

Discussion of
"Learning from Inflation Experiences"
by Ulike Malmendier and Stefan Nagel

Monika Piazzesi
Stanford & NBER

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Summary

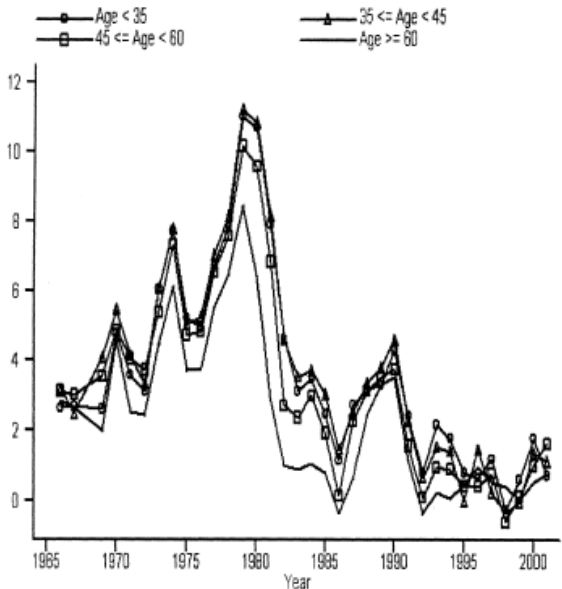
- What explains age-dependent inflation forecasts in the Michigan survey?
- Age differences are due to *learning from experience*
= adaptive learning with
 - (i) gain that depends on age,
 - (ii) data sample since birth
- Consistent with "Depression Babies", Malmendier & Nagel (2010): stock return forecasts in the UBS/Gallup survey depend on "stock returns experienced over the lifetime" computed with weighing scheme which is approximately equal to weighing scheme in adaptive learning with age-dependent gain

Discussion

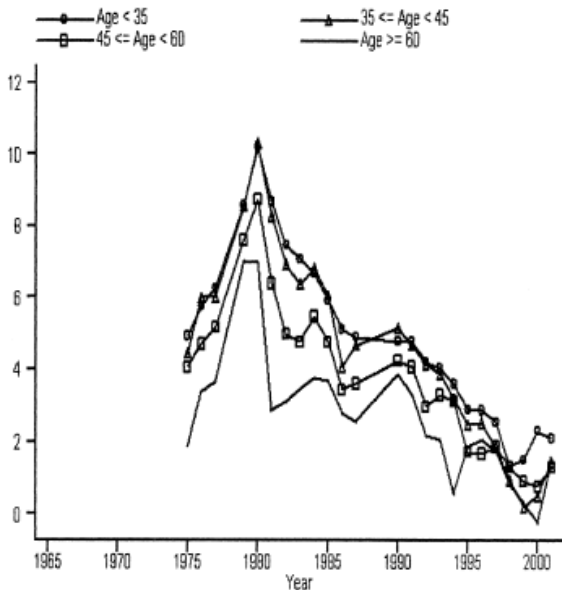
- Review the raw facts
- Alternative explanation: differences in consumption bundles
- Learning specification and fit
- Reasons why these age-differences matter for macro

Raw facts on age-dependent Inflation Forecasts

- Michigan survey asks households about age & inflation expectations
- Vissing-Jorgensen (NBER Macroannual 2003):
 - ▶ check whether inflation forecasts are age-dependent
 - ▶ regressions of expected inflation rates on year dummies and on age interacted with year dummies,
 - ▶ find significant age-coefficient for all years 1980-1987
- Small differences across cohorts during low inflation episodes (1960s/early 1970s, late 1980s/1990s/2000s), largest differences in 1980s right after Great Inflation



(a) Expected Inflation, Next 12 Months



(b) Expected Inflation, Next 5 - 10 Years

Alternative explanation – differences in consumption bundles

Hypothesis: inflation experience depends on consumed bundle

- Vissing-Jorgensen (2003)

Michigan survey asks about past inflation rate on items bought

In early 1980s: young households report *lower* past rate than old households in early 1980s.

Goes the wrong way.

- This paper checks with experimental CPI index data for the elderly

⇒ Cannot explain age-dependence in expectations

Learning from Experience

- recursively estimate AR(1) dynamics, with more weight on recent data

$$\pi_t = \alpha + \phi\pi_{t-1} + \eta_t$$

- benchmark: constant gain learning
 - ▶ geometrically decaying weights for past observations
 - ▶ captures time varying parameters α, ϕ and $\text{var}(\eta_t)$
 - ▶ often used to describe structural change
 - ▶ e.g., 1980s changes in inflation persistence (and comovement with consumption), Piazzesi & Schneider 2006 NBER MA
- Here: **learning from experience**
 - = adaptive learning with
 - (i) age-dependent gain and (ii) data sample since birth
 - ▶ gain = const/age (why?)
 - young have higher gains/faster decay
 - young use shorter sample

Estimation strategy

- survey forecasts π_t^e (age)
- adaptive learning algorithm generates forecast

$$\tau_t(\text{age, past data, gain parameter } \theta)$$

- how to fit the gain parameter θ ?
- parsimonious approach (not in paper): minimize sum of squared

$$\pi_t^e(\text{age}) - \tau_t(\text{age, data, } \theta)$$

- paper adds time dummies: minimize sum of squared

$$\pi_t^e(\text{age}) - \beta \tau_t(\text{age, data, } \theta) - \delta_t$$

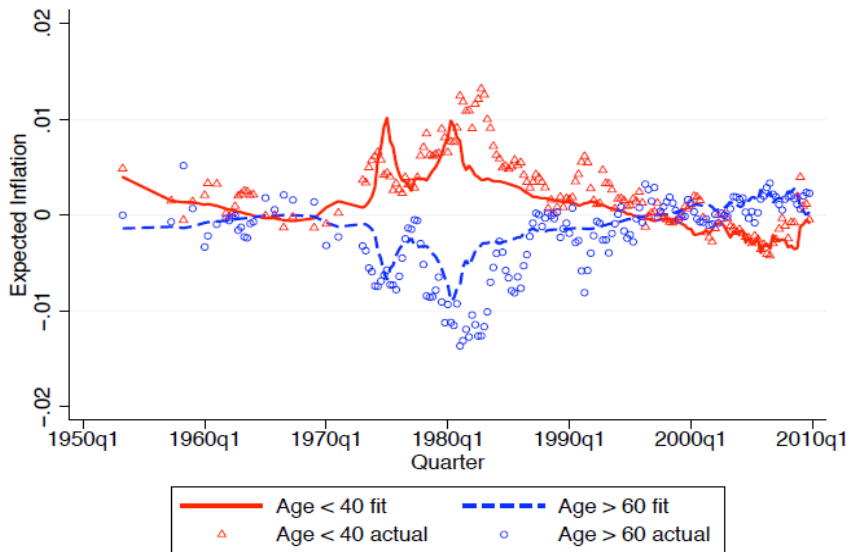
chooses β , θ and δ_t (less parsimonious, why?)

- δ_t is flexible, common component of inflation forecasts
- success: matching age-specific deviations from δ_t ,
not levels of inflation forecasts

With learning from experience, expect to see

- during inflation episodes:
experience of the young is now dominated by high inflation
⇒ young expect more inflation

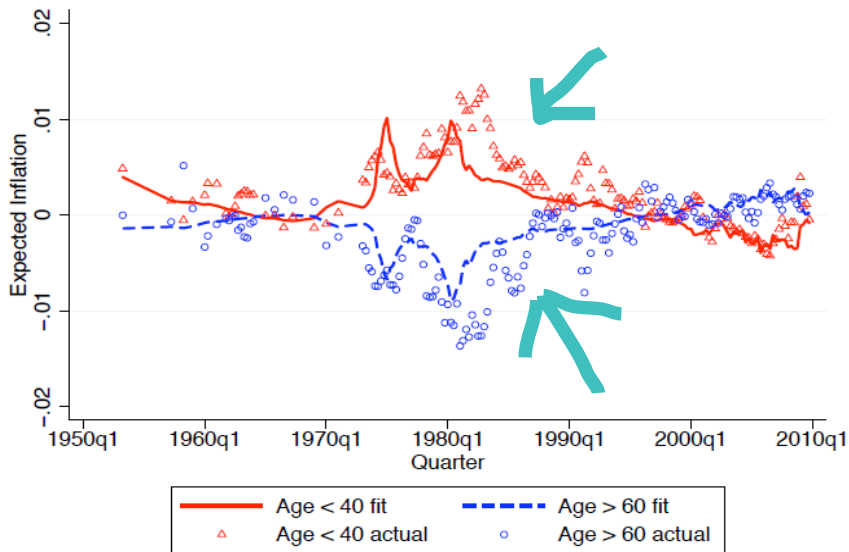
(a) 1-year expectations



With learning from experience, expect to see

- during inflation episodes:
experience of the young is now dominated by high inflation
⇒ young expect more inflation
data: **yes!**
- after inflation episodes:
young overweigh recent observations more
young revise expectations down faster

(a) 1-year expectations



With learning from experience, expect to see

- during inflation episodes:
experience of the young is now dominated by high inflation
⇒ young expect more inflation
data: **yes!**
- after inflation episodes:
young downweigh past observations more
young revise expectations down faster
data: **not really**

Why do age-dep. inflation expectations matter for macro?

- Piazzesi & Schneider 2011 "Inflation and the Price of Real Assets"
OLG model, households can save in three assets:
houses, stocks & nominal bonds
- Households save/borrow at the **same nominal rate**
have different inflation expectations \implies **different perceived real rates**
- Early 1980s:
Young households expect more inflation
perceive lower real rates,
 \implies borrow & buy houses
Old households are happy to lend
- Generally higher expected inflation: stocks less attractive
- Explains higher borrowing/lending, house price boom together with drop in stock prices (negative comovement in house & stock prices)