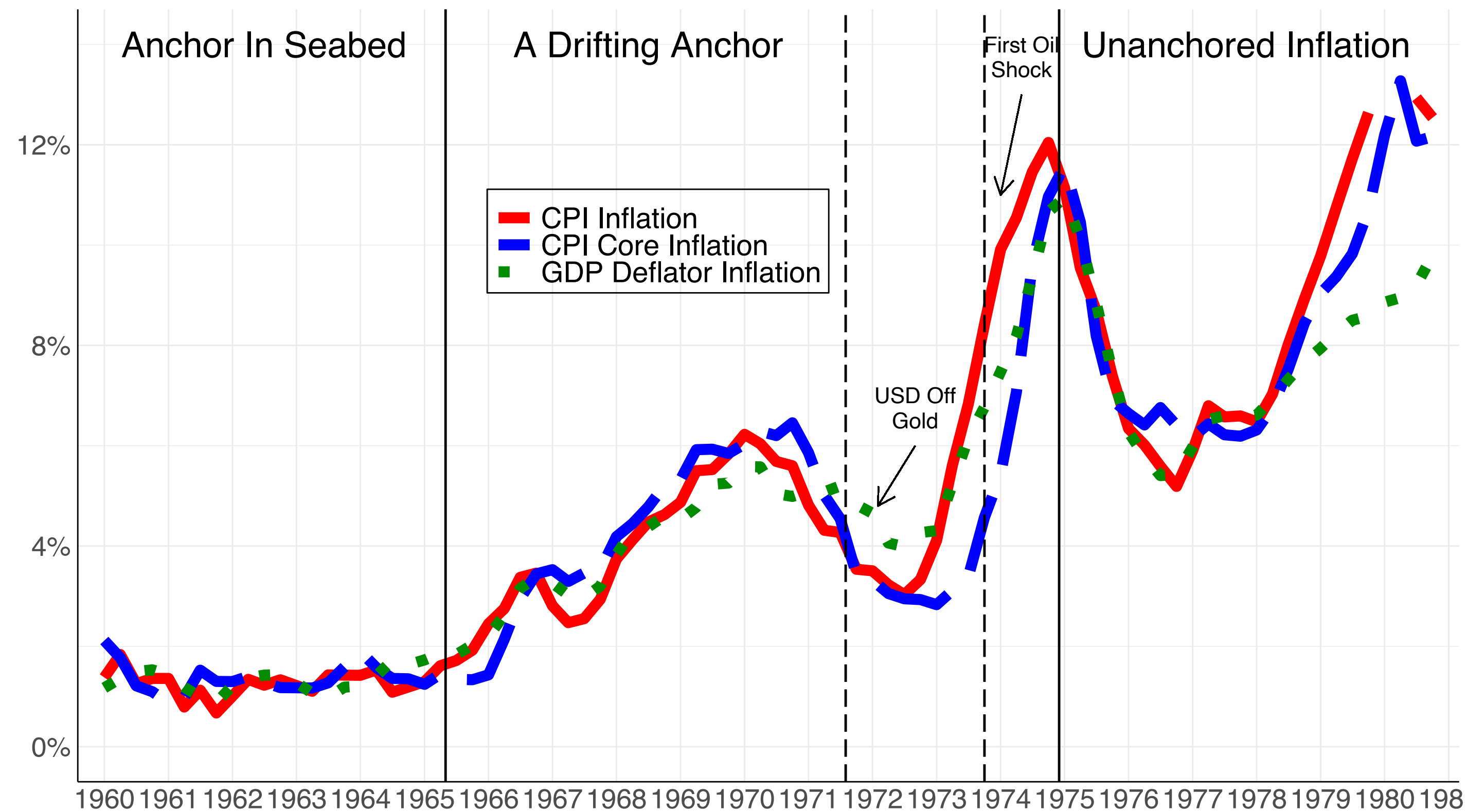
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Central bank can control the sails that guide the boat

But the winds from the recovery, the global shortages, and fiscal policy make the inflation boat float, sometimes straying far from target. Is the boat lost?

Look underwater for the anchor. Is it anchored?

Most famous case: the Great Inflation

Anchor In Seabed | A Drifting Anchor | First Oil Shock | Unanchored Inflation

USD Off Gold

Legend:
- **CPI Inflation** (red)
- **CPI Core Inflation** (blue)
- **GDP Deflator Inflation** (green dotted)

Y-axis: 0%, 4%, 8%, 12%

X-axis: 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 198

1965-68: signs or no signs?

Martin had no use for models, pressured to prioritize unemployment. Sensitive to investor expectations, measured with bond rates. As inflation kept rising, increasingly relied on "*inflationary psychology*"

1968-71: anchor drifting

As inflation accelerated, Martin, July 1969, "*inflationary psychology remained the main economic problem*" Shocks temporary because fleeting beliefs. Models of shifts in Phillips curve, inflation bias.

1971-74: anchor adrift

Burns on wage and price controls "*In this new psychological environment, our trade unions may not push quite so hard for a large increase in wage rates, since they would no longer be anticipating a higher inflation rate. And in this new psychological environment, our business people would not agree to large wage increases quite so quickly*"
No measurement, expectations as an add-on factor
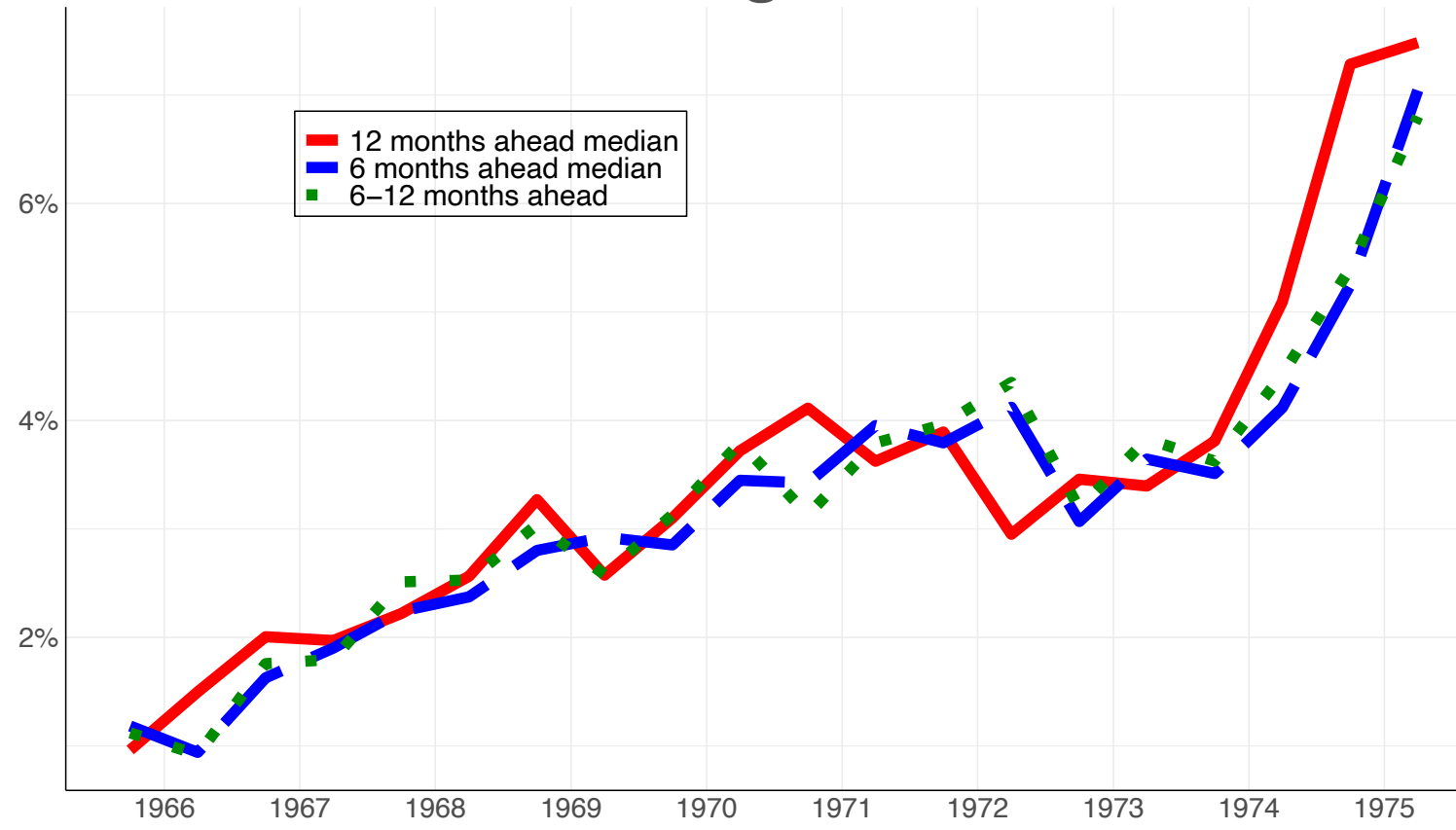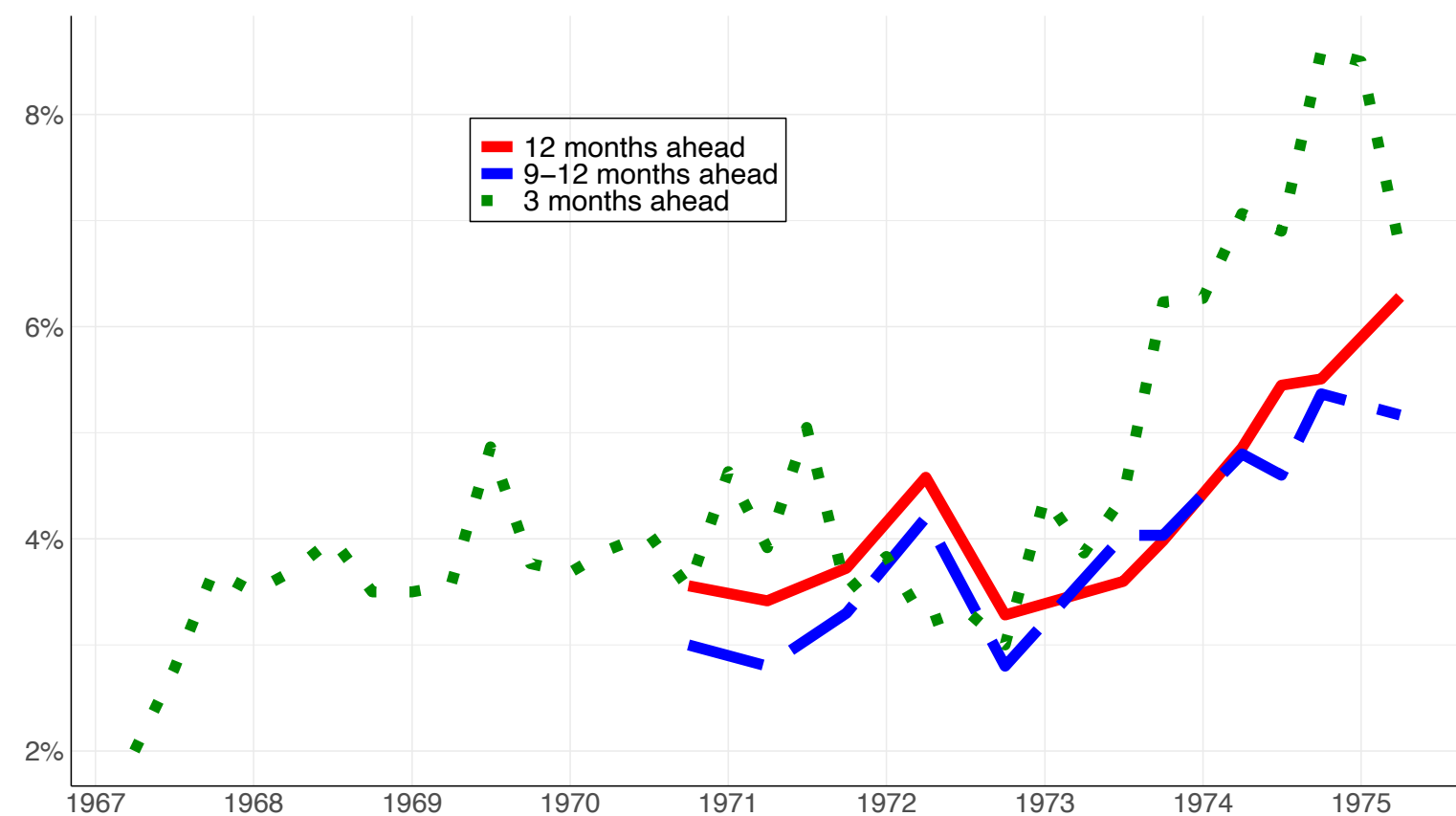
The data they looked at: professionals

Greenbook
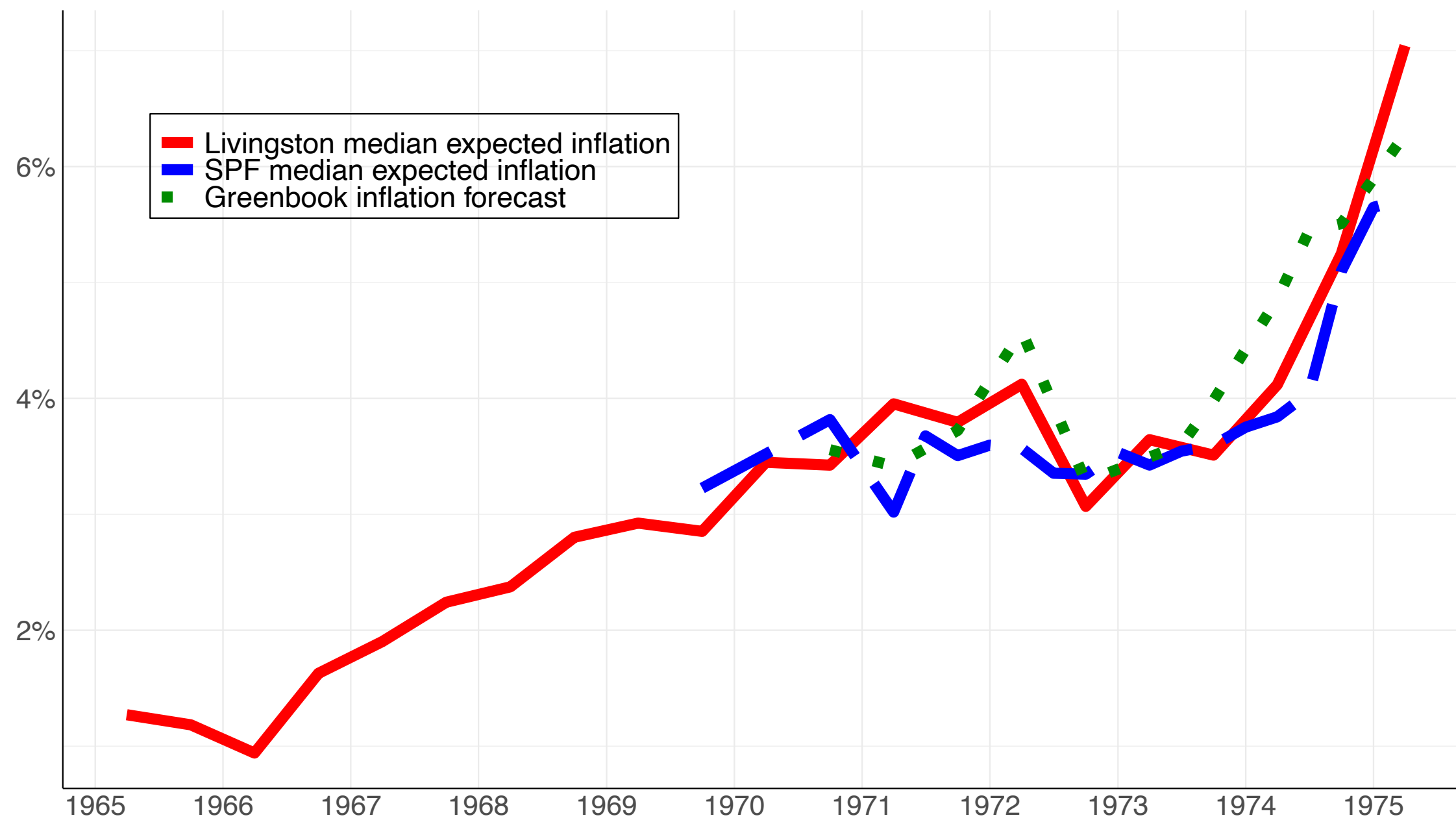
Livingston

Both Fed's staff and professional forecasters caught up sluggishly

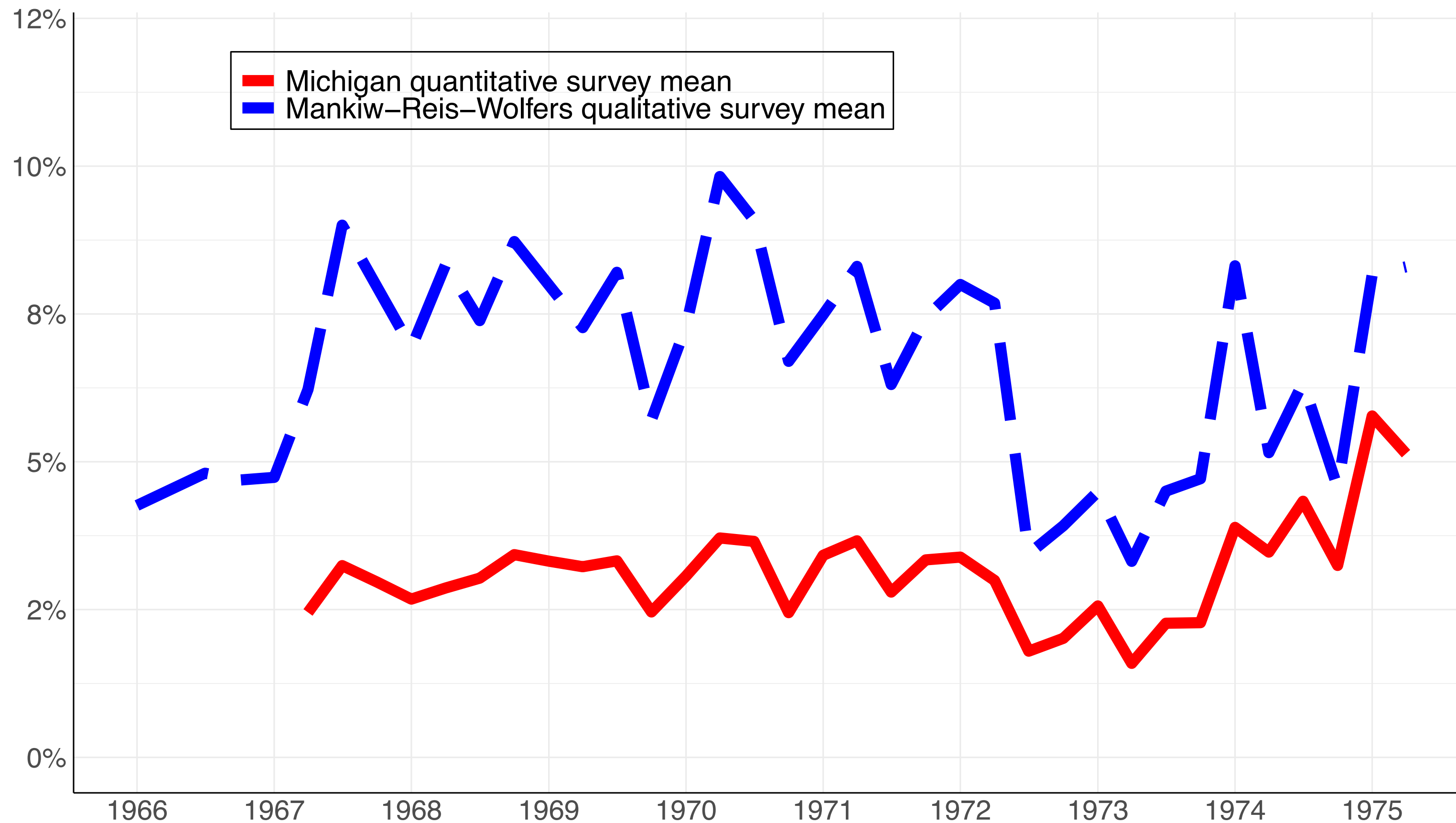(And the Fed's staff was particularly bullish on view that all was temporary)

Behind the curve

The data they rarely mentioned: households

Legend:
- Michigan quantitative survey mean
- Mankiw–Reis–Wolfers qualitative survey mean

Since 1946, Michigan Survey of Consumer Attitudes asked whether expected prices to rise or fall. MRW (2004) index.

But also, between 1966Q2 and 1976Q4, follow up question: "*How large a price increase do you expect? Of course, nobody can know for sure, but would you say that a year from now prices will be about 1% or 2% higher, or 5% higher, or closer to 10% higher than now or what?*"

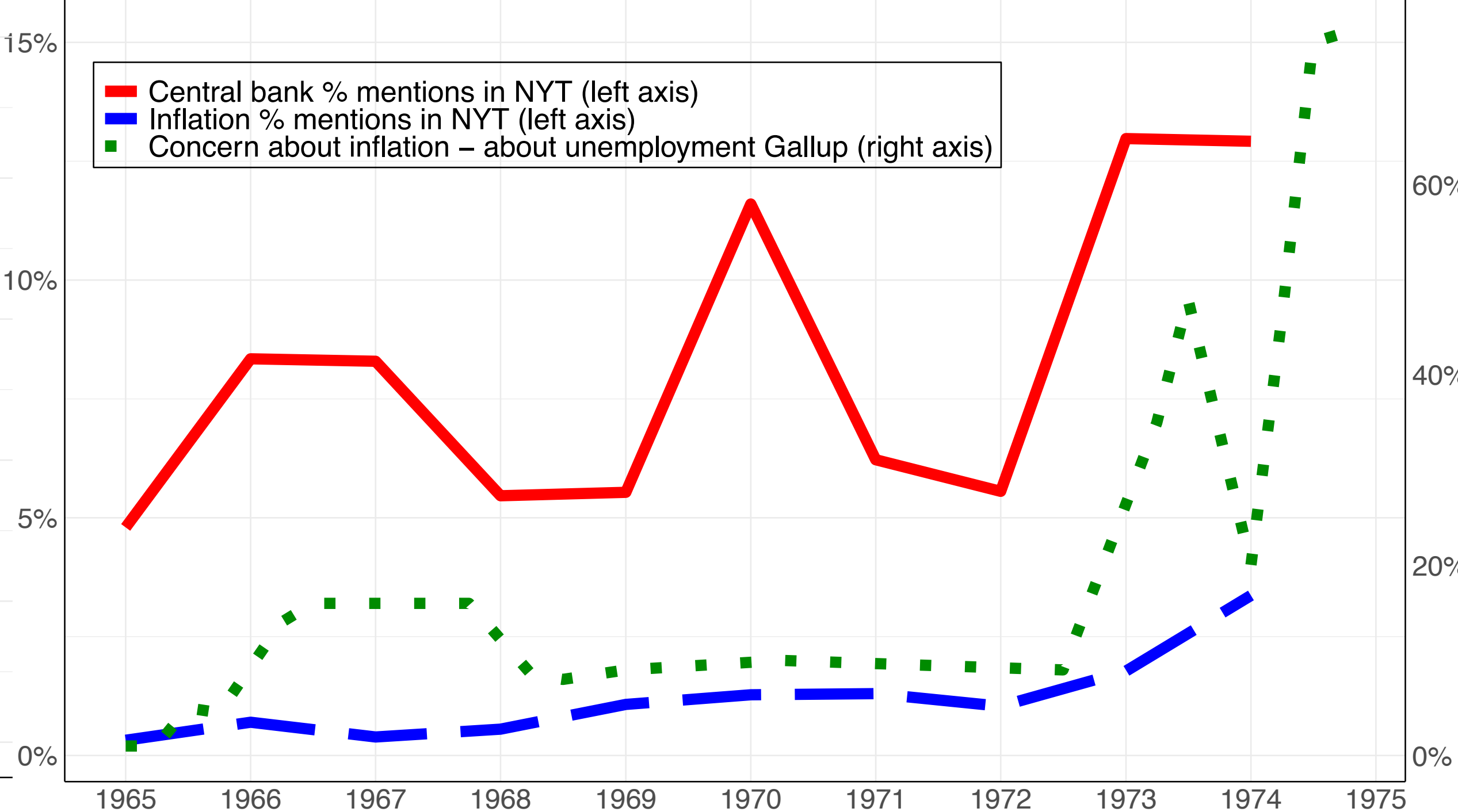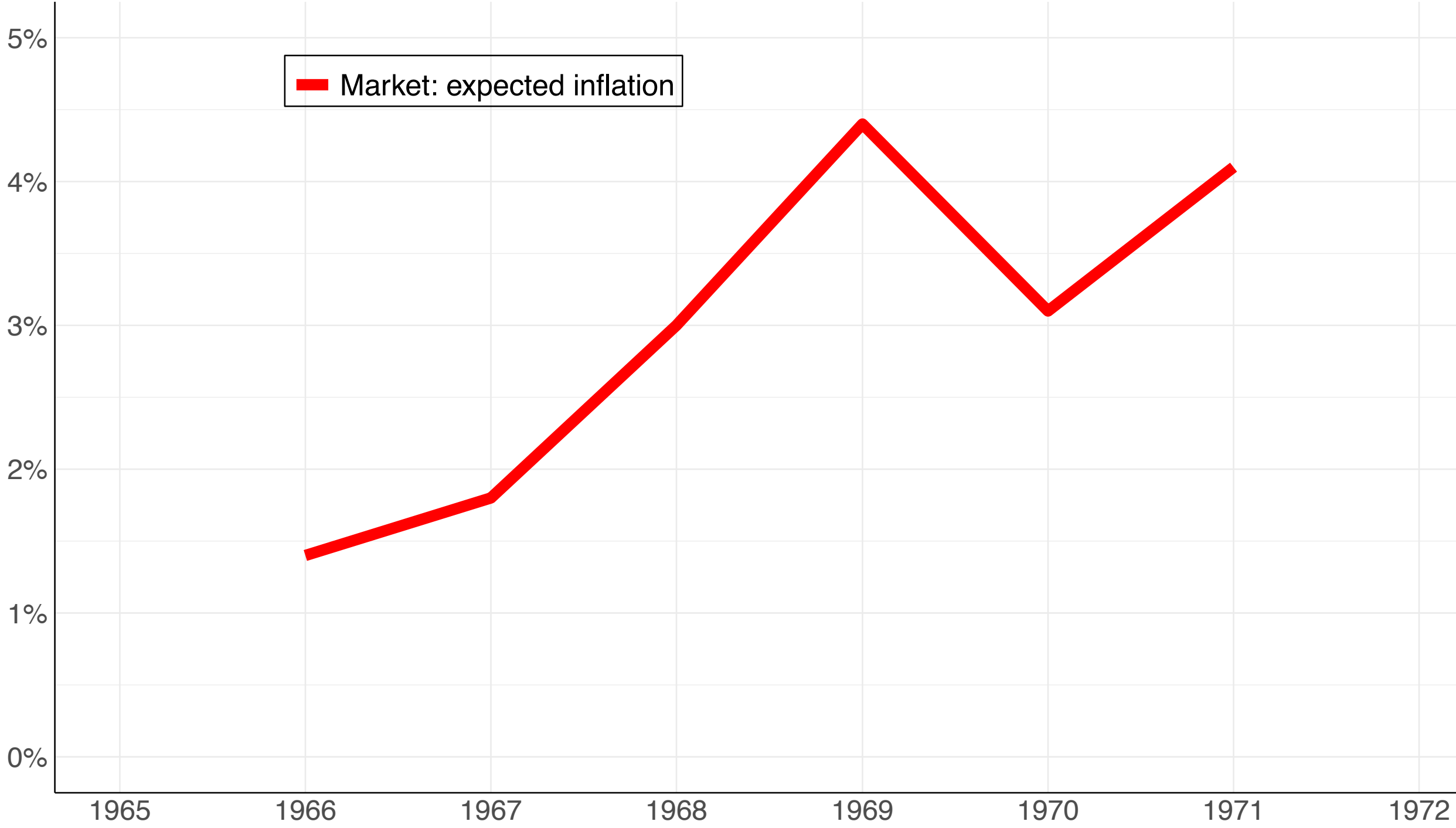# Can look deeper: disagreement
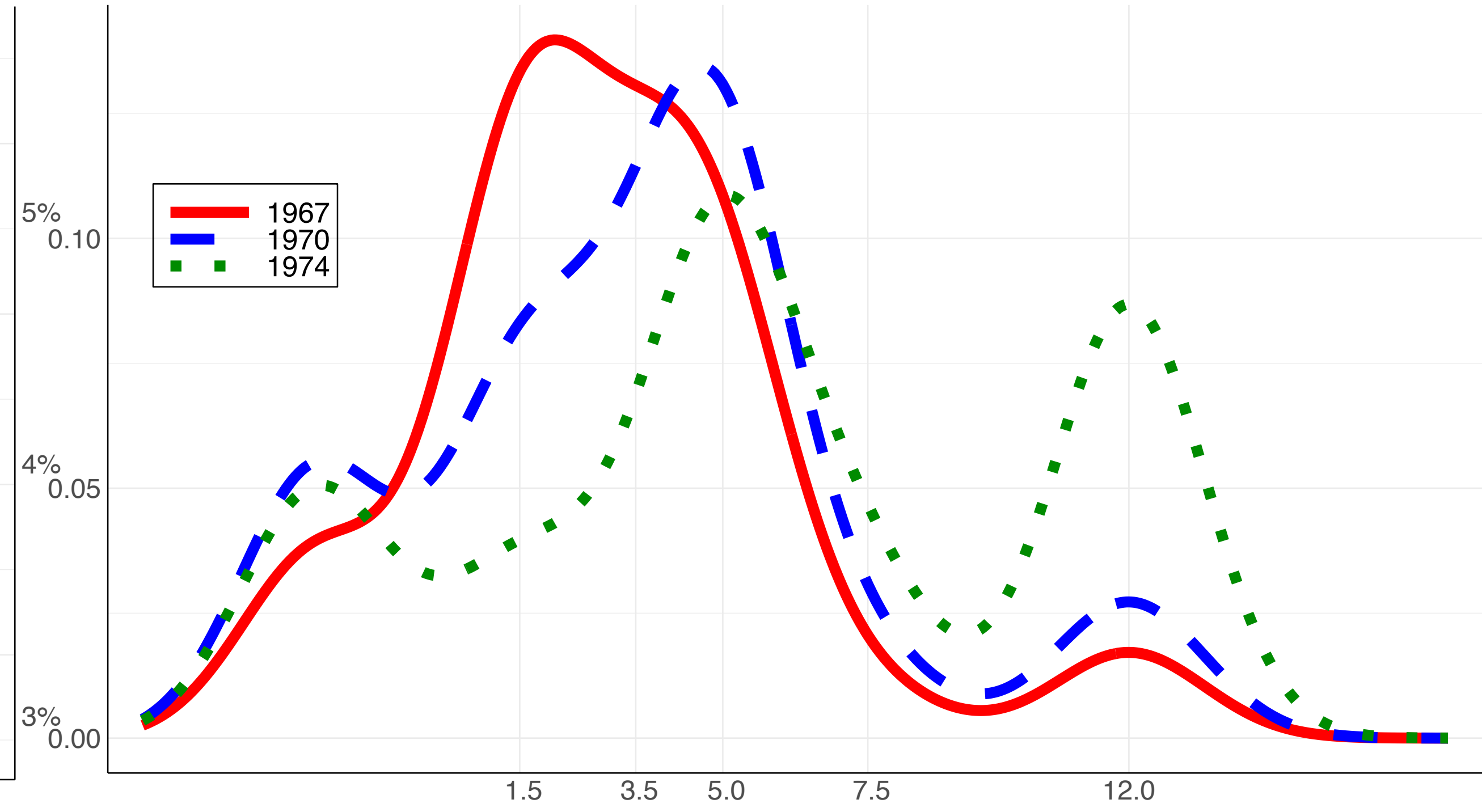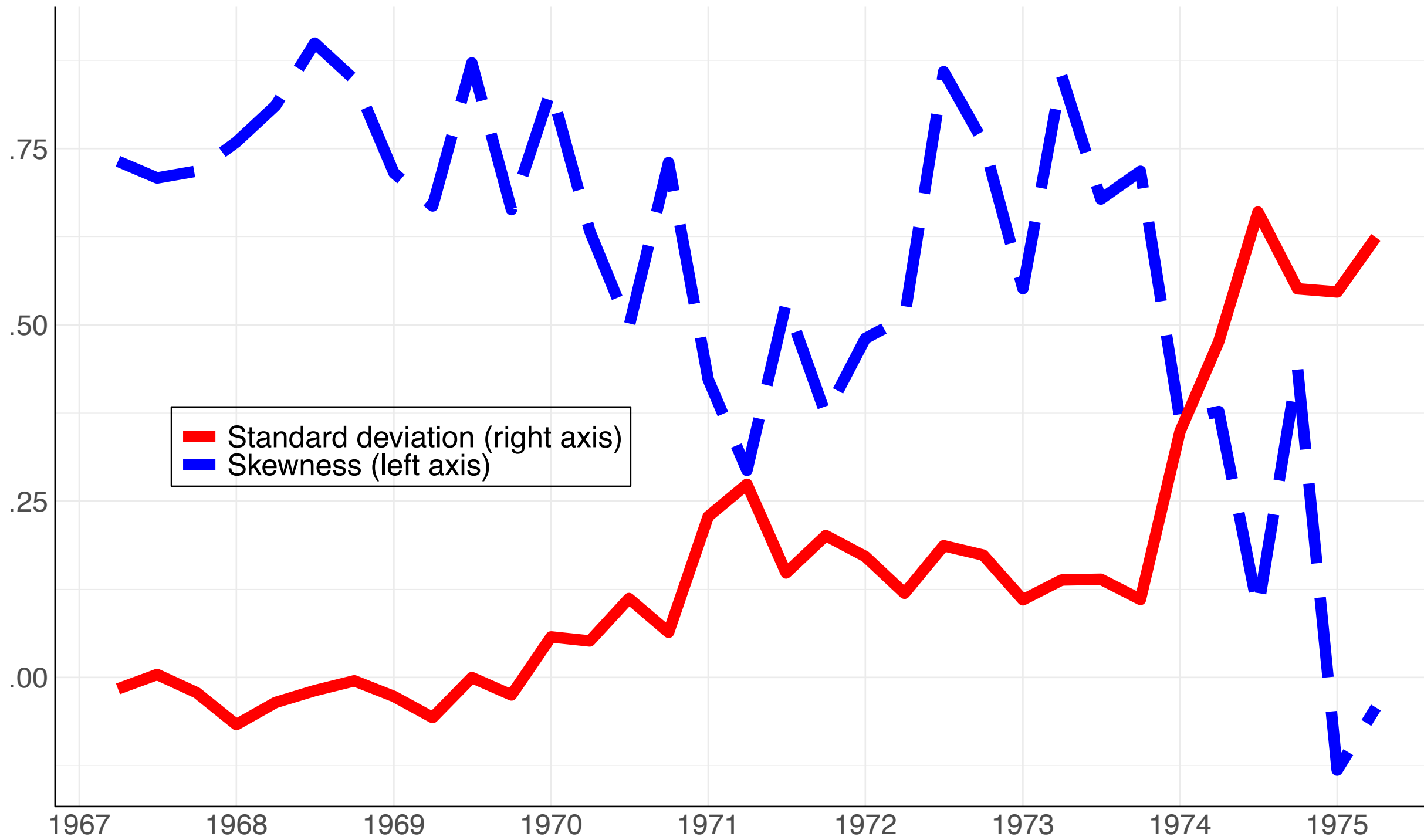
1967-70: Thickening right tail, hollowing of left tail, standard deviation rising, positive skew falling

1970-73: Median shifted slowly, right tail quickly, standard deviation rose, the skew first up then down

Markets and the media

New data from the Zurich market for gold forwards (alternative to London and Gold pool): very responsive, perhaps too much.

In media see some upticks

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A model to combine them into fundamental RE

$$v_t^h = \pi_t^* + c_t^h + \theta_t(e_t^h + \pi_t^e - \pi_t^*)$$

$$\text{with} \quad c_t^h \sim E(\lambda_t), \quad e_t^h|\pi_t^e \sim N(0, \sigma_t^2)$$

$$\text{cross-sectional distribution} \quad v_t^h \sim F_t(\pi_t^e)$$

$$q_t = \frac{\int y_t(\pi_t^e) g_t(F_t^{-1}(\omega_t)) f_t(F_t^{-1}(\omega_t)) d\pi_t^e}{\int g_t(F_t^{-1}(\omega_t)) f_t(F_t^{-1}(\omega_t)) d\pi_t^e}$$

$$\text{with:} \quad \omega_t \sim B(\beta), \quad \pi_t^e|q_t \sim G(\pi_t^e)$$

$$E_t^b = \mathbb{E}_t(\pi_t|v_t^{\text{median}}, q_t)$$

Households: biased from experiences, sluggish average, over-react individually

Markets: more information, sensitive to news, filled with noise

Professionals: median is misleading, not marginal traders.

Data inputs: three moments from household survey distribution, one market price, median professional

Model outputs: reaction, dispersion and bias (θ, σ, λ), market noise (ω), fundamental expected inflation (π^e)
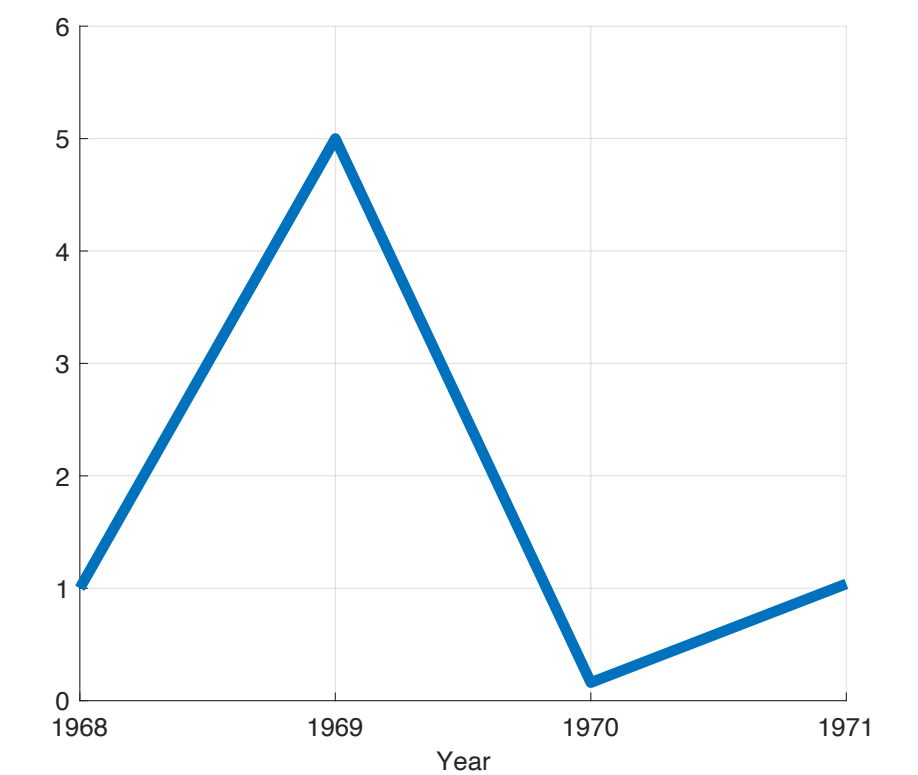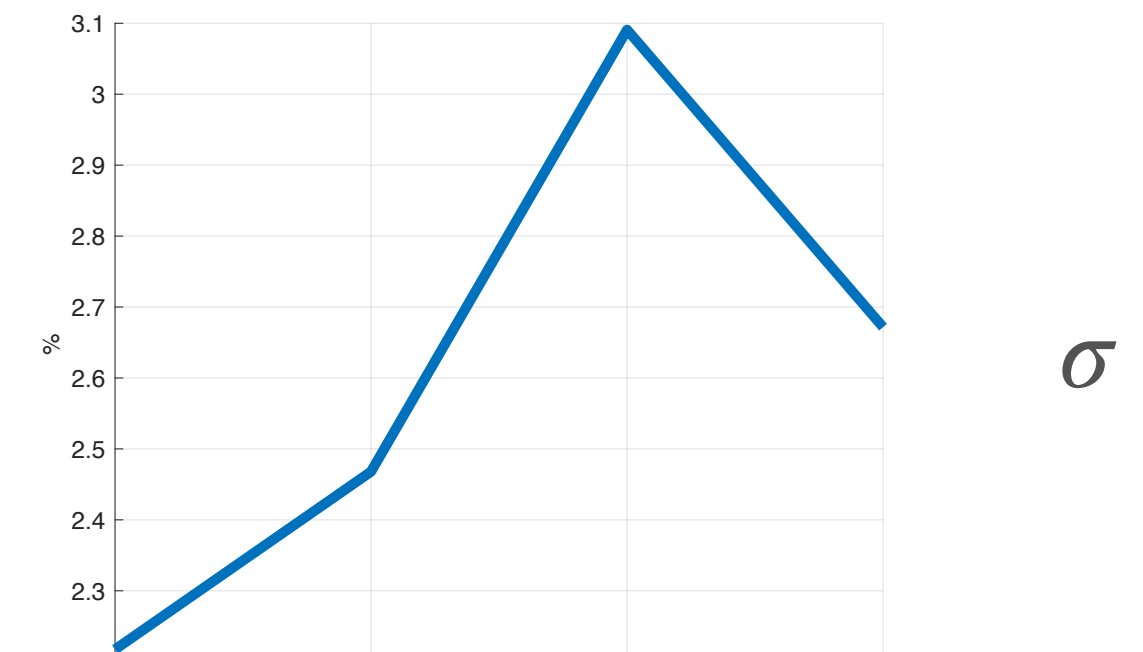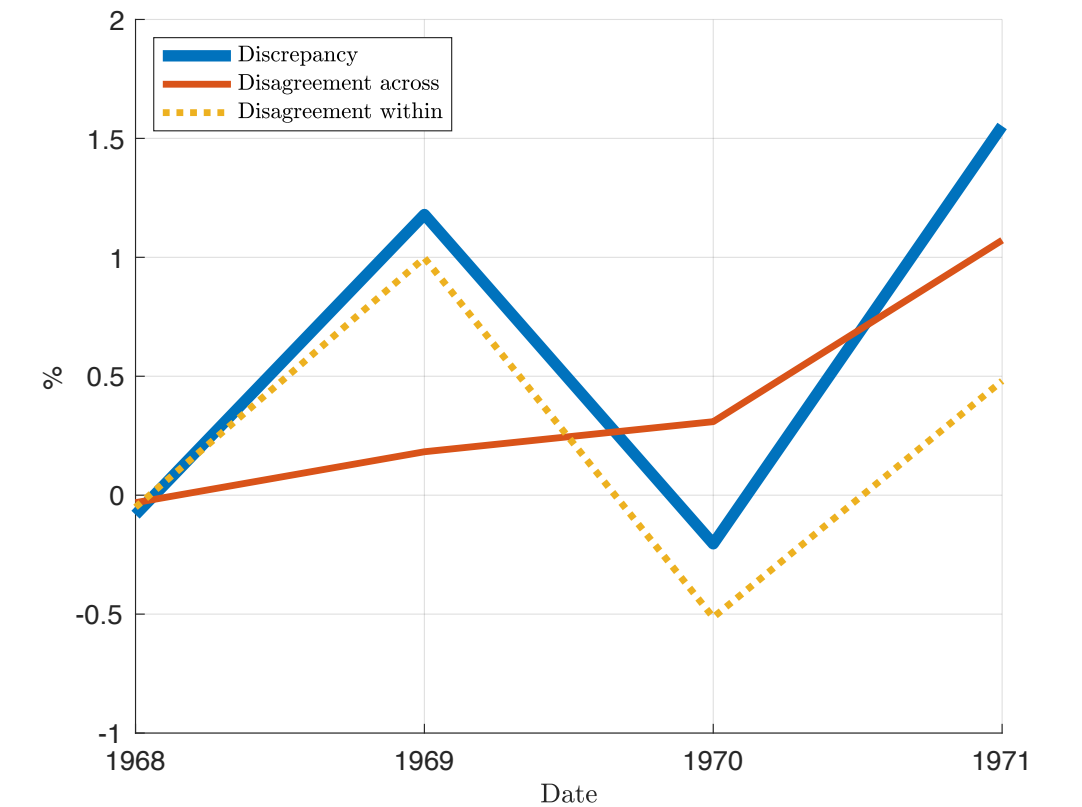
Estimates of the expected inflation anchor
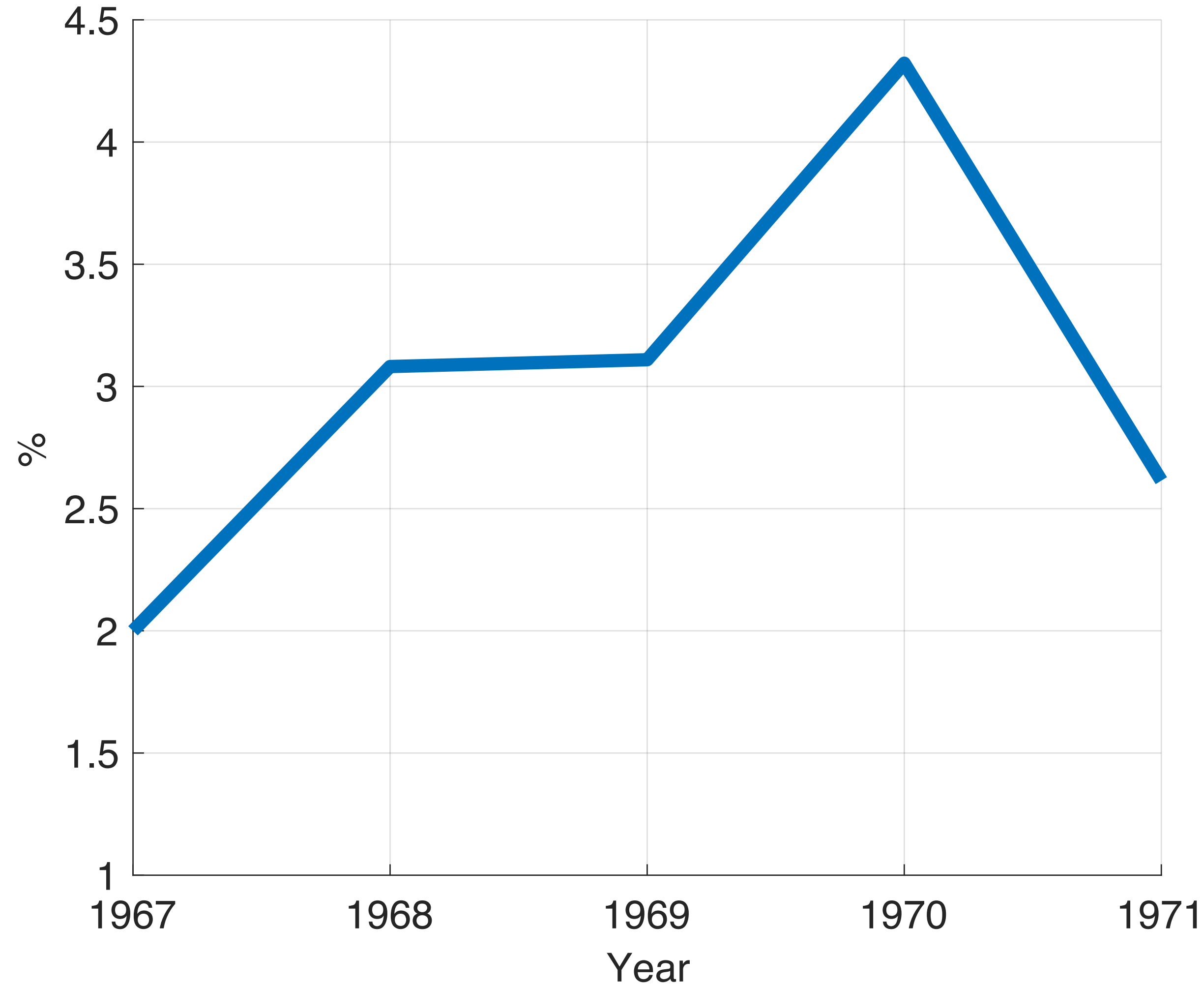
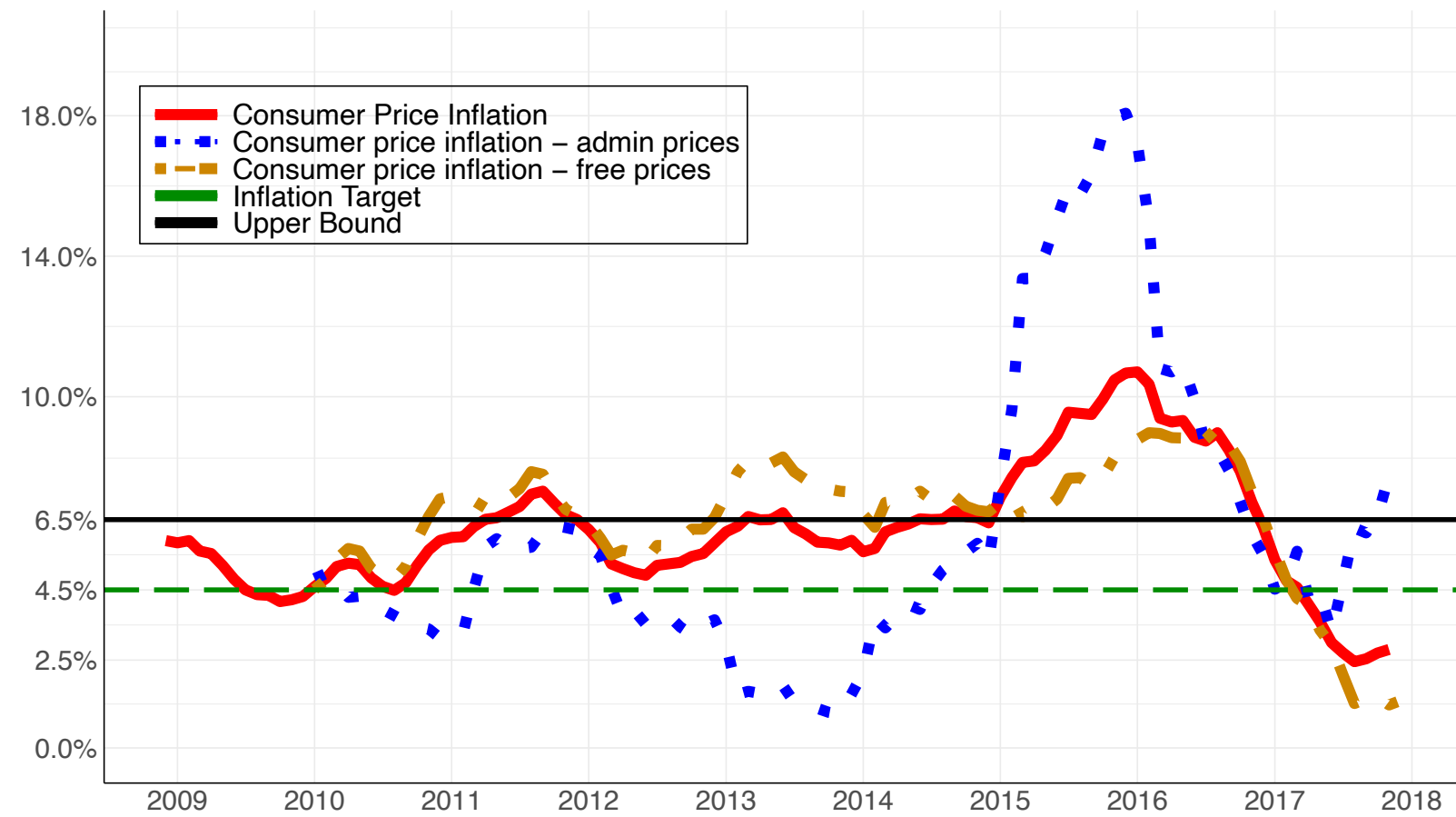The drifting anchor

At first, markets seen as maybe reflecting noise

But, disagreement across households showed the fund. expectation shifting

Later, sluggish response of medians of professionals confirms it
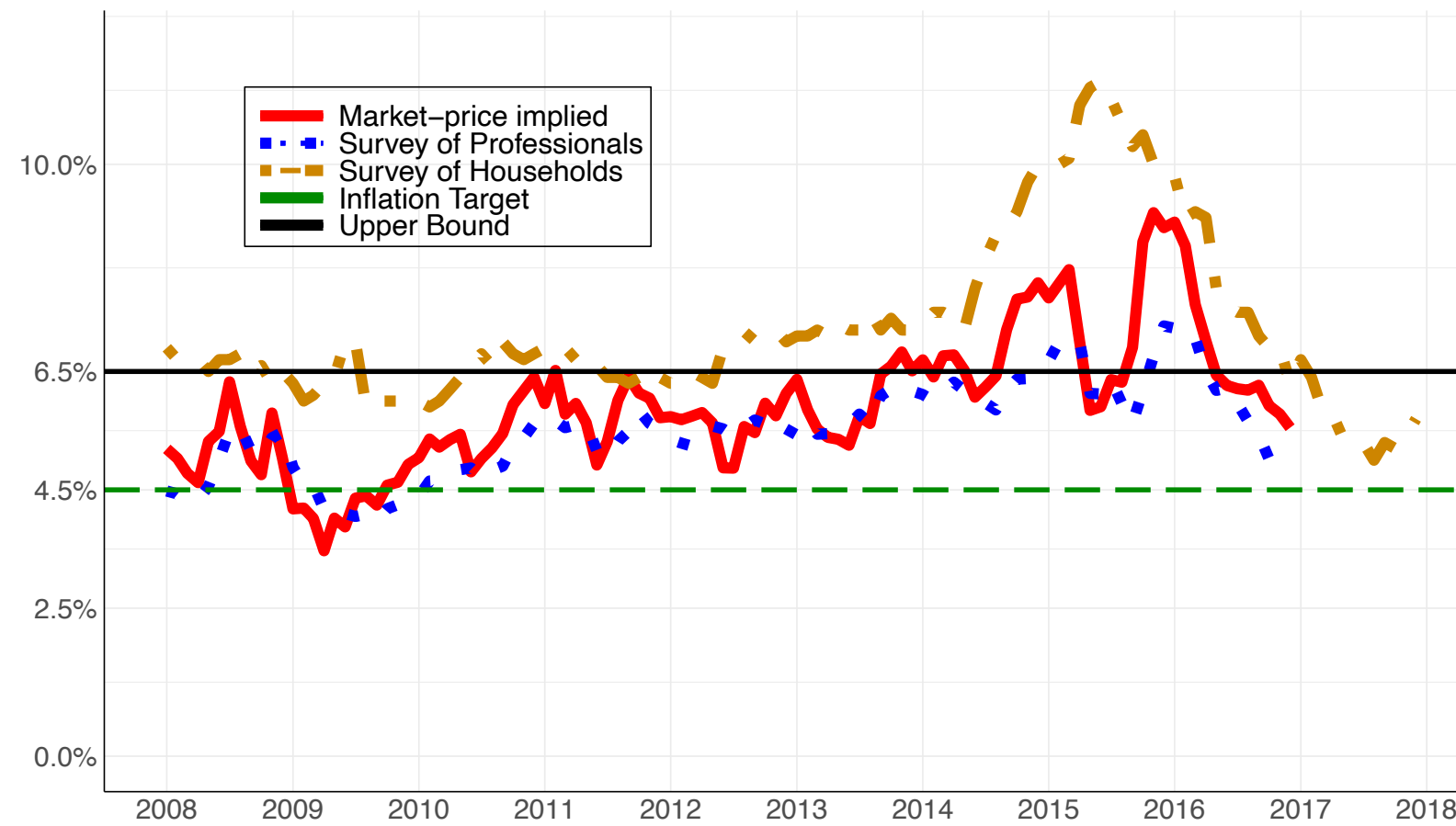
σ

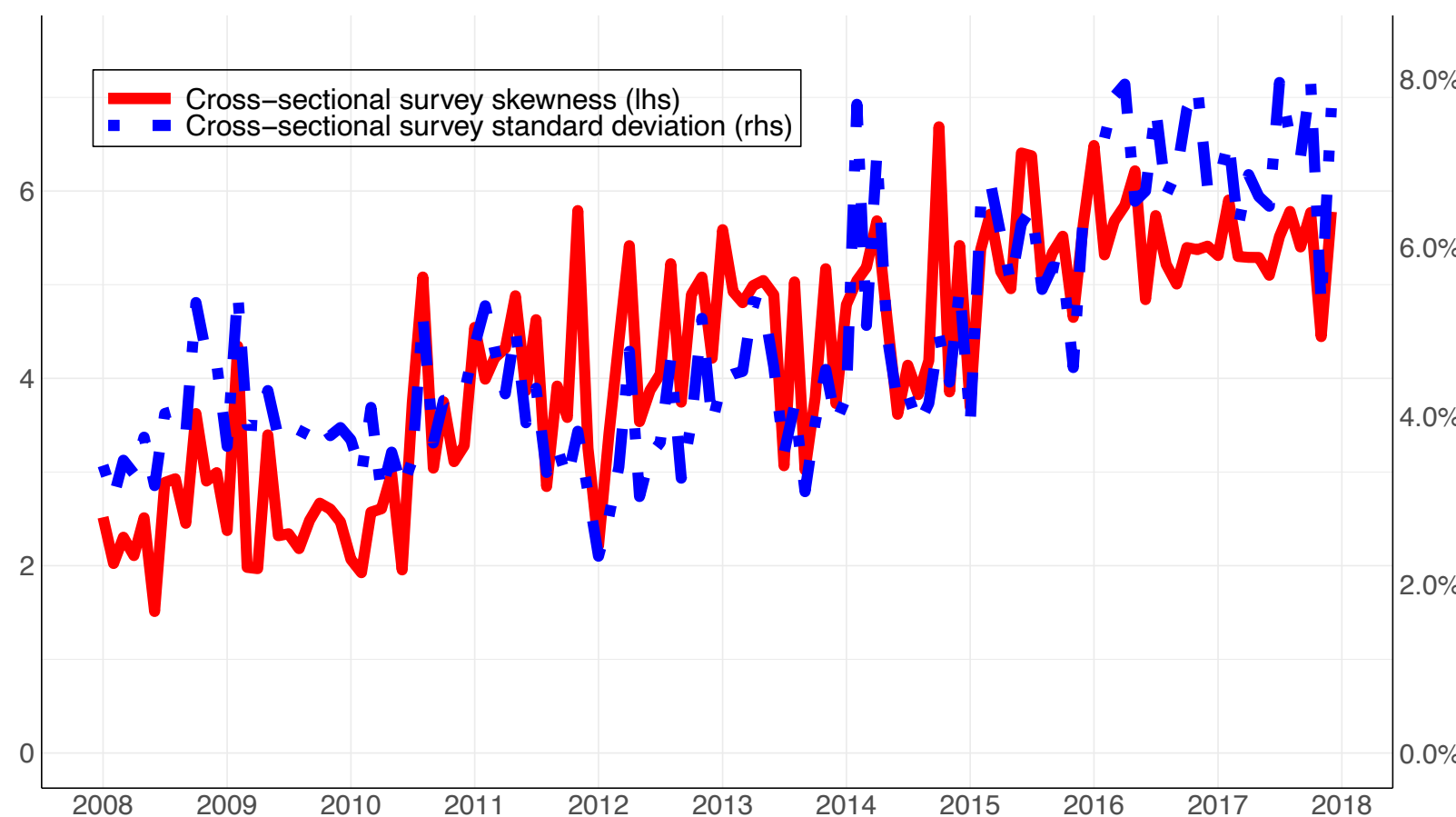θ

Beyond one episode: Brazil 2011-16?

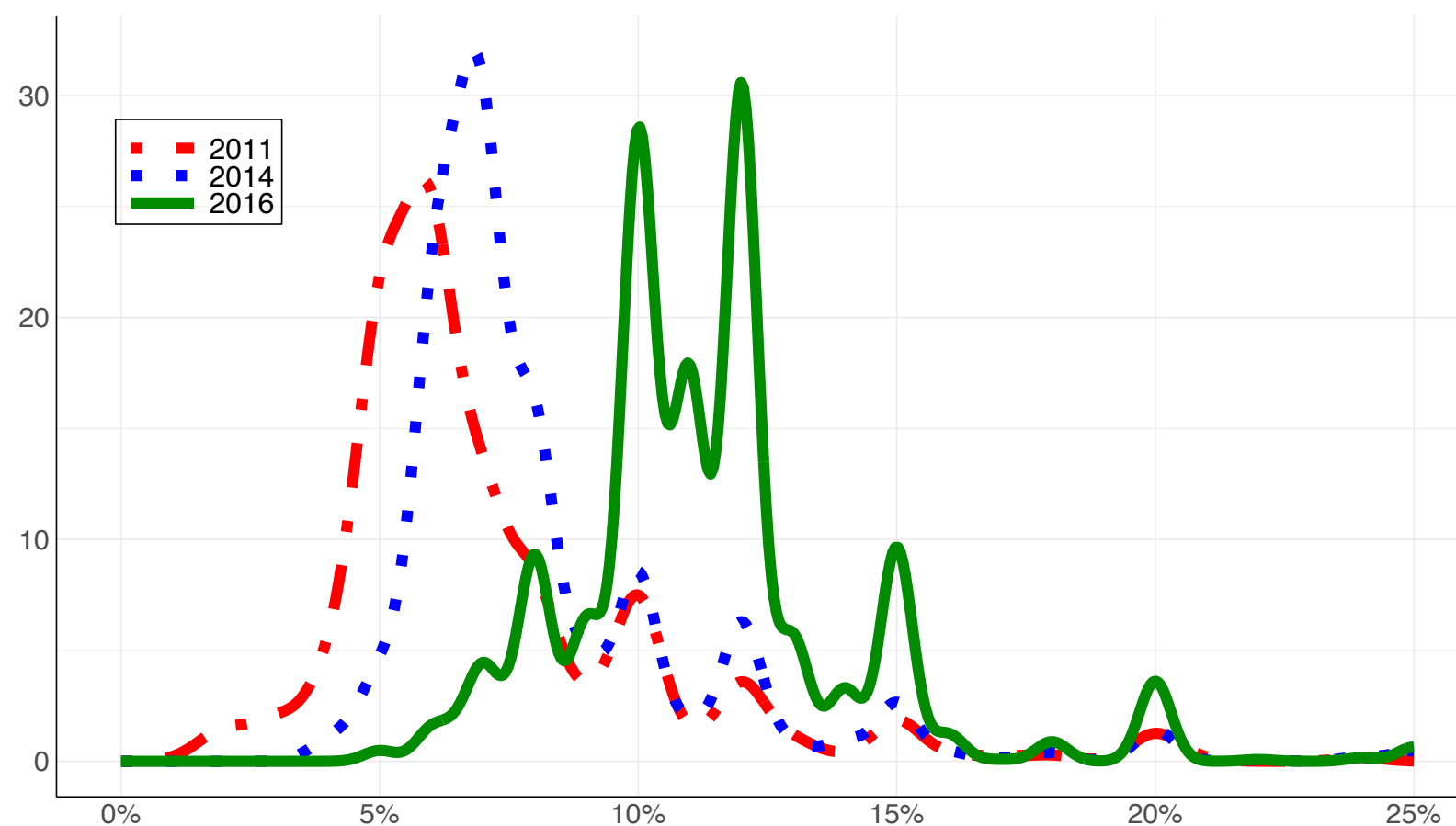(a) Actual inflation and its target

(b) Markets and survey first-order moments

(c) Cross-sectional disagreement of households

(d) Cross-sectional distribution of households

Loose monetary, fiscal dominance, belief all transitory, rising inflation.
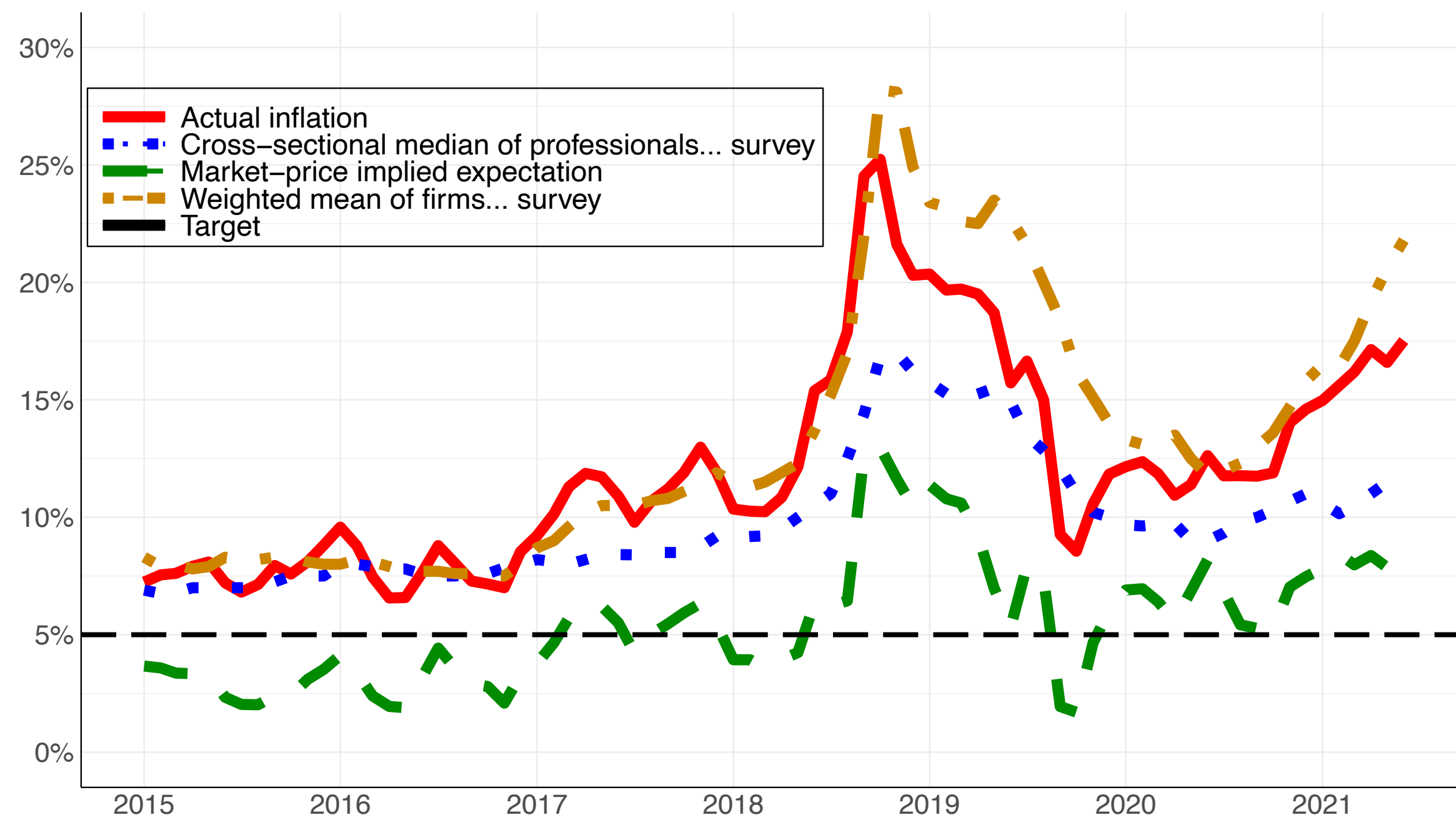
Price controls over administrative prices kept it pent-up 2011-15.
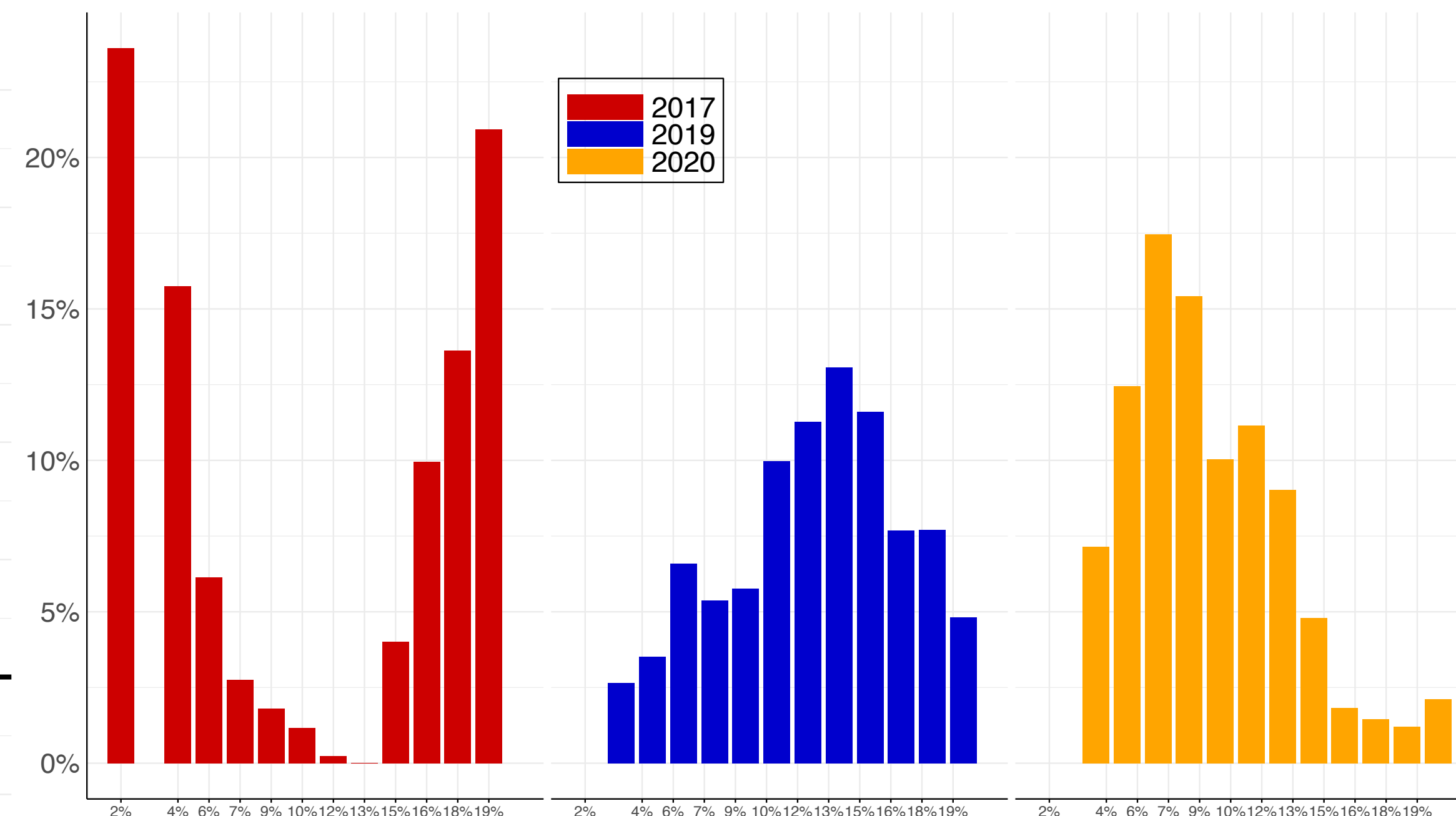
Markets, professionals weak signals

But again household disagreement revealed it

Third episode: Turkey 2018-…

(a) Actual inflation, markets and survey first-order moments

Legend:
- Actual inflation
- Cross–sectional median of professionals... survey
- Market–price implied expectation
- Weighted mean of firms... survey
- Target

(b) Cross-sectional survey distribution
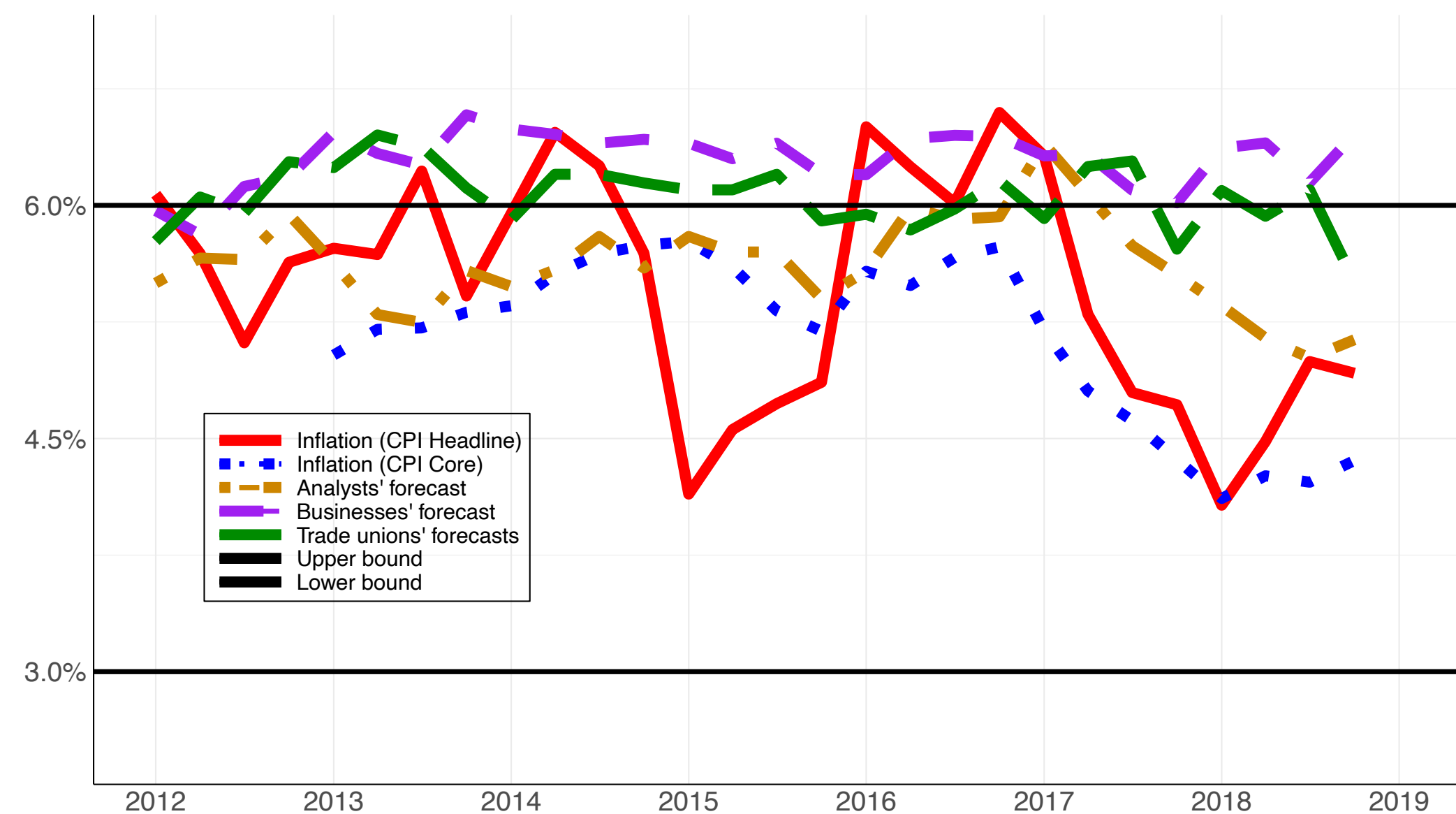

Legend:
- 2017
- 2019
- 2020

Even in real time, cross-sectional survey expectations distributions give signal
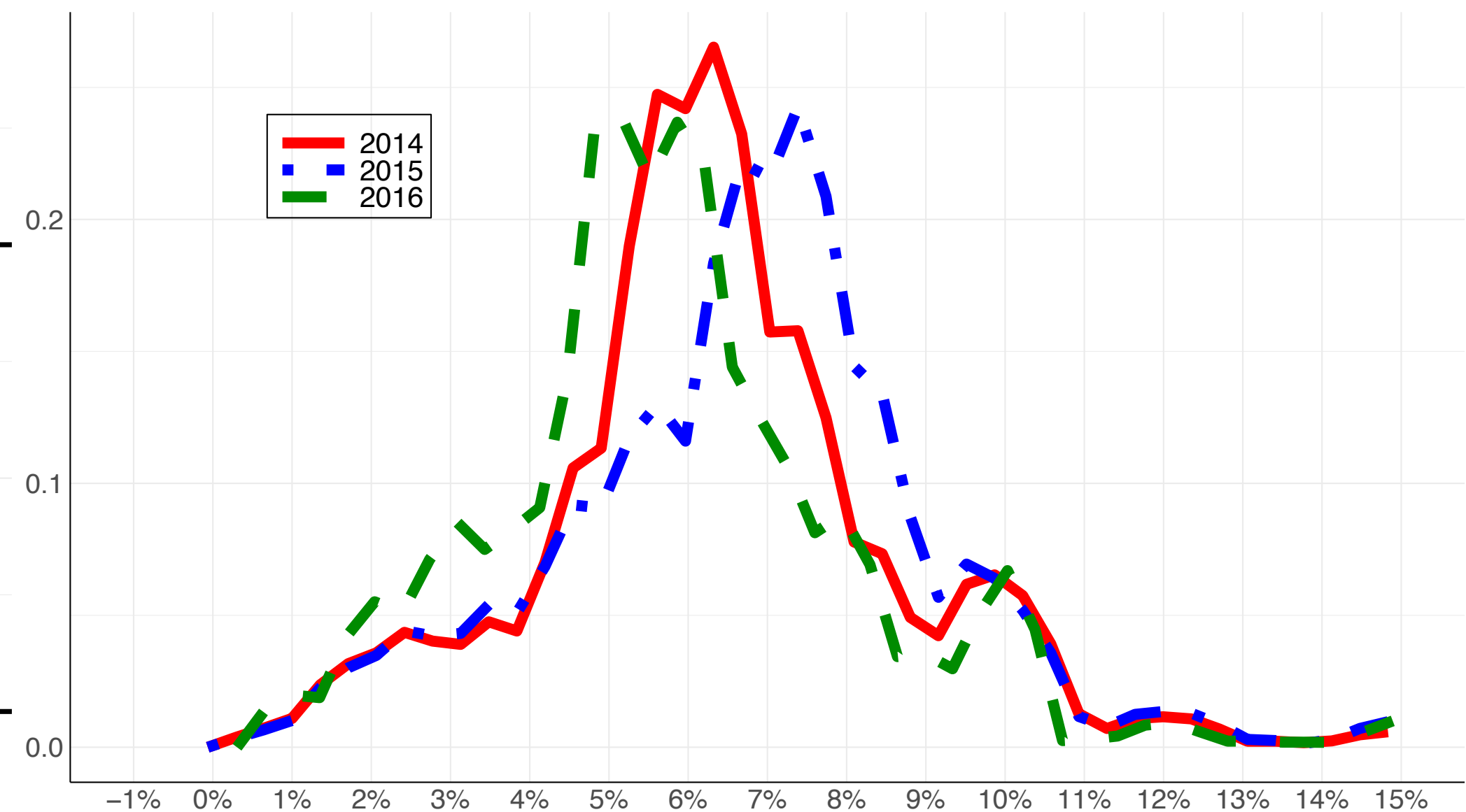
If anchor is not firm in the seabed, shifts are large and fast

False positives: South Africa 2010-16?

(a) Actual inflation, markets and survey first-order moments
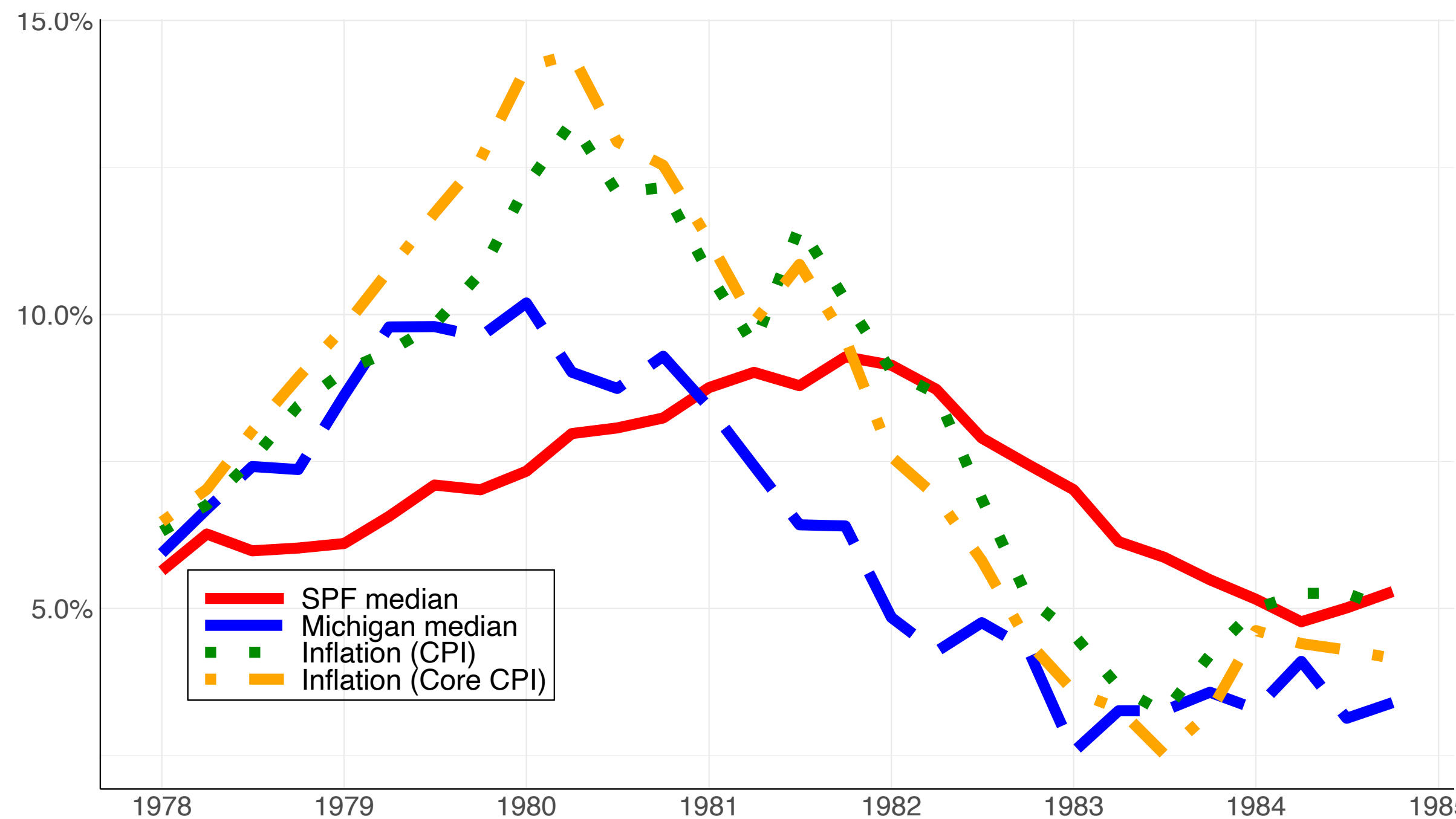
(b) Cross-sectional survey distributions

Survey data stayed steady in light of unlucky run of shocks, price controls temporary effect
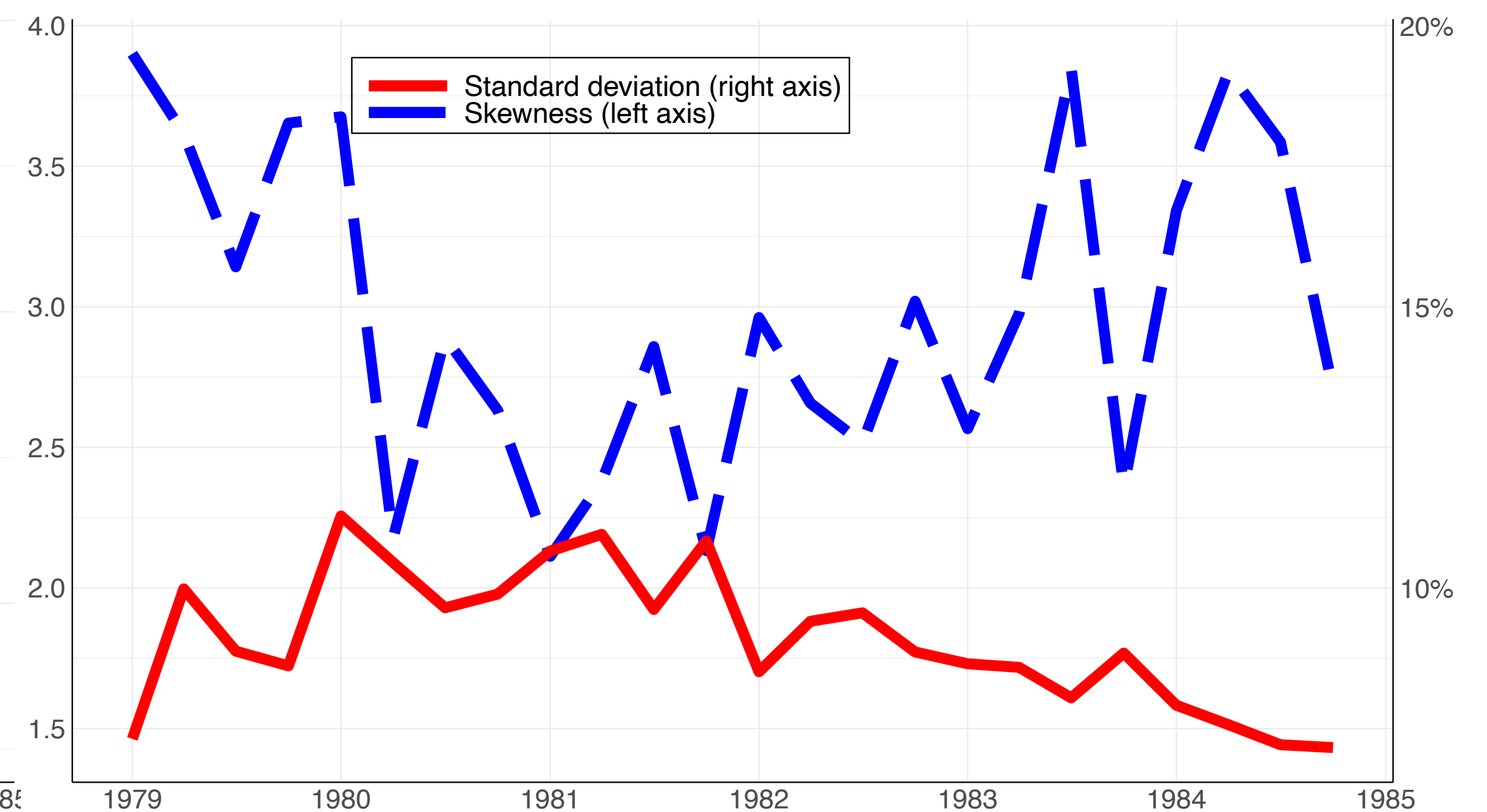
No drifting anchor, no false positive

What about in other direction? US 1980s

(a) Actual and survey first-order moments
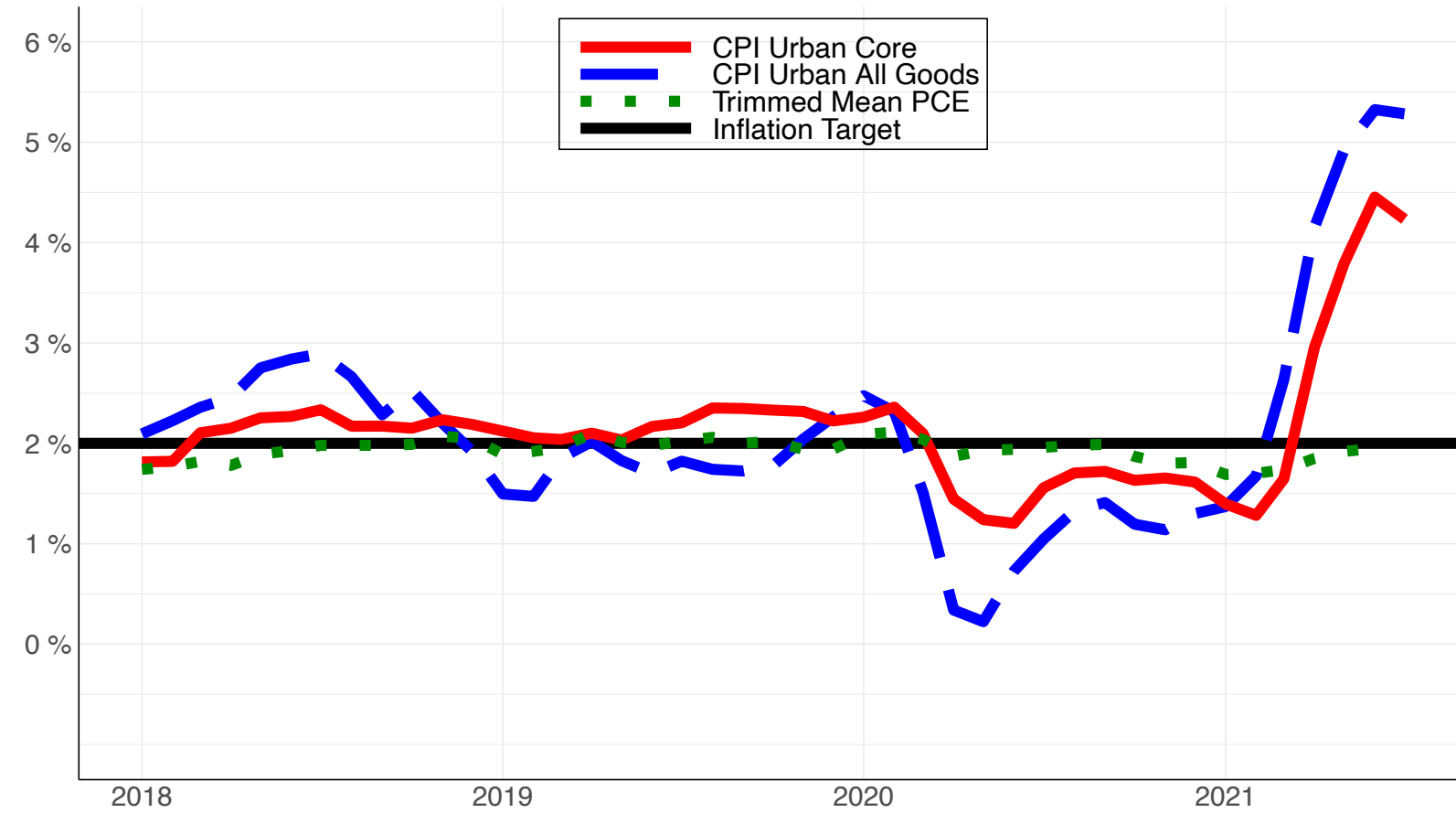

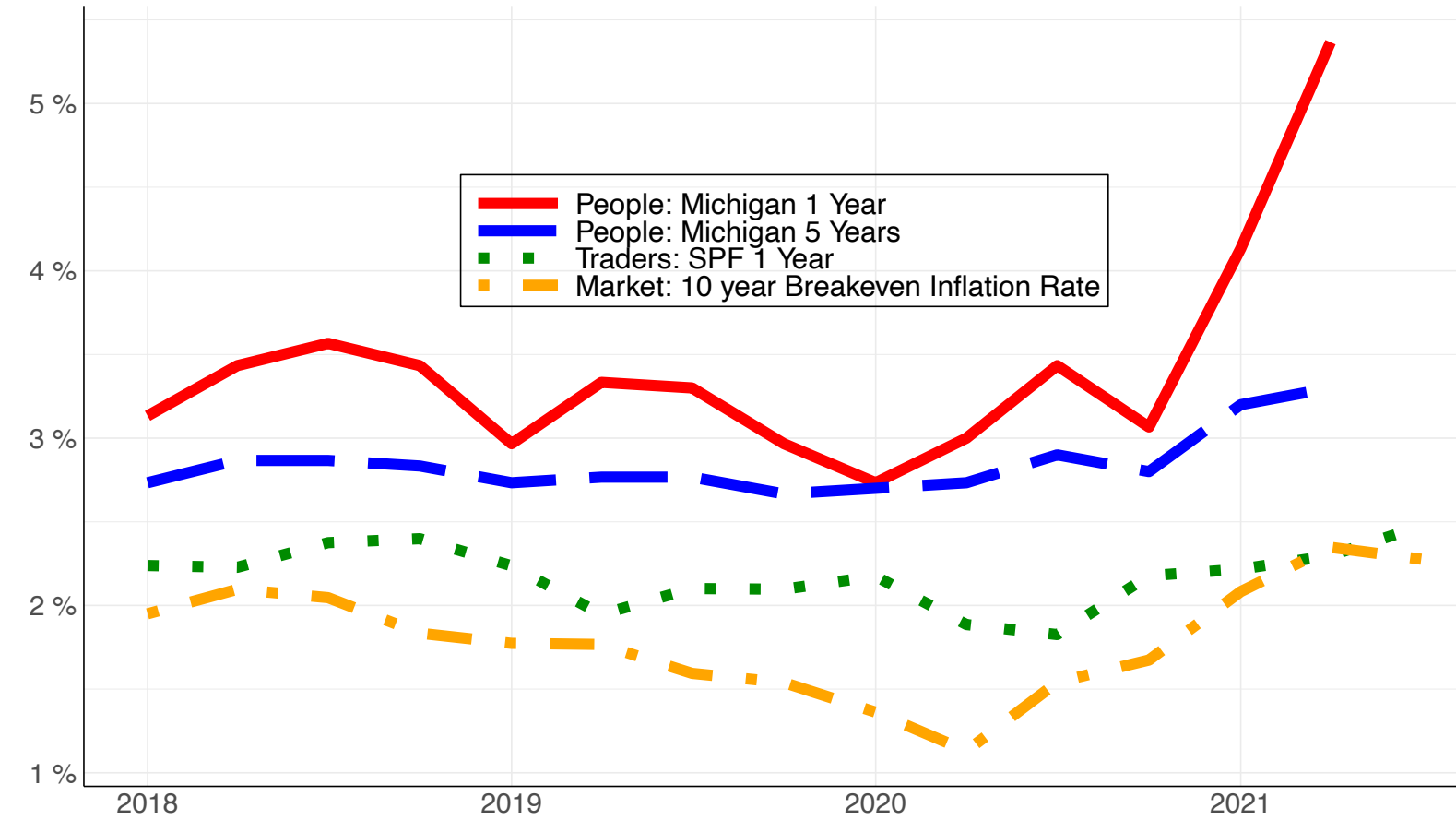(b) Survey disagreement

Households ahead of professionals, again

Disagreement pattern showed the dropping and firming of the anchor
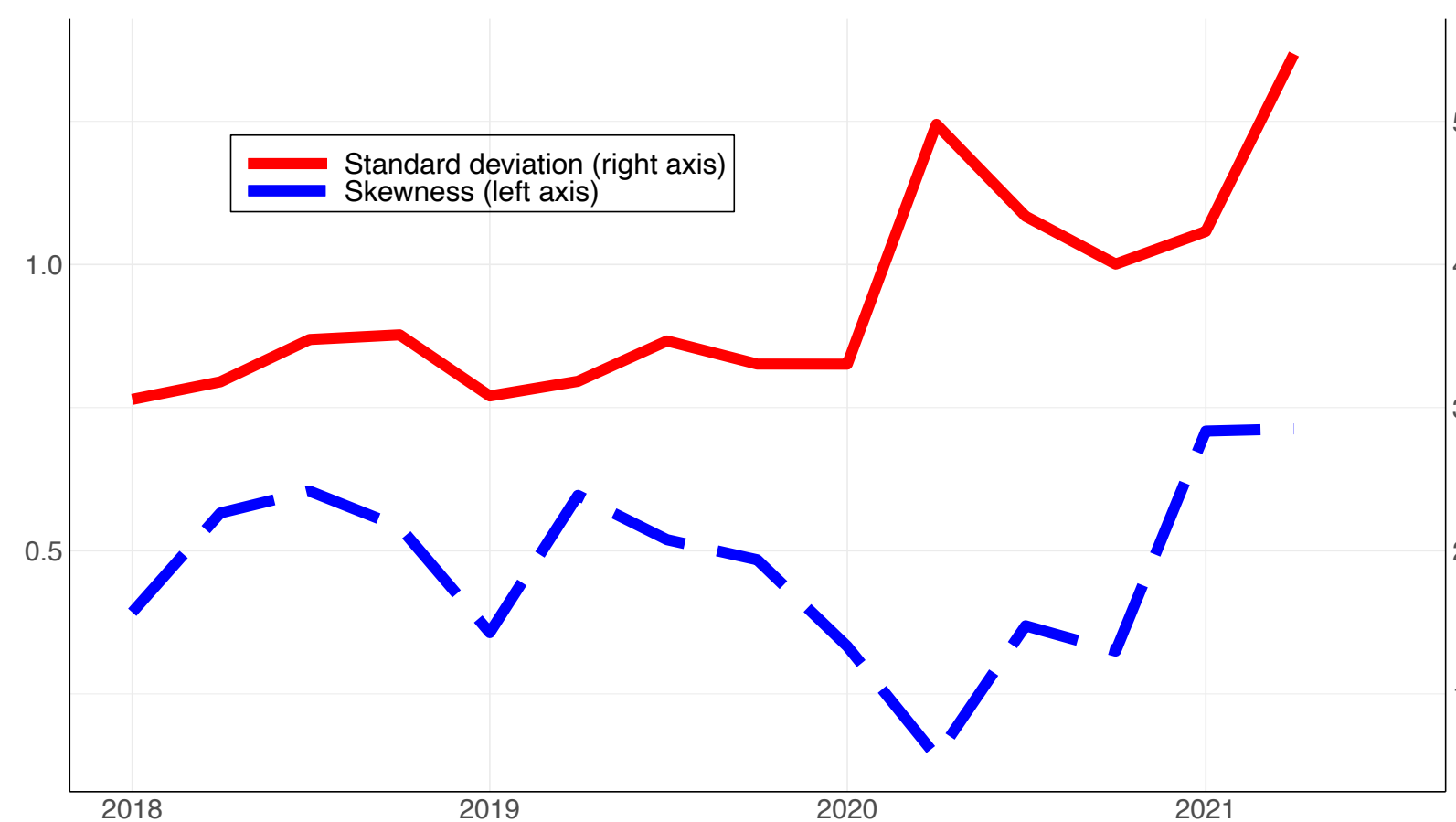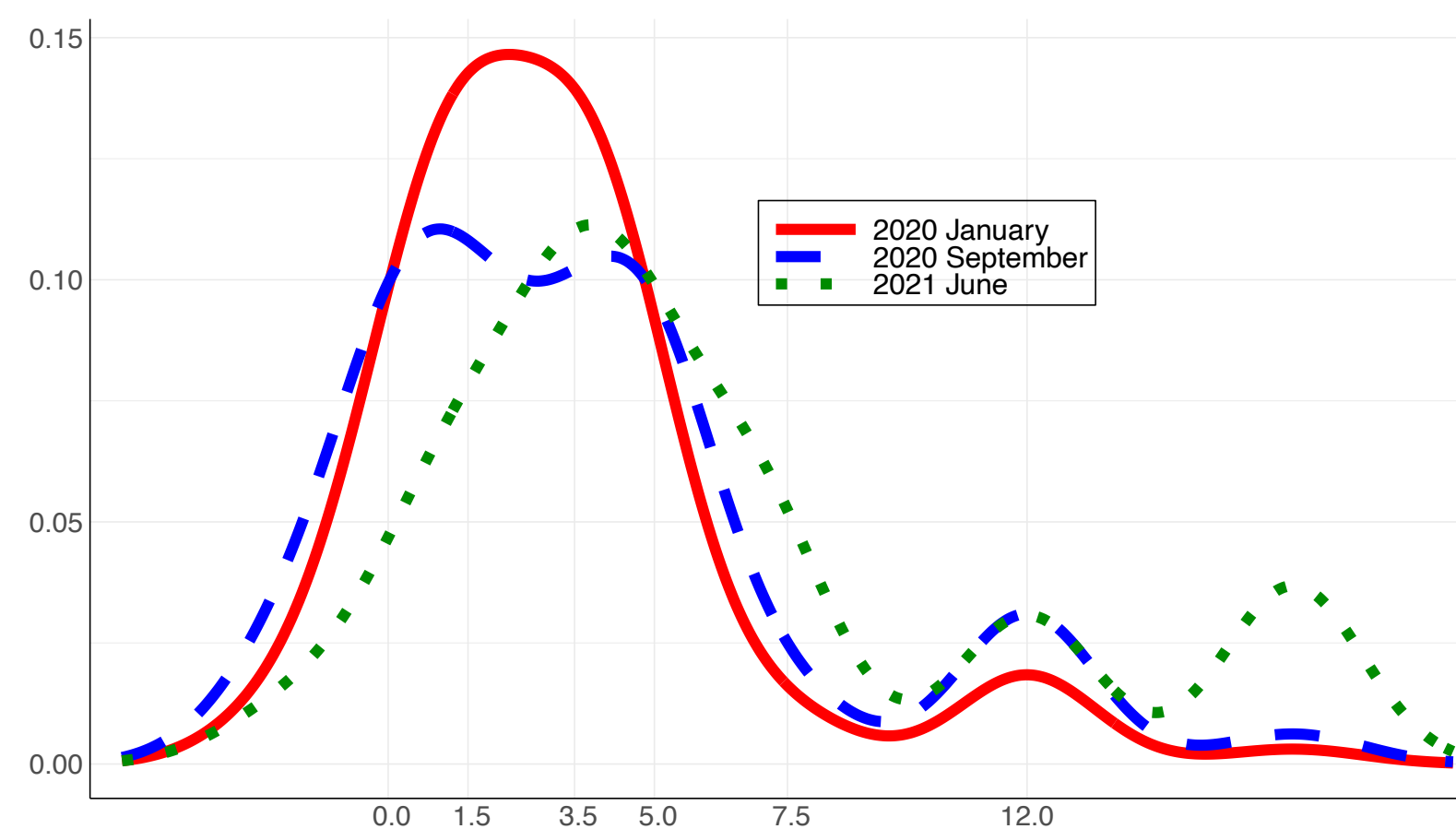
Looking ahead: US today?

(a) Actual inflation

Legend: CPI Urban Core; CPI Urban All Goods; Trimmed Mean PCE; Inflation Target

(b) Markets and survey first-order moments

Legend: People: Michigan 1 Year; People: Michigan 5 Years; Traders: SPF 1 Year; Market: 10 year Breakeven Inflation Rate

(c) Cross-sectional disagreement of households

Legend: Standard deviation (right axis); Skewness (left axis)

(d) Cross-sectional distribution of households

Legend: 2020 January; 2020 September; 2021 June

Tough test for beliefs:

- salient prices
- recent data
- over-reaction

See in the data the increase in disagreement that points to an anchor that is drifting up.

But, jury is still out, and much depends on luck and policy over the next 12 months.

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Conclusion

- Expected inflation is not…

  - …a mystical psychological variable for policymakers, an add-on factor, for data fitters, a perfect mirror of actual inflation that can be ignored, too sluggish and biased in surveys to be useful

- Can measure the expected inflation anchor…

  - …combine survey medians with markets and with disagreement in cross-sectional survey distributions

- The roots of the Great Inflation were in 1967-73, before oil shocks…

  - …bad theory (of expectations), bad measurement (expectations), bad luck (salience)

- Five episodes in which expectations measurement would have been useful

  - …and arguably useful now to see the anchor slightly drifting, but still in time to put it back in the seabed.