Structural Models of Inflation Dynamics: Where Are We?

• **Big advances in monetary models:**
  – Explicit expectations
  – Careful identification
  – High empirical standards
  – Desire for optimization-based behavior

• **Big setbacks in monetary models:**
  – Need many *ad hoc* frictions, such as rule-of-thumb, fraction of backward-looking agents, fraction of indexing price-setters, habits
  – Need autocorrelated errors
Structural Models of Inflation Dynamics:
Why do I call them setbacks?

- **Frictions and correlated shocks**
  - With the possible exception of habits, these are essentially *ad hoc* additions of lags to the model
  - Certainly the shocks, while plausibly autocorrelated up to a point, should not be a primary source of dynamics
  - Need a diagnostic to assess how much of the model is in the shocks/frictions

- **How much does the forward-looking, non-frictional, *iid* errors part of the model contribute?**
Very little (US data)

Autocorrelation function, VAR versus frictionless model
Very little (Euro area data)

Autocorrelation function, VAR versus Smets-Wouters with no frictions
Habits alone do not solve many of the problems
By the way: micro evidence on habits?

Autocorrelation function, VAR versus Smets-Wouters with habits only.
Why does this matter?

- Depends on what you want to do with the model
- Generally, we want to do policy, optimal policy exercises
  - But very little of the model’s dynamics comes from theory
  - As a matter of empirics, the expectations channel (assuming RE) may matter very little
  - The rest of the model is largely *ad hoc*—lags, etc.—much like the old FRB/PENN/MIT model
  - Model’s welfare function: weak empirical basis
Structural Models of Inflation Dynamics:
So why do we keep doing this?

• **Because we can?**
  – At the least, we need much more careful accounting of what’s doing the work in the model (McCallum, Coenen/Levin)

• **Why not try some new directions?**
  – That look at aggregation issues (very little work on this—e.g. Bils and Klenow)
    • Most models aggregate seamlessly. Do the data?
  – That look at different expectations paradigms (some work on this, but not enough—e.g. Roberts, Paloviita)
  – That look at learning (a good deal of work on this)
  – That consider very different micro-optimizing models (no work on this)
    • Dare I say “behavioral?”