Discussion of “IQ, Expectations, and Choice”
FRB Cleveland: Inflation Drivers and Dynamics Conference

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Main Point of the Paper?

“There are idiots, look around.” -Larry Summers
Big Picture Overview

This paper is part of a research agenda going after two broader questions:

1. How do individuals form expectations?
2. How do expectations affect actions?
Small Picture Overview

More specifically, this paper is about:

1. How cognitive ability (IQ) relates to properties of inflation expectations
2. How cognitive ability impacts consumption/saving decisions:
   - Intertemporal substitution
   - Retirement saving
Outline

1. Summary and suggestions
2. Question: what do we do with this?
Background

- Merge three data sources from Finland:
  - Discrete IQ data from Finnish military test
  - Macroeconomic survey data
  - Consumption, saving, and borrowing plans
- Bottom line: high IQ men are “better” inflation forecasters
Figure 1: Mean Absolute Forecast Error for 12-Month-Ahead Inflation by IQ
Figure 2: Rounding and Implausible Values for Inflation Expectations by IQ

This figure shows the distribution of rounding and implausible values for inflation expectations by IQ.
Figure 5: Dispersion of Forecasts of Inflation by IQ
Figure 3: Average Forecast Error by IQ
Observations

- Expectations monotonically improve for higher IQ bins
  - Doesn’t go away conditioning on other observables (education, income, etc)
- For mean and dispersion, really big difference going from lowest bin to the next lowest
- Expectations still not exactly “good” even for high IQ types
- From 1995-2015 in Finland:
  - Average inflation of 1.51 percent
  - Standard deviation of 1.15 percent
- Would be interesting to go back further in time. 1960-1995:
  - Average inflation of 6.73 percent
  - Standard deviation of 4.25 percent
Inflation, consumer prices for Finland

Source: World Bank

myf.red/g/nUos
A Couple of Suggestions

- Plot time series for different levels of aggregation with actual realized inflation
- Rounding and decimals. Instead of rounding to multiples of 5, what about round numbers versus decimals?
The second part of the paper relates expectations to choice

Two parts here, but I’m going to focus on intertemporal substitution

Basic framework is a linearized consumption Euler equation:

\[ E_t c_{t+1} - c_t = \sigma (i_t - E_t \pi_{t+1}) \]

Basic idea:

- Cross-sectional variation in inflation expectations provides cross-sectional variation in ex-ante real interest rate
- Projecting consumption, or consumption growth, onto inflation expectations may give you some idea about EIS

Similar to Burke and Ozdagli (2013, WP); Bachmann, Berg, and Sims (2015, AEJ Policy); Crump, Eusepi, Tambalotti, and Topa (2019, WP)
Empirical Specification

\[ D_{i,t} = \alpha + \beta \pi_{i,t+1}^e + X_{i,t} \gamma + e_{i,t} \]

Where:
- \( D_{i,t} \): dummy variable for good or bad time to buy durable goods
- \( \pi_{i,t+1}^e \): qualitative inflation expectations. “Accelerationist” measure of expected inflation
- \( X_{i,t} \): controls (including time effects)

- Pooled cross-sections
- Run the regression for different IQ bins
- Null hypothesis: \( \hat{\beta} > 0 \)
Results and Issues

▶ $\hat{\beta}$: positive and significant *only* for high IQ men
  ▶ Otherwise negative and statistically/economically insignificant
    (Bachmann, Berg, and Sims 2015 and Burke and Ozdagli 2013)
  ▶ Some evidence that economic education influences this

▶ Issues:
  1. LHS is (i) durable goods and (ii) qualitative
     ▶ How does qualitative measure correlate with actual spending?
  2. RHS is not point estimate of expected inflation, but rather qualitative indicator
     ▶ Potentially good reason to do it this way (D’Acunto, Hoang, and Weber 2018)
     ▶ But what are results if you just use actual expected inflation? Particularly for high IQ types?
     ▶ How do we interpret magnitudes? *Not* estimating EIS (Crump, Eusepi, Tambalotti, and Topa 2018)
  3. Would/should relationship between $\pi_e^{t+1}$ and spending attitudes change at ZLB?
What do we do with this?

- A lot of “puzzles” in macro models arise because (i) expectations are very forward-looking and (ii) intertemporal substitution is at heart of model
  - Large government spending multipliers at ZLB (Christiano, Eichenbaum, and Rebelo 2011)
  - Contractionary productivity shocks (Garin, Lester, and Sims 2019; Wieland 2019)
  - Neo-Fisherian effects (Garin, Lester, and Sims 2018)
  - Forward guidance puzzle (Del Negro, Giannoni, and Patterson 2015)
- I read this paper as being consistent with some of this literature
  - For most people, expectations are not that good and intertemporal substitution not that important
HANK and TANK

- Recent HANK literature introduces varying degrees of heterogeneity/credit constraints into NK models
  - McKay, Nakamura, Steinsson (2016); Kaplan, Moll, Violante (2018); Auclert, Rognlie, and Straub (2019)
  - Incomplete markets, agents subject to occasionally binding borrowing constraints
  - Intertemporal substitution much less important

- Related to TANK literature
  - Campbell and Mankiw (1989); Derbotoli and Gali (2017)
This paper – *Stupid Heterogeneous Agent New Keynesian Model* (SHANK)

- Do we need to model people with different cognitive abilities?
- This paper seems to suggest cognitive abilities matter above and beyond other sources of heterogeneity
- Would this be all that different from TANK?