

# EXPERIENCING INFLATION

ECB FORUM ON CENTRAL BANKING

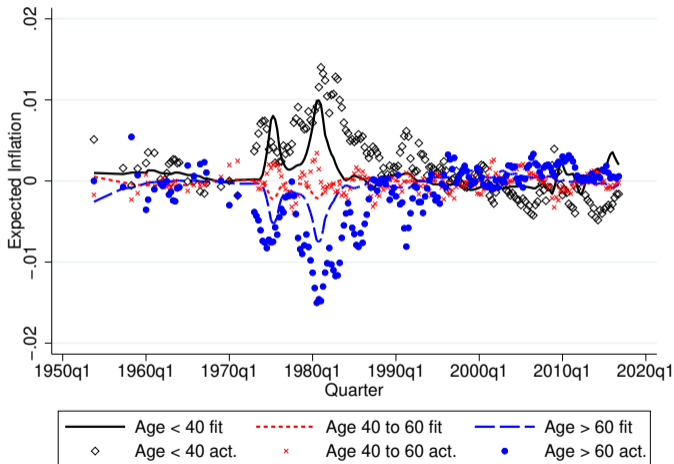
PANEL 2: THE ROLE OF INFLATION EXPECTATIONS IN MONETARY POLICYMAKING

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June 29, 2022

# STEP 1: INFLATION EXPECTATIONS REFLECT THE LIVED REALITY OF HOUSEHOLDS (EXPERIENCE EFFECTS)

Disagreement  
about  
future inflation  
(MSC)



Fitted and actual  $E[\pi]$  relative to full-sample c.s. mean (4-quarter MA)

# FINDINGS: INFLATION EXPERIENCES $\implies$ INFLATION BELIEFS

MALMENDIER AND NAGEL (2016), USING MSC DATA SINCE 1953

- 1 When forming inflation expectations, individuals put a higher weight on realizations experienced over their life-times than on other available historical data.
  - Similar to adaptive learning: people learn following simple “rules of thumb” (e.g., Bray 1982; Marcet and Sargent 1989)
  - Different from adaptive learning: people learn (more) from data realized during their lifetimes. (adaptive learning: all historical data)
- 2 Implicit weighting of past experiences very similar to weighting pattern in other applications, e. g., stock market!
  - Roughly linearly declining weights.
- 3 Significant impact on individual financial decisions, namely, long-term nominal-rate borrowing and lending (tenure, ARM/FRM, refi, bonds).

# INFLATION EXPERIENCES OF FIRMS

KUMAR, AFROUZI, COIBION AND GORODNICHENKO (2015)

Survey of NZ managers: **“How do you typically form your inflation expectations?”**

Top 4 answers:

- Media
- Meetings and discussions (with co-workers and families)
- Shopping experience
- Prices of competitors and suppliers

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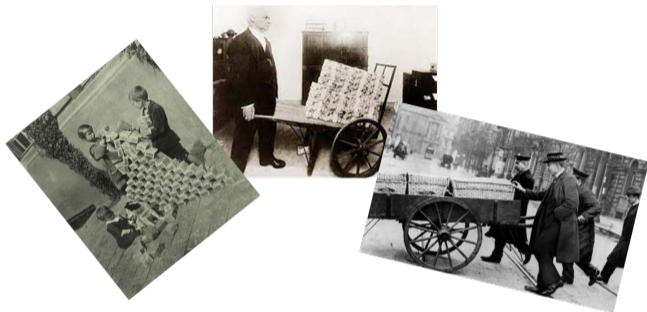
Survey of NZ managers: **“How do you typically form your inflation expectations?”**

Top 4 answers:

- Media
- Meetings and discussions (with **co-workers and families**) ← Information Resonance
- Shopping experience
- Prices of competitors and suppliers

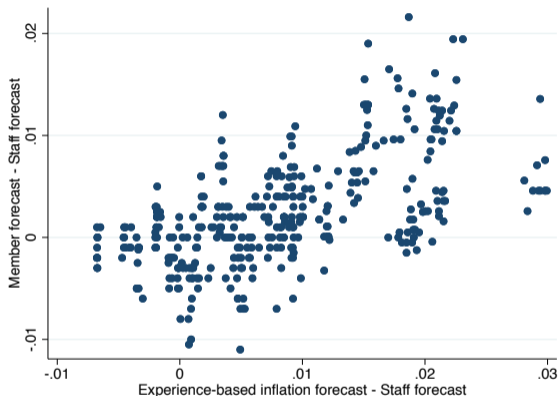
# INFLATION EXPERIENCES OF EXPERTS

MALMENDIER, NAGEL, AND YAN (2020)



- Henry (Heinrich) Wallich: Fed governor 1974-1986
  - Born in Germany in 1914 into a family of bankers.
  - Lived through Germany's hyperinflation in 1923.
  - Emigrated to the US in the 1930s.
- Wallich dissented 27 times (!) during his tenure on the Fed Board, the highest number of dissents in Federal Reserve history, decades later.

# FOMC MEMBERS' INFLATION EXPERIENCES AND FORECASTS



**Member forecast:** from semi-annual Monetary Policy Report to Congress, 1992 - 2004.

**Staff forecast:** Greenbook forecast.

**Experience-based forecast:** AR(1) model forecast estimated based on weighted life-time inflation data for each FOMC member.



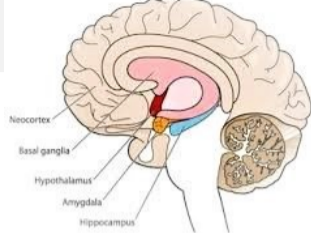
## STEP 2: NEURO, NOT (ONLY) KNOWLEDGE



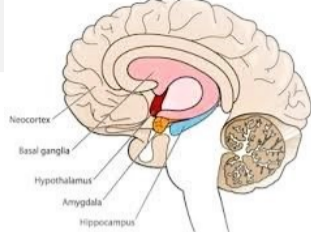
### Why?

- Every time we have a new experience, our brain forms a connection between two neurons (synapse).
  - Synapses tell our body how to react to the world around us. They govern the way we experience life.
- The brain can reorganize pathways, create new connections, and even create new neurons (neuroplasticity) in response to learning, experience, and memory foundation
- Generally, young brains tend to be more sensitive and responsive to experiences than older brains. But the brain never stops changing.

# SYNAPTIC TAGGING



- How and how often we make an experience matters.
  - Repeated stimulation of hippocampal neurons can induce a prolonged increase in synaptic strength (**long-term potentiation (LTP)**), Cf. Frey and Morris (*Nature* 1997, *Trends in Neuroscience* 1998))
  - **Emotional Tagging: Emotional events attain privileged status in memory**, Dolan *Science* (2002), LaBar and Cabeza *Nature* (2006).
  - Prior or subsequent “learned knowledge” has very limited power to undo the effects.
- Cf. literature on **trauma**: Synaptic changes caused by **traumatic stress** (Mahan and Ressler *Trends in Neuroscience* 1998, Zhang et al, *Front Psychol* 2020).



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  - **Trauma with a big T**: German Hyperinflation, Great Depression, Pandemics
  - **trauma with a small t**: Daily Exposure, daily worry about food, prices, unemployment
  - Other repeated (non-traumatic) exposure, including positive experiences

# IMPLICATIONS FOR MONETARY POLICY

- ① **FREQUENCY**: explains roles of food/gas prices, personal shopping  $\implies$  **MP**: acknowledge rather than focusing on core inflation
- ② **DURATION**: inflationary experience extra-powerful if it remains high for a long time; the effect will last for a long time  $\implies$  **MP**: to be accounted for in policy choices (Cf. recession experience)
- ③ **EMOTIONS**: “panic” = strong anchoring in memory  $\implies$  **MP**: acknowledge consumer reality, reassure, utilize “information resonance”
- ④ Link **ANCHORING** — “credibility”, **DE-ANCHORING** — “no credibility”?
  - “Expectations show whether central bank is doing its job” but not in the sense of “being credible,” but in the sense of “fighting the inflation reality”
  - Monetary policy tools such as forward guidance less powerful than our standard macro models would imply.