

Comments on “Core Inflation as Idiosyncratic Persistence: A Wavelet-Based Approach to Measuring Core Inflation”

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Paper has three broad components:

- a proposal for a core inflation concept;
- a statistical model of core inflation; and
- a particular estimator, based on wavelets.

summary of each component

comments on each component

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Paper overview: core inflation concept

First measurement question facing a central bank: What measure of inflation should it seek to stabilize?

- traditional, static cost of living index (COLI)
- dynamic COLI (Alchian and Klein (1973), Wynne (1994), Reis (2006))
- a measure that captures the welfare costs of inflation (Mankiw and Reis (2003), Woodford (2003))
 - welfare-based measure is likely broader than a COLI

Second measurement question: What is a good measure of the underlying trend in the measure targeted for stabilization?

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This paper seeks to take on both questions: it seeks to develop a measure of core inflation tied to the welfare costs of inflation.

- This measure should be useful for predicting the welfare measure policy seeks to stabilize.

Drawing on ideas in Blinder (1997) and Woodford (2003), the paper suggests the component weights in such a core measure should depend on:

- volatility (−);
- persistence (+); and
- spending shares (+).

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Core = weighted average of all CPI components

- $\text{weight}_i \propto \text{spending share}_i / \text{high-frequency variance}_i$
 - components with low volatility and high persistence receive high weights
- assumption: as $t \rightarrow \infty$, high-frequency variance $_i$ = common constant
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Paper overview: statistical estimation

The variances that determine the weights in the core inflation measure are estimated with wavelet methods.

- basic idea: non-parametric estimate of time-varying variance of high frequency component of inflation

Wavelet analysis is like spectral analysis, except that wavelets provide information about which frequencies are important at which times.

- Wavelets allow variances to change over time.

Implementation: At each point in time, use the most recent 32 monthly observations to estimate, via wavelets, the high-frequency variance for each CPI component.

- From the variance estimates in period t , form the proposed weights and construct the core inflation estimate for t .

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(1) The conceptual framework sounds good, but has no formal link to the statistical model and estimation. There is no economic model that generates the statistical model.

- Tying the statistical model to the conceptual framework would require a formal, DSGE model, *a la* Mankiw and Reis (2003).
- The economic model would yield the welfare-relevant inflation measure, and a core measure that solves the signal extraction problem of discerning current data to forecast future inflation.

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Two possible resolutions of the economic concept and statistical model disconnect:

- add an economic model, or
- following much of the core inflation literature, focus on a statistical rationale for the core inflation measure

(2) The paper's stated goal of making the core inflation weights a positive function of expenditure weights is actually contrary to the model-based result of Mankiw and Reis (2003).

- Mankiw and Reis (2003): Welfare weights are inversely related to COLI weights.
- For forecasting the goal measure of monetary policy, it need not be the case that the core weights have any relationship to spending shares.

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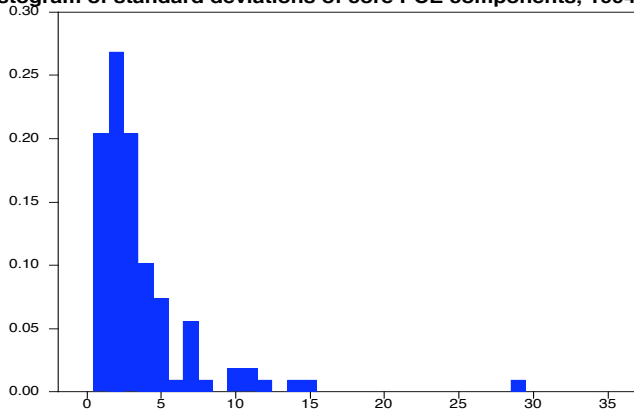
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Comments: statistical model

(1) The common variance assumption used to formally justify the statistical model seems counterfactual. Other justification?

- standard deviations of $\pi_{i,t} - \pi_t$, using 109 core PCE components, sample of 1994-2002

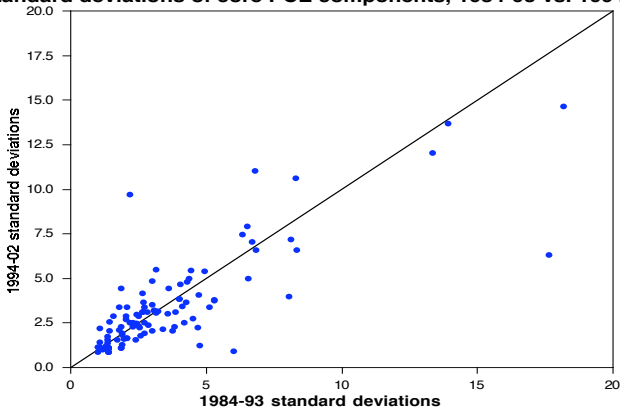
histogram of standard deviations of core PCE components, 1994-02



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(2) Are changes in variances over time large enough to be important for core inflation estimation?

standard deviations of core PCE components, 1984-93 vs. 1994-02

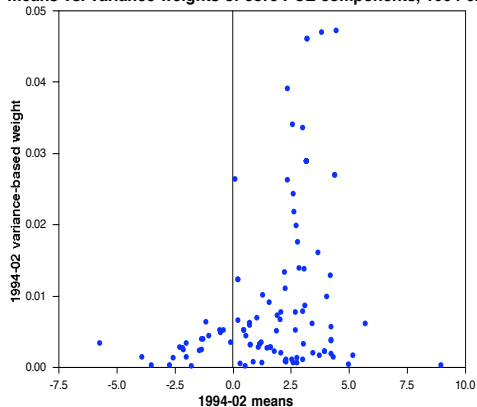


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(3) Weighting by variances makes core $>$ overall.

- $\text{correlation}(\text{mean}, 1/\text{variance}) > 0$

means vs. variance weights of core PCE components, 1994-02



- spending-weighted $\pi = 2.0\%$
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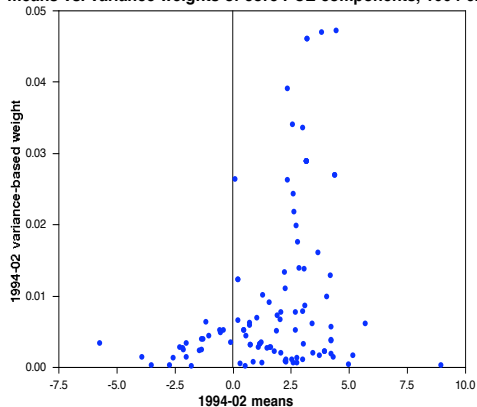
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- How important is rolling estimation vs. wavelet estimation?

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- much longer samples of data are available for the U.S., for both CPI and PCE inflation

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Provocative and interesting paper, along many dimensions

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