Discussion of "Asymmetric Inflation Expectations, Downward Rigidity of Wages, and Asymmetric Business Cycles" by David Baqaee

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2015 Household Economics and Decision-Making Conference, Cleveland Fed

Paper

1. **Theory**: micro-found asymmetric inflation expectations using ambiguity-aversion

   - agent does not know the precision of signal about inflation
   - evaluates actions *as if* true precision is the worst-case
   - over-reacts to inflationary news ("bad news")
   - under-reacts to dis-inflationary news ("good news")

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4. **Optimal policy**: *endogenous* asymmetric reaction leads to
   - Lack of inflation bias: micro-foundation matters!
   - Large welfare cost of business cycle: micro-foundation matters!

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5. **My discussion**: what is the worst-case inflation?
   - connect to data on inflation expectations
   - additional comments

Preferences: ambiguity aversion

- $S =$ state space
  - one element $s \in S$ realized every period; histories $s^t \in S^t$
- Consumption streams $C = (C_t(s^t))$
- Recursive multiple-priors utility (Epsein and Schneider, 2007)

$$U_t(C; s^t) = u(C_t(s^t)) + \beta \min_{p \in \mathcal{P}_t(s^t)} E^p[U_{t+1}(C; s^{t+1})]$$

- Primitives:
  - felicity u, discount factor β
  - the one-step-ahead belief sets $\mathcal{P}_t(s^t)$
- Properties:
  - *As if* worst-case: Precautionary behavior (Ellsberg paradox)
  - Worst-case belief is *endogenous* -depends on C
- Inflation example: how inflationary shock affects value function

What is the worst-case inflation?

- Here mostly partial equilibrium logic:
  - ▶ agent sets nominal wage in advance
  - ▶ higher inflation lowers purchasing power

- However, potentially more complicated in general equilibrium

- For example, when worker also owns the firm
  - ▶ lower wages mean higher firm profits
  - ▶ size of surplus not affected by inflation

Worst-case inflation in standard New Keynesian model

- Look at representative agent's value function

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1. Production subsidy to undo the price markup?
   - price markup (King-Wolman, 1986); P^* : newly adjusted price

   $$\mu = \left(\frac{P}{P^*}\right)\left(\frac{P^*}{MC}\right)$$

   1. inflation erodes price-adjustment gap (P/P^*)
   2. but higher inflation also leads to higher marginal markup (P^*/MC)
   - low inflation can be partial substitute for production subsidy

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2. Productivity cost of price dispersion
   - with production subsidy: welfare decreases around zero inflation
   - but falls quicker for positive inflation, so worst-case
   - lose more from suboptimal low markup than from high markup

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- Masolo and Monti, 2015 (BoE): ambiguity and welfare in NK model
   - positive trend inflation is worst-case
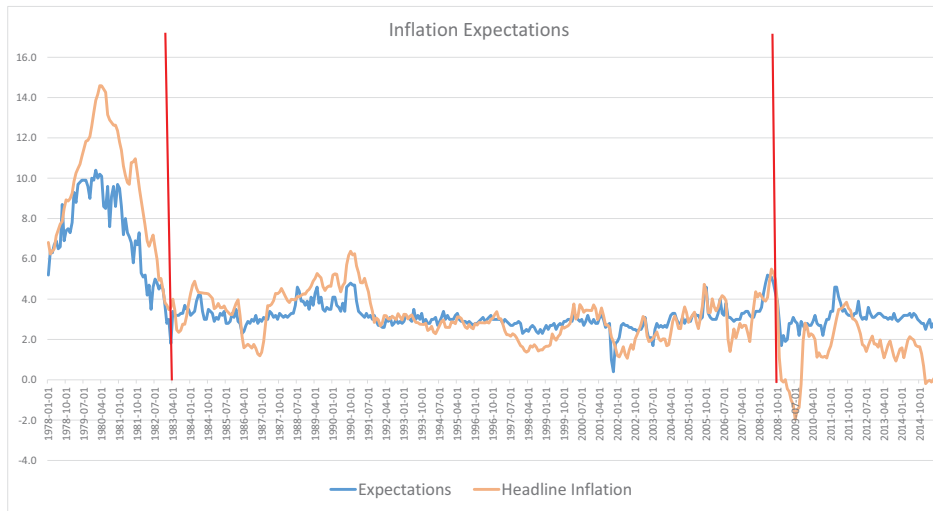   - ambiguity affects Phillips curve and optimal policy design

Expected inflation as the best-case belief

- The Zero Lower Bound
  - example of state where logic can be overturned

- Optimal policy: raise expected inflation
  - this lowers the otherwise too high real interest rate
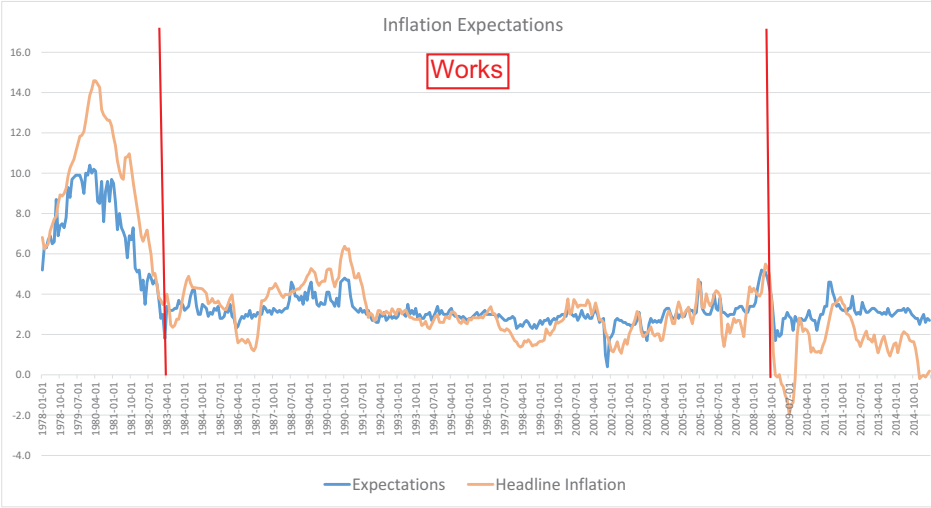 - large literature (eg. Eggertson and Woodford, 2003)
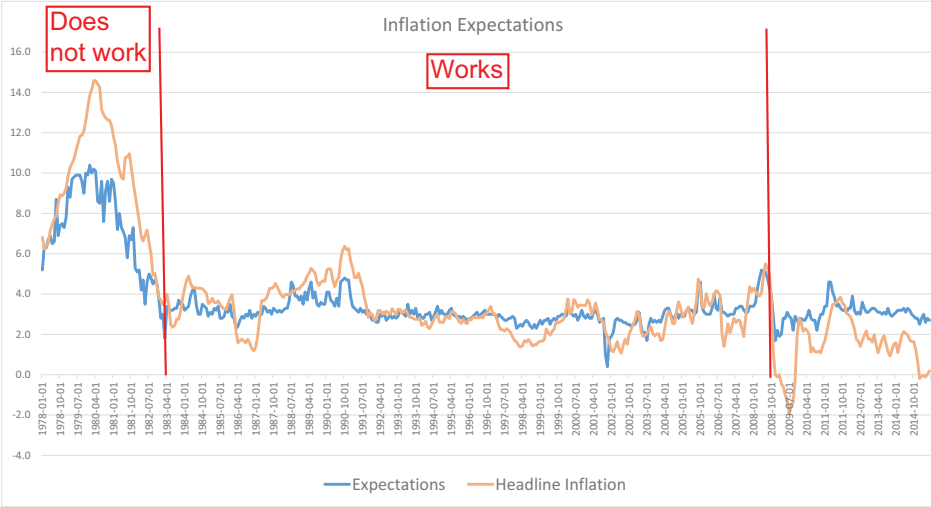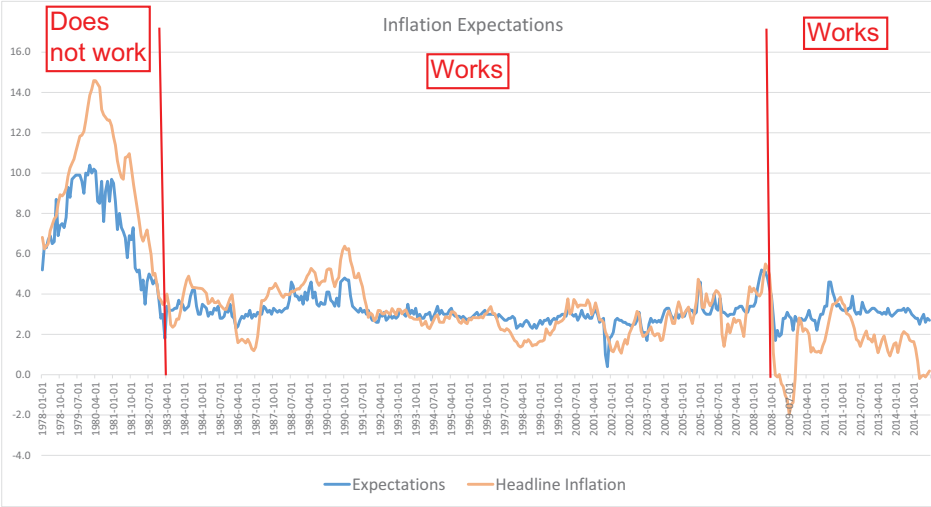
Data on inflation expectations
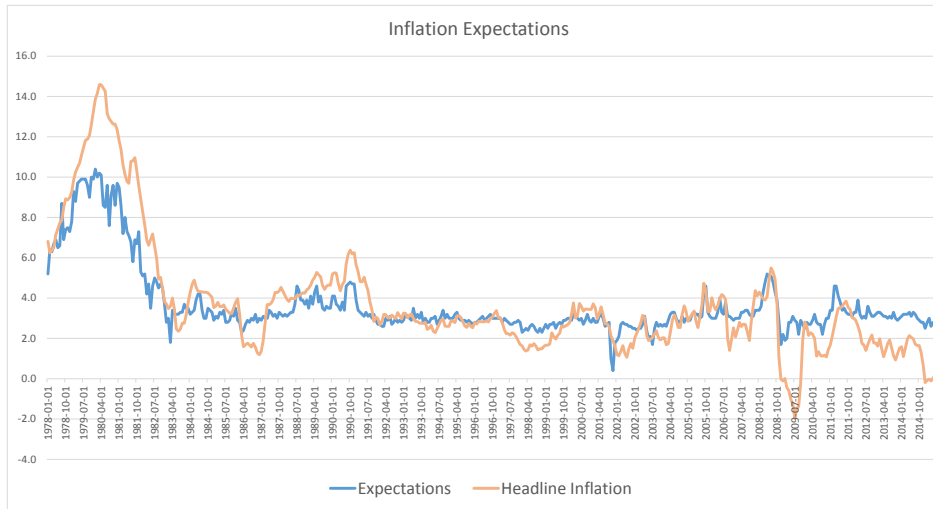
Inflation Expectations

Data on inflation expectations

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Works

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Inflation Expectations

Does not work

Works

Works

Legend: Expectations — Headline Inflation

Data on inflation expectations
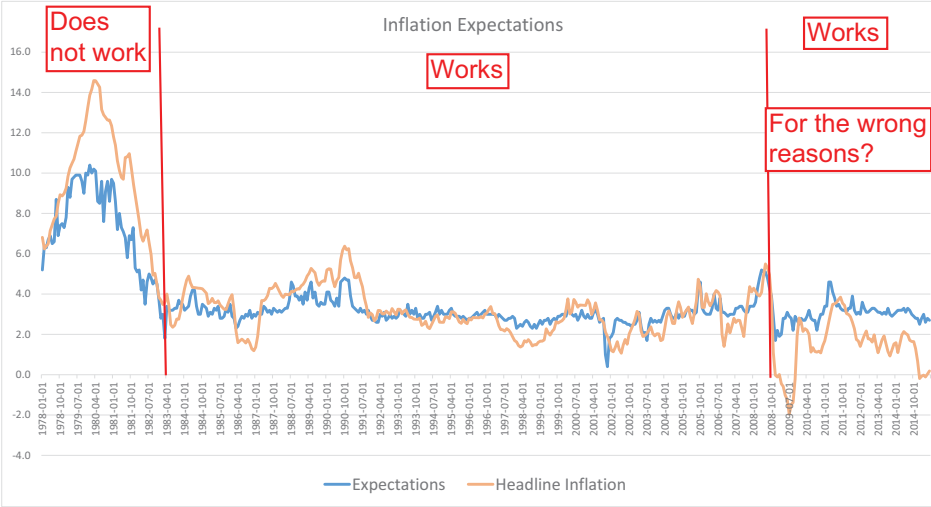
Additional comments

1. Agent also dislikes higher variance not only lower mean
   - Good news: worst-case is high variance of noise
   - Bad news - competing effects of lower noise variance
     - lowers expected mean; but also lowers variance
     - so what is the worst-case?
     - usually mean dominates (Illeditsch, 2011; Ilut, 2012)

2. Discipline on beliefs
   - how easy to distinguish the low and high variance of noise?