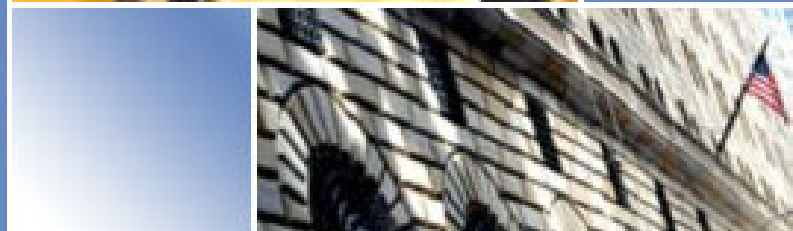# Consumer memory, inflation expectations and the interpretation of shocks

By Gabriel Züllig – Discussion by Giorgio Topa

Disclaimer

The views expressed here are mine alone and do not necessarily reflect the official views of the Federal Reserve Bank of New York or the Federal Reserve System.

Summary

- Paper looks at heterogeneity in inflation expectations (IE) revisions as a function of lifetime experiences of (types of) recessions.

- "Memory shock": various measures of extent of comovement between changes in inflation and changes in unemployment rate during recessions.

- Identifies supply shocks, demand shocks and MP shocks.

Summary, cont'd

- Four different definitions of memory shock, from simple ratios of changes in π and changes in UR, to VARs.

- Mostly negative IE revisions at onset of Covid, especially for younger respondents (consistent with a demand shock interpretation).

- Individuals with an active memory of supply-side shocks revise their IE more after monetary policy shocks.

# Shock memory and IE revisions by age in 2020
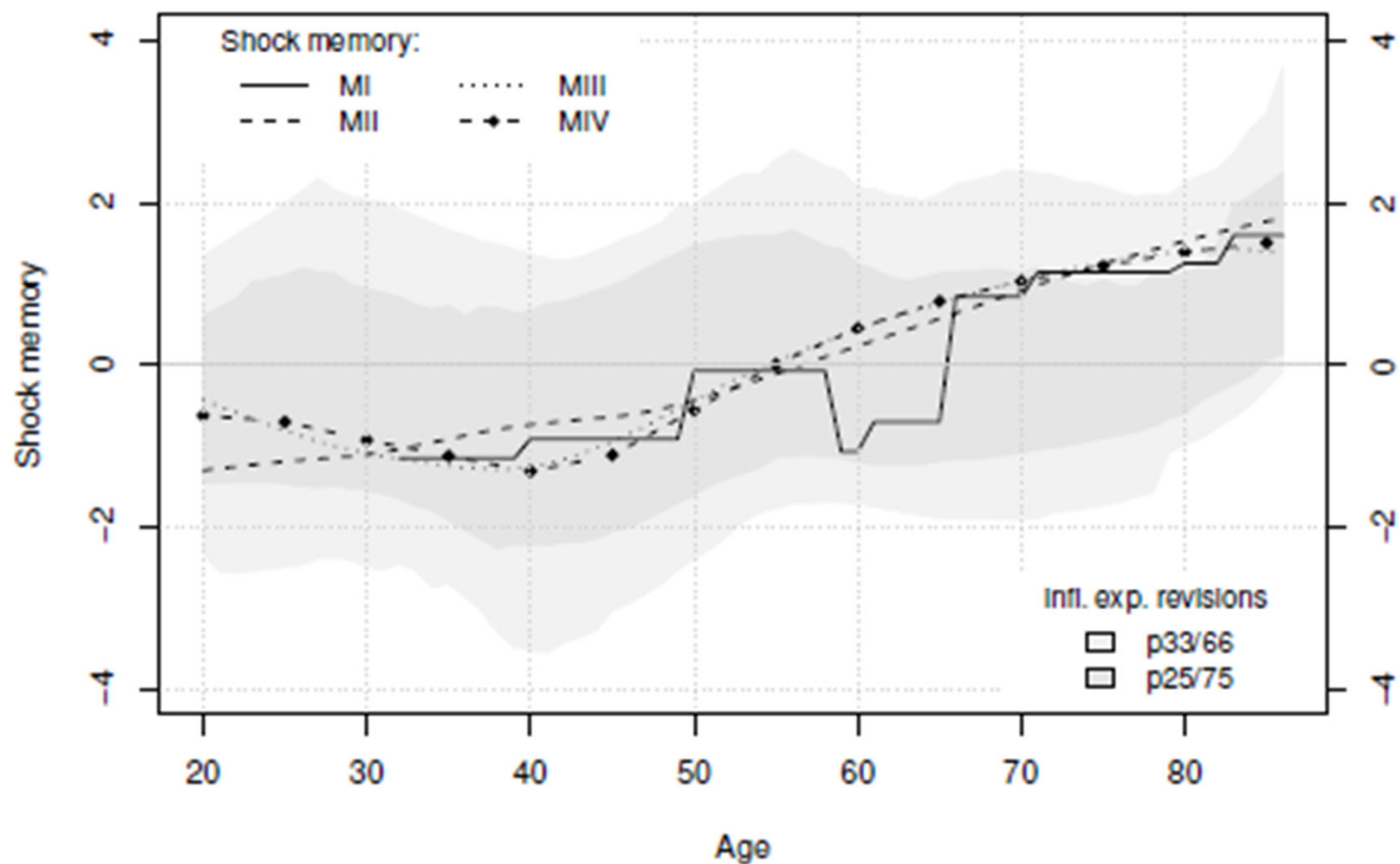
- Higher values → during lifetime of person at given age, high comovement of π and UR.

Comments

- In the SCE, we find that indeed the initial response to Covid onset was a decline in IE, but it was short-lived.

- No significant difference by age:

  - Using daily responses;

  - Using within-individual revisions between March-May 2020 and Dec2019-Feb2020.

- (Better to use density forecasts rather than point forecasts.)
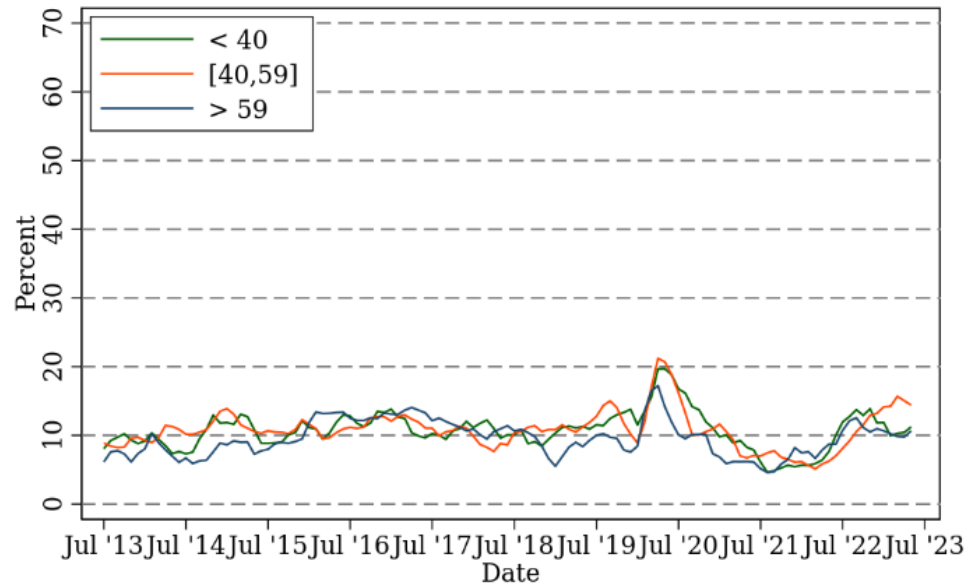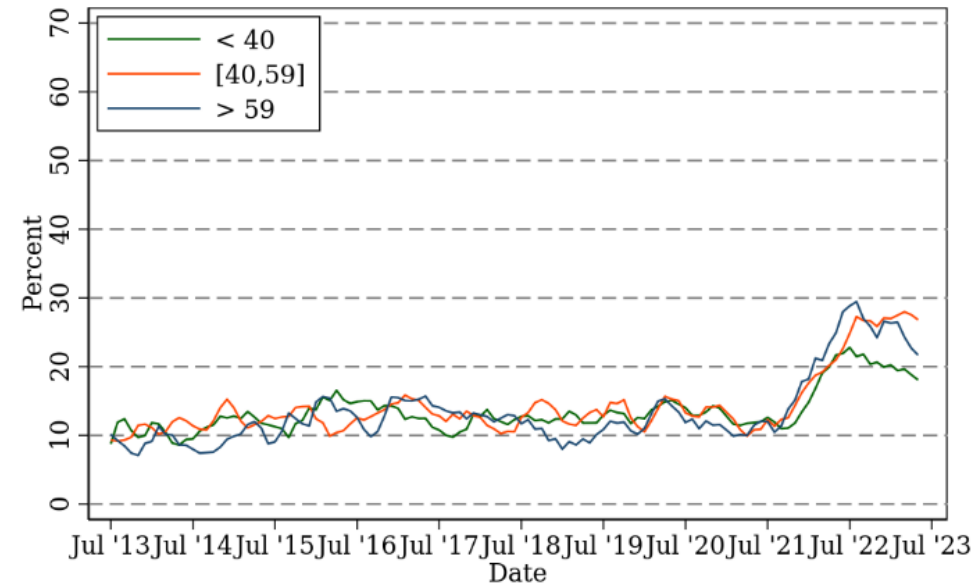
Median IE by age
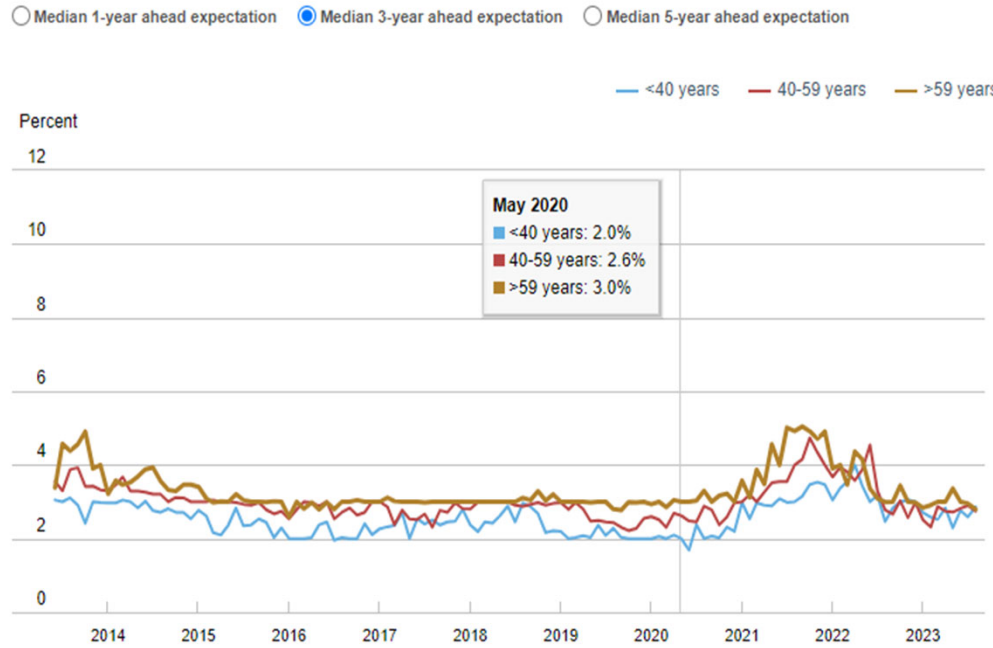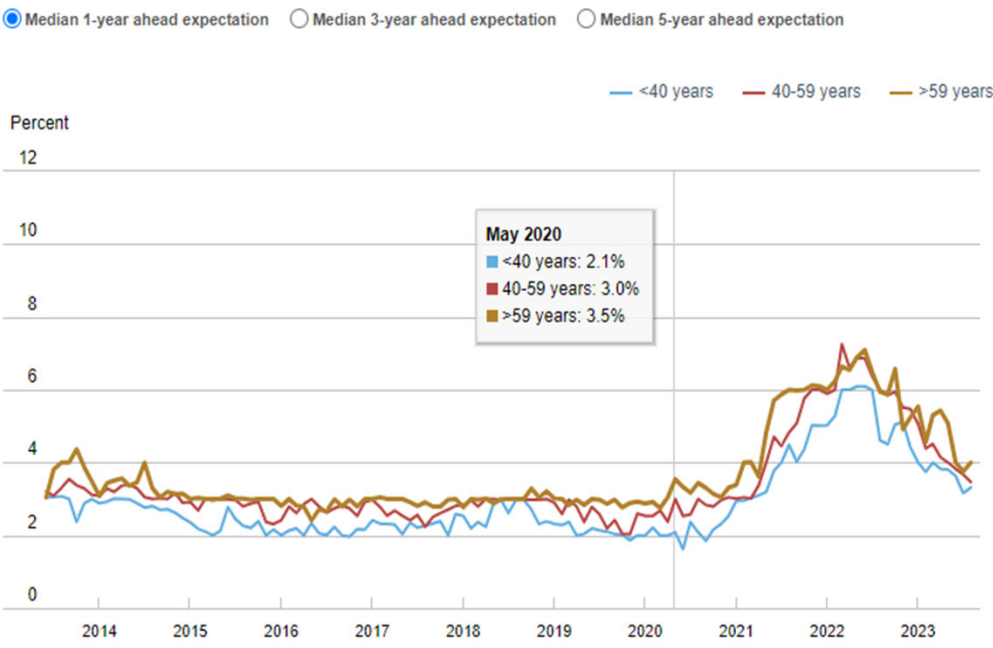
- No outsized movements in median IE by age group:

    - Median short-term IE rose in May for all age groups, and fell in June
    - Similar movements at medium-term horizon

Share of IE in deflation territory, by age

Proportion of Inflation Expectations <=0% — 1 Year IE

Proportion of Inflation Expectations <=0% — 3 Year IE

- Roughly similar movements across broad age groups:

  - The share of IE less than or equal to zero rose in spring 2020 for all groups
  - At the medium-term, large increase in deflation expectations in 2021-22 even as realized inflation was rising (see NY Fed paper on "The curious case of the rise in deflation expectations.")

Zooming in: median IE in initial Covid period

Covid–19 Pandemic Period
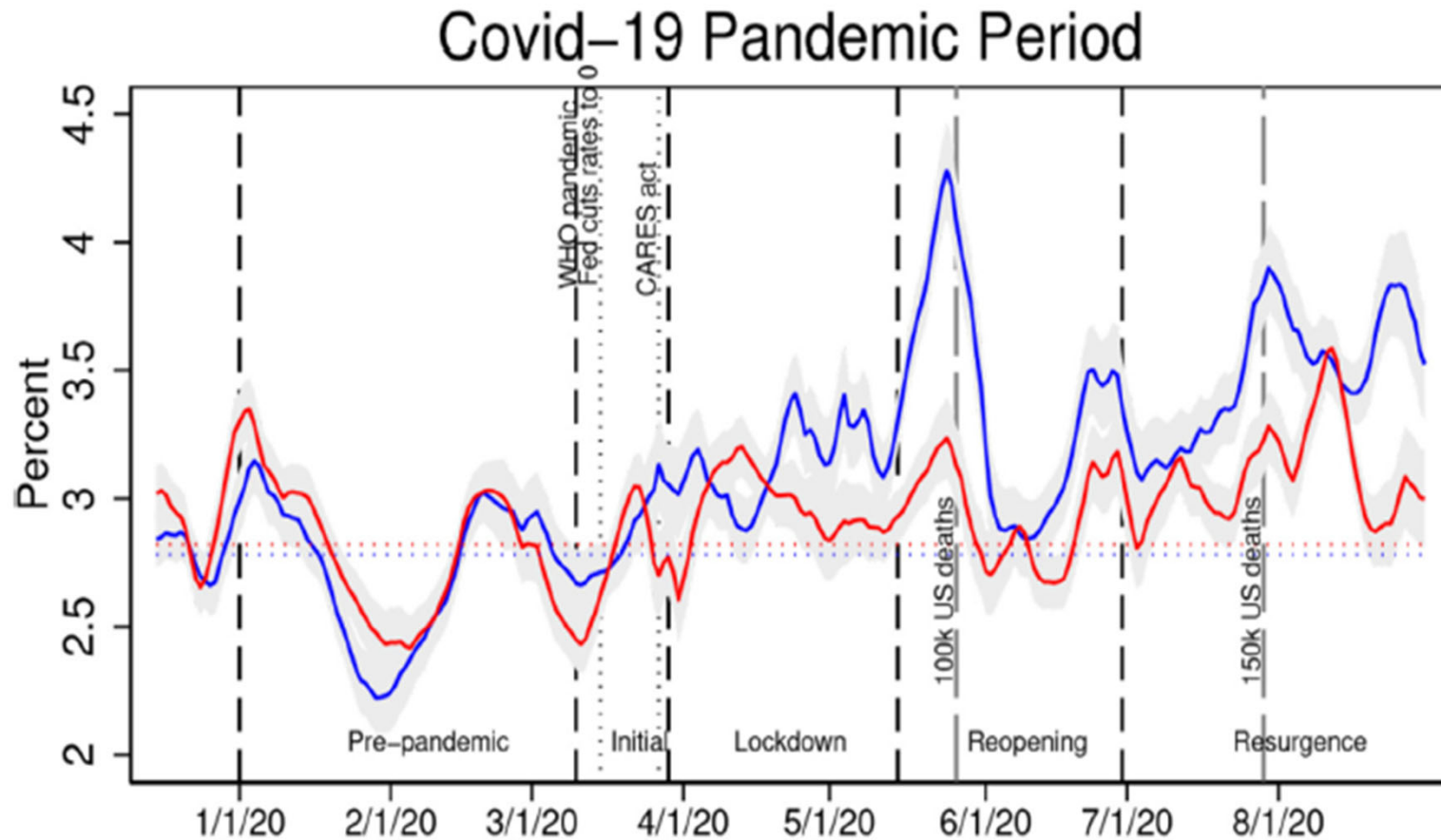
- Kernel estimates using daily SCE responses (blue = 1-year-ahead, red = 3-year-ahead)
- Initial decline with subsequent rise.

Zooming in: uncertainty in initial Covid period

Covid–19 Pandemic Period
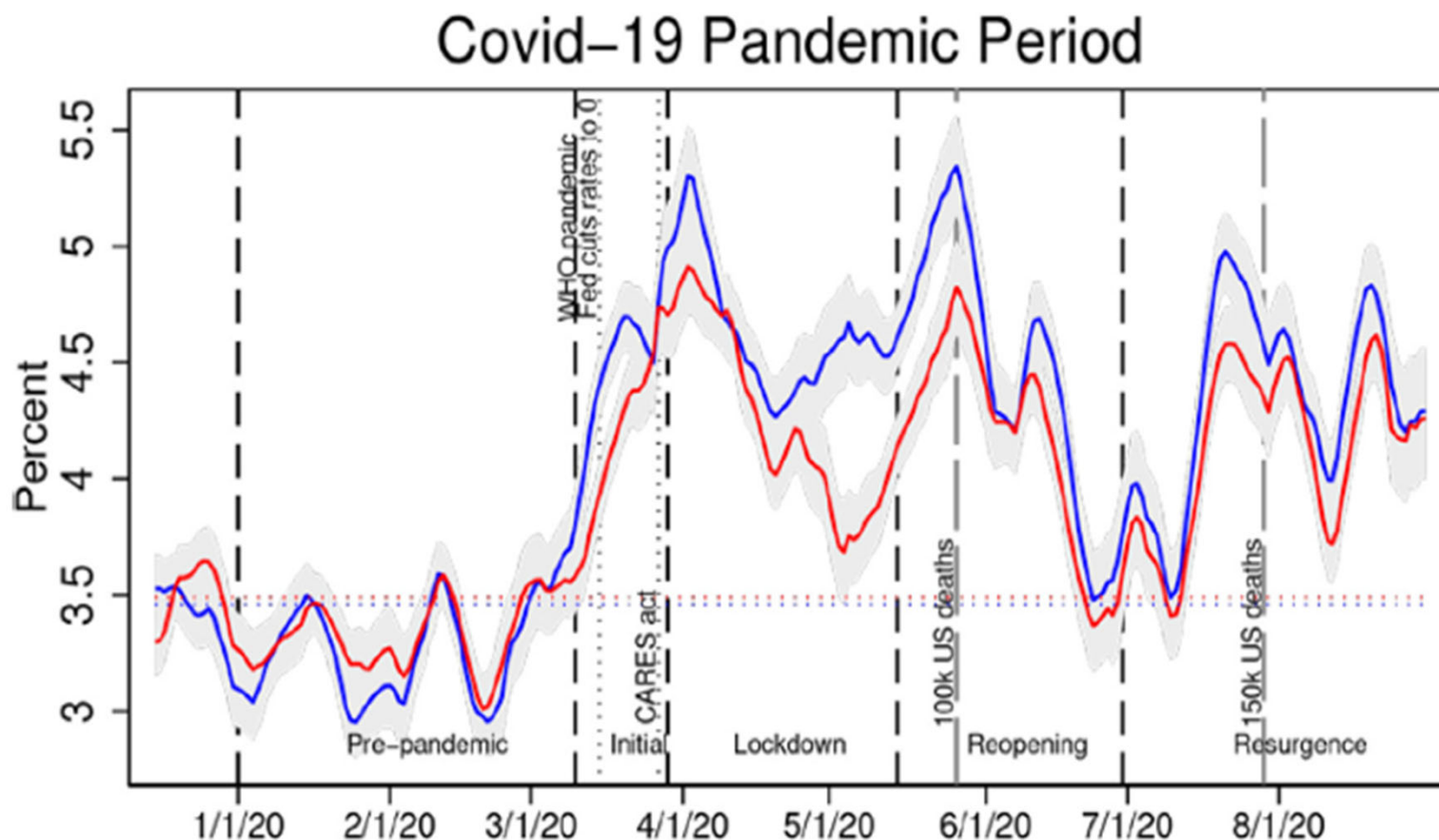
- Inflation uncertainty (median of individual forecast density IQRs) rose at the onset of Covid.

Zooming in: disagreement in initial Covid period

Covid–19 Pandemic Period
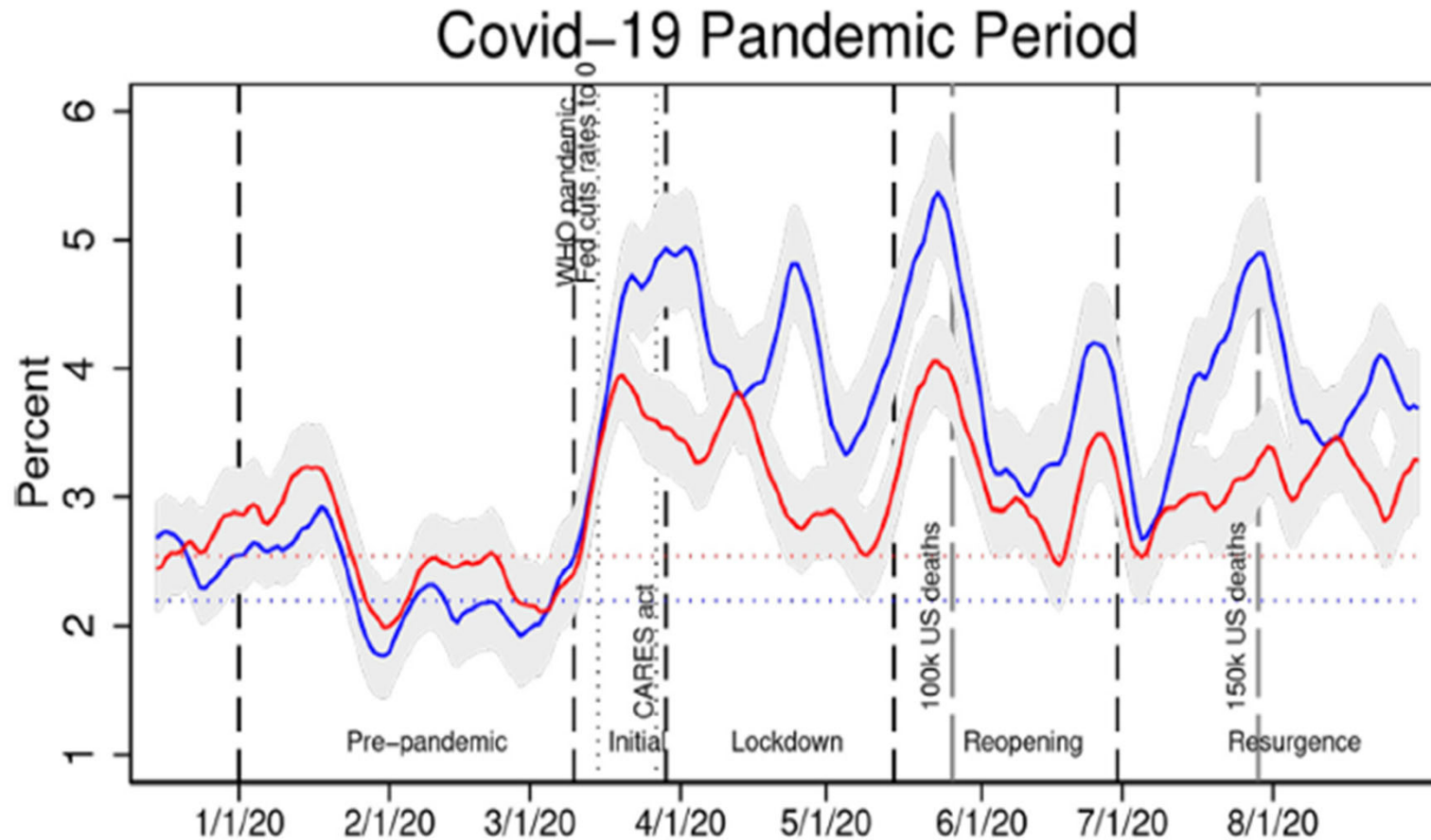
- disagreement (IQR of cross-sectional distribution of IE) also rose at the onset of Covid.

Heterogeneity in IE revisions (JEBO 2021)

Table 6
Effect of Covid-19 pandemic on heterogeneity in inflation beliefs.

	1-yr (1) Inflation expectation	(2) Inflation uncertainty	(3) Probability infl. > 4	(4) Probability infl. < 0
Pandemic	0.53	0.83	4.41	−0.01
	(0.55)	(0.55)	(3.84)	(3.03)
Pandemic X Age > 40	0.23	−0.38	0.45	−0.41
	(0.29)	(0.30)	(2.06)	(1.73)
Pandemic X Female	0.11	−0.43	0.13	1.81
	(0.29)	(0.27)	(2.08)	(1.59)
Pandemic X Has kids	−0.35	−0.07	−3.45	0.99
	(0.31)	(0.31)	(2.18)	(1.74)
Pandemic X White	0.16	−0.01	1.73	0.09
	(0.43)	(0.40)	(2.95)	(2.20)
Pandemic X College	−0.58**	−0.07	−3.12	5.02***
	(0.24)	(0.24)	(1.91)	(1.49)
Pandemic X Income ≥ $60k	0.10	0.08	2.55	0.36
	(0.30)	(0.27)	(2.15)	(1.62)
Pandemic X High numeracy	−0.18	0.22	2.97	3.94**
	(0.36)	(0.33)	(2.51)	(1.88)

- Pandemic dummy equal 1 starting on March 11, 2020 through August 2020 (sample end)
- Higher educated respondents lower their IE. No significant effect of age.

Within-individual IE revisions

Table 1: Average Within-Individual DM Differences

Age Group	1-Year	3-Year
< 40	0.537	-0.136
$40 - 59$	-0.008	0.224
> 59	0.446	0.552
N	660	660

- Compute within-individual difference between average IE over March-May 2020 and average IE over Dec2019-Feb2020.
- Average these within-individual revisions across respondents in each age group.
- We find no statistically significant revisions – even controlling for other covariates.

Comments II

- *"…older generations are less surprised by new incoming data than less experienced individuals."*

- → cohort model where each cohort updates IE using a CGLS learning model (Orphanides-Williams 2004, 2005…)

- If anything, younger agents revise their IE **less** in response to the surge in inflation in 2021-22 (depends on extent of discounting).

Birth cohort model: simulated 1-year-ahead IE by age
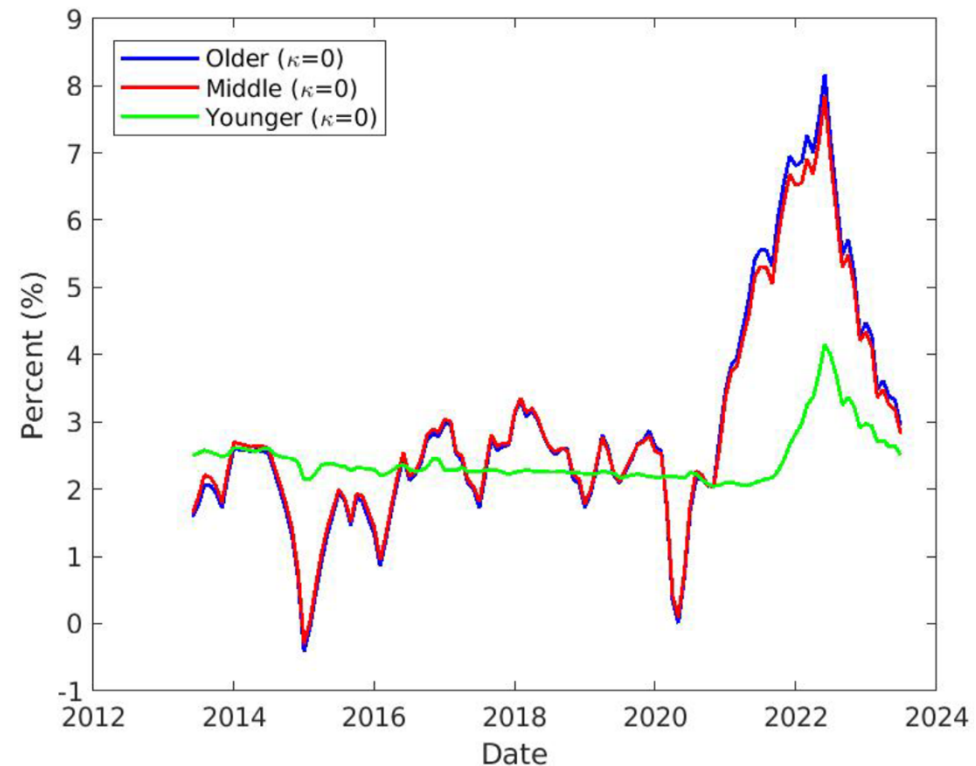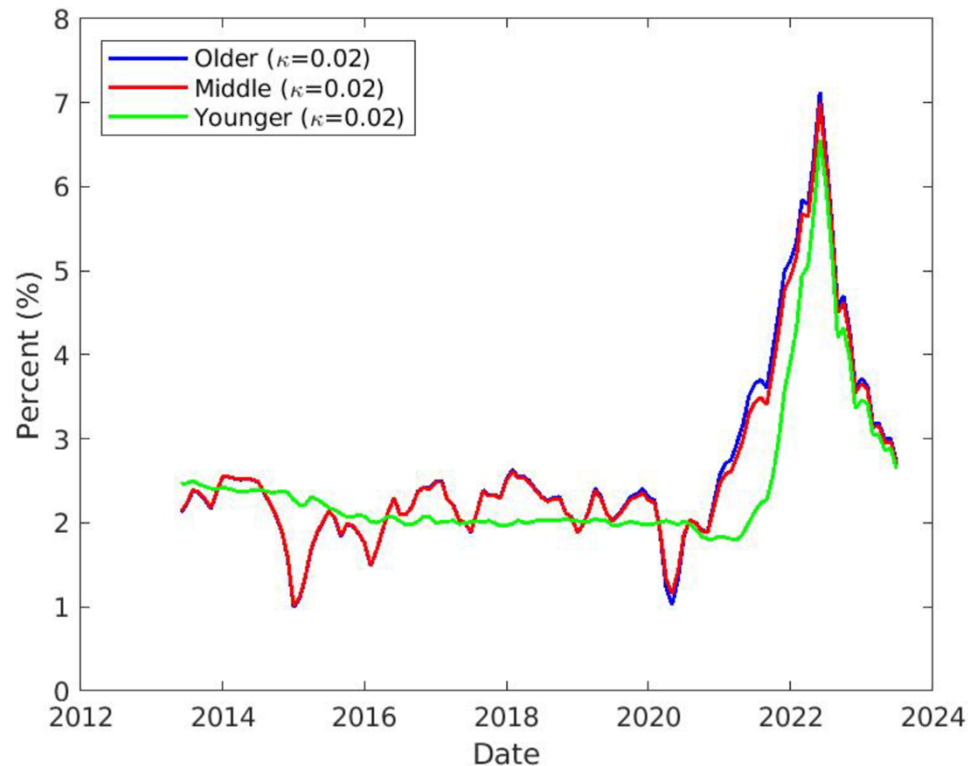
- Constant gain, least-squares learning model:

  - With no discounting (kappa = 0), the young revise less (experienced low inflation)
  - With discounting, age cohorts are effectively more similar to each other.

Comments III

- Do you experience inflation only as an adult or as a kid as well?

- Table 5: 18-24 and 35-44 lower their IE significantly. Why not the 25-34? They too have fairly negative shock memory.

- Graves-Huckfeldt-Swanson (2023) find that labor supply flows (participation decisions) respond to MP shocks.

Wrapping up…

- Very nice idea – story makes sense

- Refining the empirical analysis will help shed more light

- I look forward to the next version of the paper!