

The Trimmed Mean PCE Inflation Rate: A fitter, trimmer core measure

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Southwest Economy

Dallas Fed Introduces Business-Cycle Indexes for Texas Metros

The frequency and severity of cyclical swings in a local economy are important to businesses and consumers because such cycles impact production and inventory decisions, employment and unemployment. Analyzing the overall direction of a local economy, however, can be difficult and confusing. Often the handful of local economic indicators give mixed signals. For example, if the unemployment rate and job growth both increase, is the local economy picking up or weakening? Often it is not clear.

To more clearly define regional business cycles, the Dallas Fed has developed composite indexes that aggregate the movements of key economic indicators for nine Texas metropolitan areas. The Metro Business-Cycle Indexes use statistically optimal weights on the movements in the indicators that represent the underlying economic activity in the indicators and their interlocking relationships.

(Continued on page 2)

A Fitter, Trimmer Core Inflation Measure

Speaking of the challenges in interpreting volatile inflation is another thing the members of the Federal Reserve Board's Business View Committee don't disagree on. "The name of the game that was distinguishing the signal from the noise, which was often difficult. The key question on my mind was typically: What part of each monthly observation on inflation is durable and what part is fleeting?"

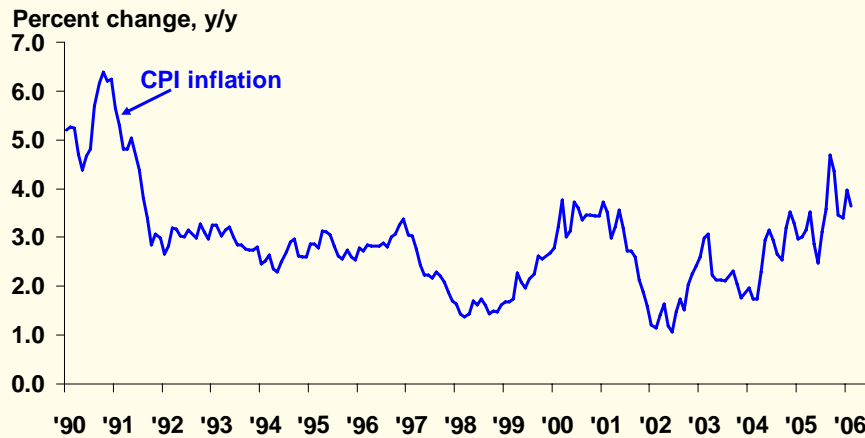
Board's conception of a composite of monthly inflation that is durable is captured in the Dallas Fed's trimmed mean PCE inflation rate. This measure is designed to what most economists call core inflation. Core inflation, implemented in this way, represents the underlying trend in inflation over important swings here.

(Continued on page 6)

INSIDE:
Texas Finding Growth in Slowing Downturn
or
Mexico Emerges from 10-Year Credit Slump

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Headline (CPI) inflation gets the media's attention



CPI: Consumer Price Index

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Uses of the Consumer Price Index (CPI)

- ✓ Used to Index:
 - Public expenditure programs
 - Income tax features
 - Tax brackets
 - Personal exemptions
 - Wage contracts
 - Social security payments
 - Poverty line
- ✓ Small errors, when compounded, distort economic activity
- ✓ Errors and biases in measuring inflation can lead to policy errors by central banks

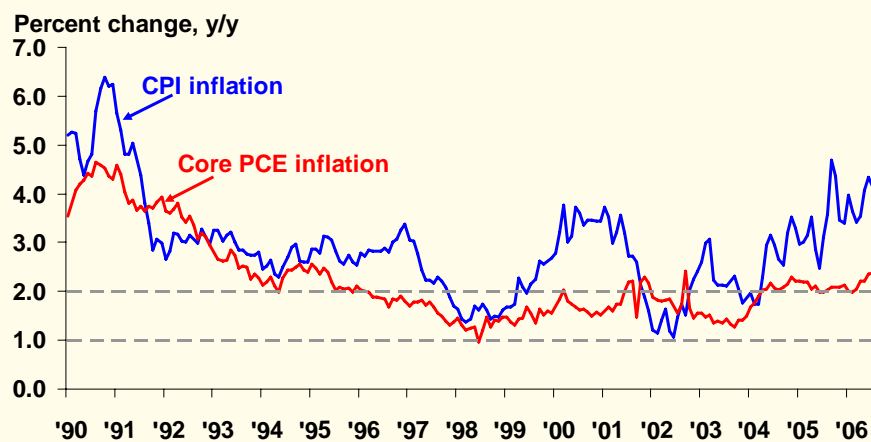
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Criteria for choosing an inflation measure for monetary policy

- ✓ Signal vs. noise: empirical considerations
 - Volatility of individual components
 - Volatility of overall inflation measure
 - Absence of bias
 - Predictive power
- ✓ Other criteria
 - Timeliness
 - Extent of revisions
 - Credibility

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Core PCE inflation: FOMC's preferred measure



Core PCE: Personal Consumption Expenditures ex. food and energy

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Why ex food & energy PCE Inflation is FOMC's preferred measure

- Broader measure
- Weights reflect changing consumer preferences
 - Changes in tastes
 - Changes in relative prices
- Removes some noise from price fluctuations

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Q: What is core inflation?

A #1: An attempt to separate durable and lasting price changes from fleeting, temporary price changes

A #2: Maximize signal-to-noise ratio

In brief: Core inflation captures the underlying trend in overall inflation

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Relevance of core inflation

- If the FOMC is to pursue a goal of price stability, it needs an accurate measure of inflation's underlying trend
- That is, monetary policy must react to the inflation signal, not the inflation noise

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How “core” inflation began: trim the extremes

- In the 1970s, food and energy prices were more volatile than many other prices.
- Hence, food and energy were excluded (or trimmed) from some price indexes to get an approximation of “core prices.”
- Government agencies currently publish two measures of consumer inflation, ex food and energy, shown earlier.

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How should core inflation be defined?



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Problems with excluding food and energy

“I have to drive and heat my house. My kids and I have to eat.”

- John and Jane Public

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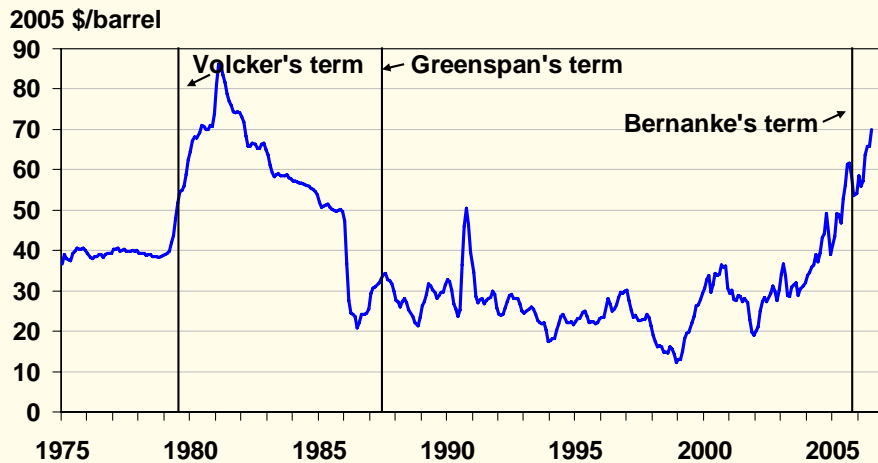


A better core measure should...

- Trim out inflation noise in a more politically palatable manner
- Excluding food and energy angers many people. Makes the Fed seem “out of touch”
- Better predict underlying trend inflation

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Real oil prices in the U.S.



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Does a better core measure exist?

- Yes
- The trimmed mean PCE inflation rate; a fitter, trimmer core measure

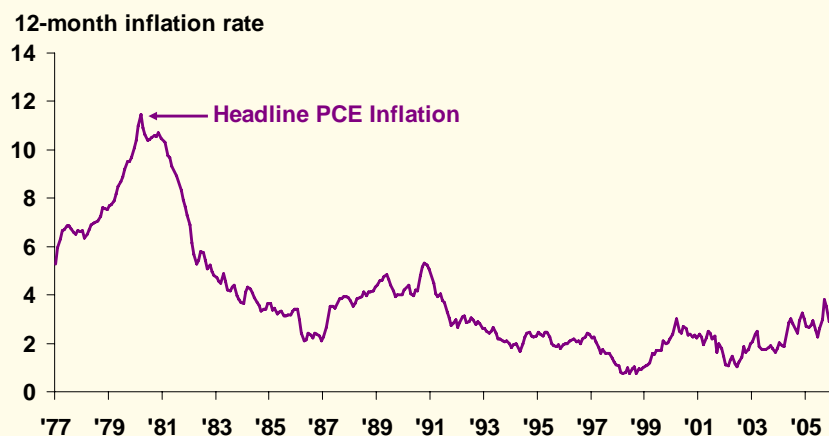
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How does it work?

- Excludes biggest price changes, (gains and reductions), regardless of whether food, energy, etc.
- Trimming proportions chosen to give best fit to trend PCE inflation
 - Sample period: 1979-2002
 - Trim 25% off top, 19% off the bottom
 - Uses 56% of the information on price changes each month
 - Symmetric trimming also improves on ex food and energy measure
 - Just excludes “outliers” that serve to confuse underlying inflation trends
 - Builds on work by Bryan & Cecchetti (Cleveland Fed)

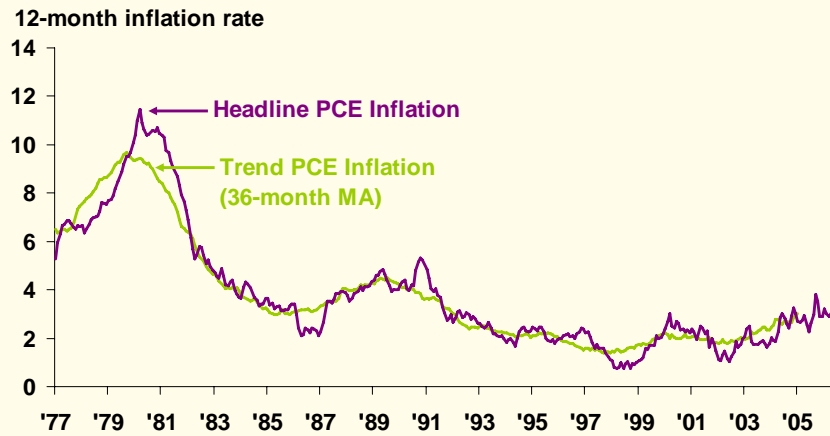
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To illustrate:



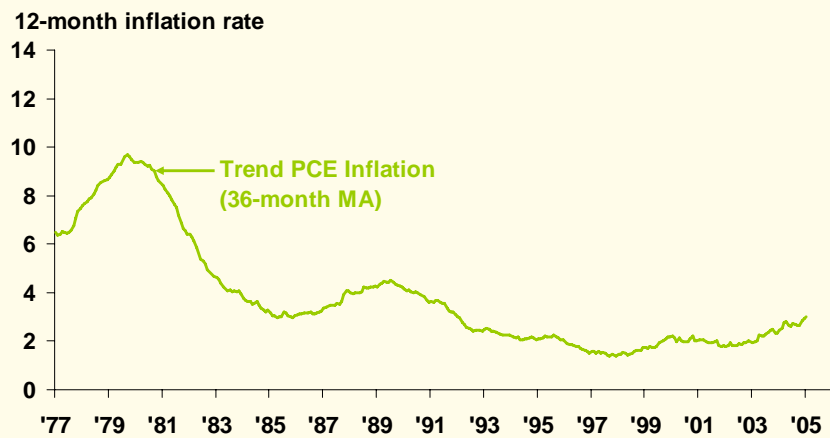
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To illustrate (continued 1)



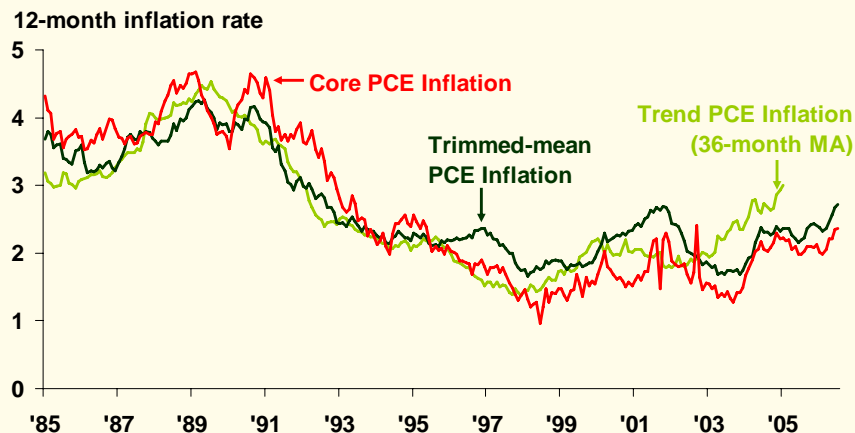
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To illustrate (continued 2)



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Trimmed mean, ex food & energy and trend PCE inflation



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How well does it work?

- Trimmed mean much closer to “trend inflation” than ex food and energy measure
 - (both RMSE and Absolute Error)
 - Gain in accuracy about one-quarter to three-quarters of a percentage point
- Also better at forecasting overall PCE inflation over a 6 – 12 month horizon

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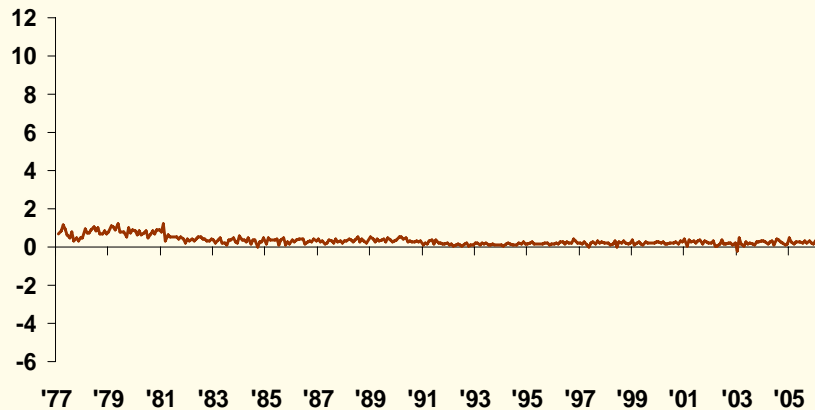
Some examples of the trimming process :

- Not all food & energy is volatile
 - E.g., meals at restaurants
- Many other items are volatile
 - E.g., baby clothes, air travel, financial services

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Food at restaurants rarely gets trimmed

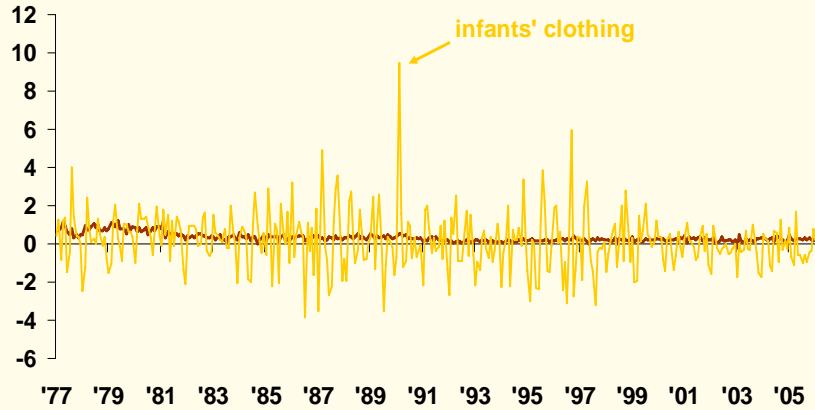
1-month percent change



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Compare to infants' clothing

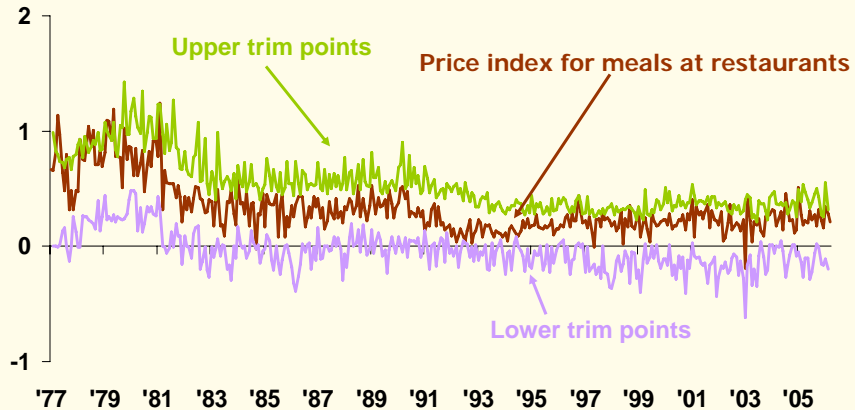
1-month percent change



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Food at restaurants rarely gets trimmed

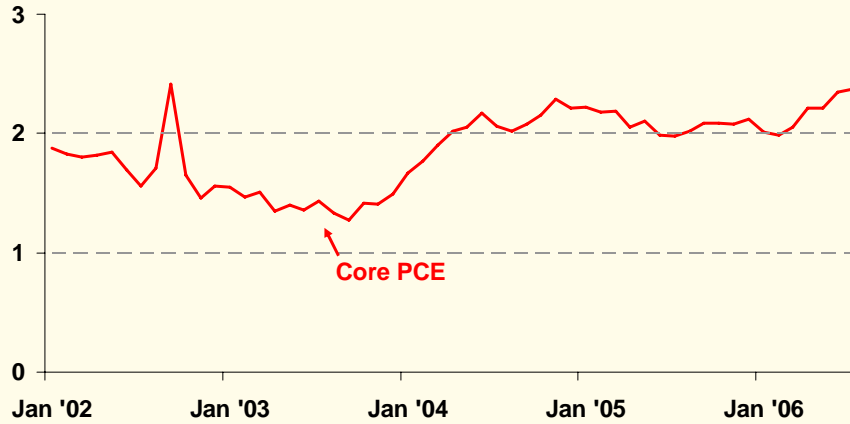
1-month percent change



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Recent history on core inflation: trimmed-mean PCE vs. ex food and energy

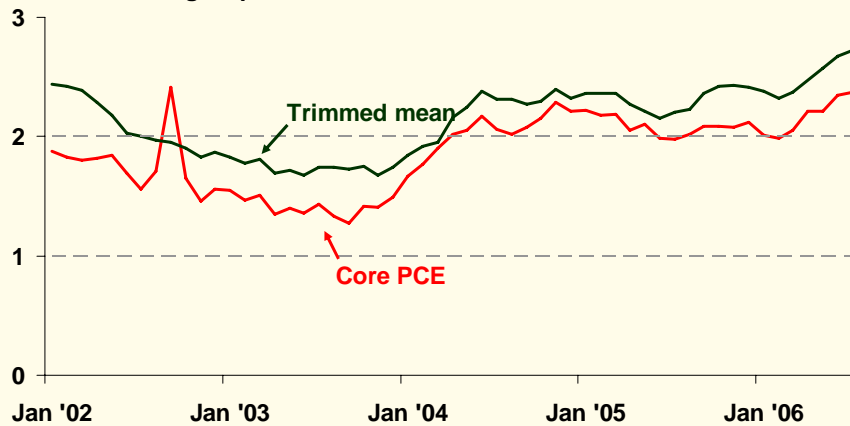
12-month changes, percent annualized



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Recent history on core inflation: trimmed-mean PCE vs. ex food and energy

12-month changes, percent annualized



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Different measures, different conclusions

Trimmed-mean PCE shows:

- Somewhat less deflation potential in 2003
 - Numbers subsequently revised
 - Inflation influenced by aggressive FOMC easing
- Core inflation currently well-above upper tolerance range

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Policy Implications

- Trimmed mean PCE suggests that trend inflation is running higher than FOMC would like it to be over the long-term (and higher than ex food and energy)
- Possibly different implications for when tightening should end

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12-Month PCE Inflation

	Feb '06	Mar '06	Apr '06	May '06	Jun '06	Jul '06
PCE	3	2.9	3	3.4	3.5	3.4
PCE excluding food and energy	2	2	2.2	2.2	2.3	2.4
Trimmed Mean PCE	2.3	2.4	2.5	2.6	2.7	2.7

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Key Takeaways

Trimmed-mean PCE inflation:

- Tracks well with the trend in overall inflation
- Maximizes signal relative to noise
- Politically palatable
 - Does not eliminate food and energy which must always be purchased
- Elegant, but not simple
- Inflation target requires the use of a credible inflationary measure. The trimmed-mean PCE is about the most credible measure available
- Provides additional and conflicting information which adds to the ambiguity for policy discussions

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How to resolve ambiguities

“Given this reality, policymakers are well advised to follow two principles familiar to navigators throughout the ages: First, determine your position frequently. Second, use as many guides or landmarks as are available.”

“By not tying policy to a small set of forecast indicators, we may sacrifice some degree of simplicity, but we are less likely to be misled when a favored variable behaves in an unusual manner.”

Quotes by Chairman Ben S. Bernanke, March 20, 2006

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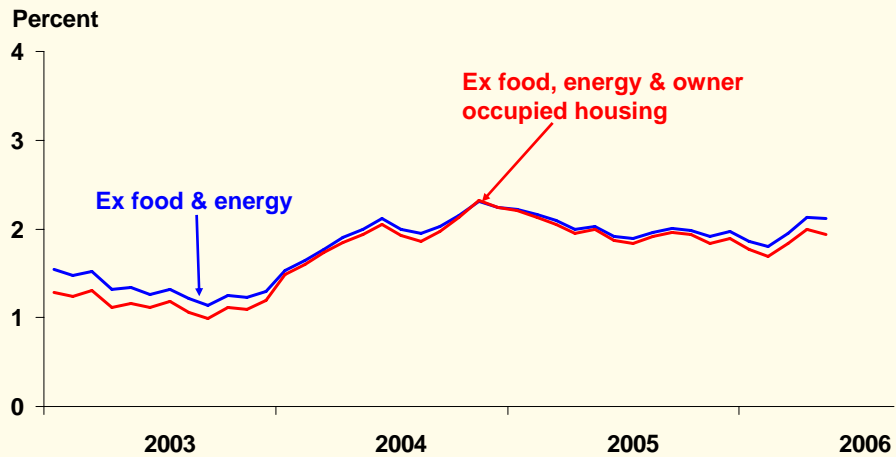


Other important issues

- Measuring/inclusion of housing costs
- Revisions
- Goodhart's law: once a social or economic indicator is made a target for the purpose of conducting social or economic policy, then it will lose the information content that would qualify it to play such a role.

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12-month PCE inflation

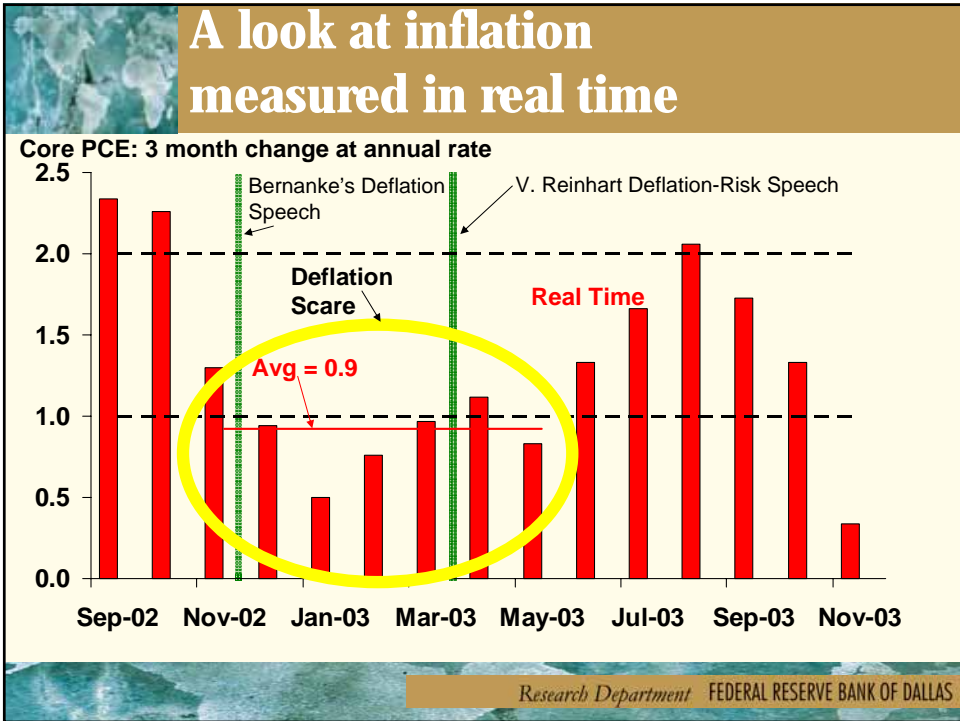
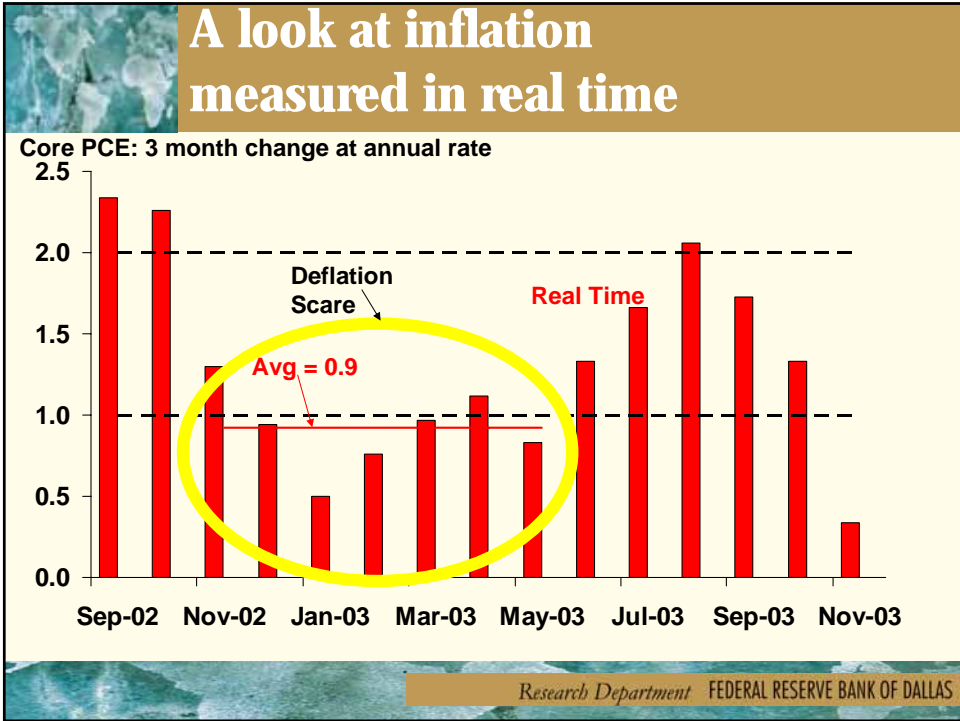


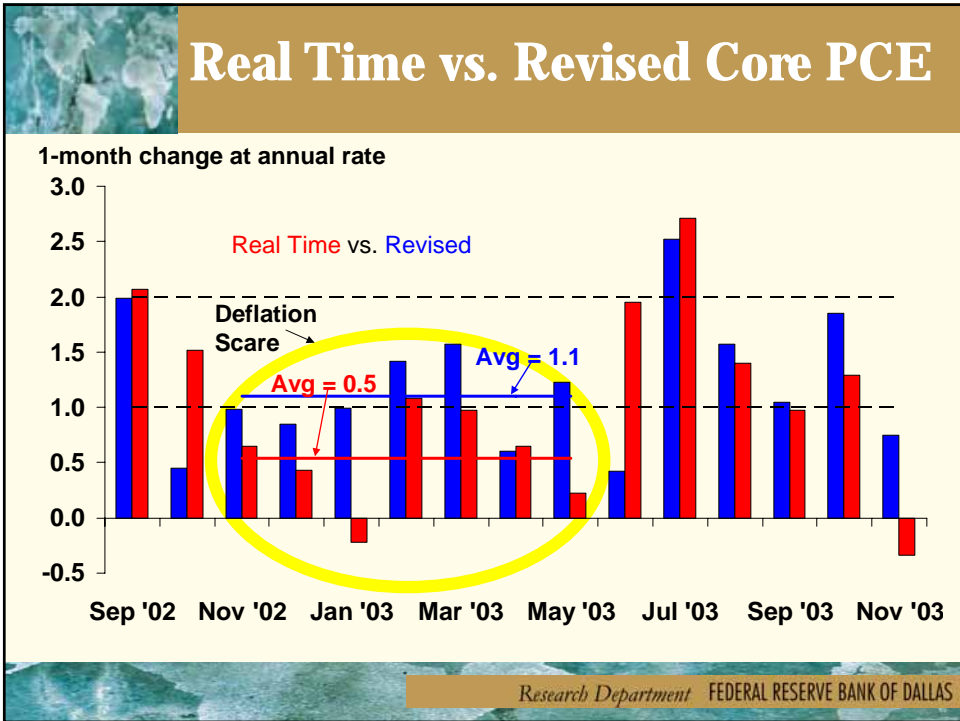
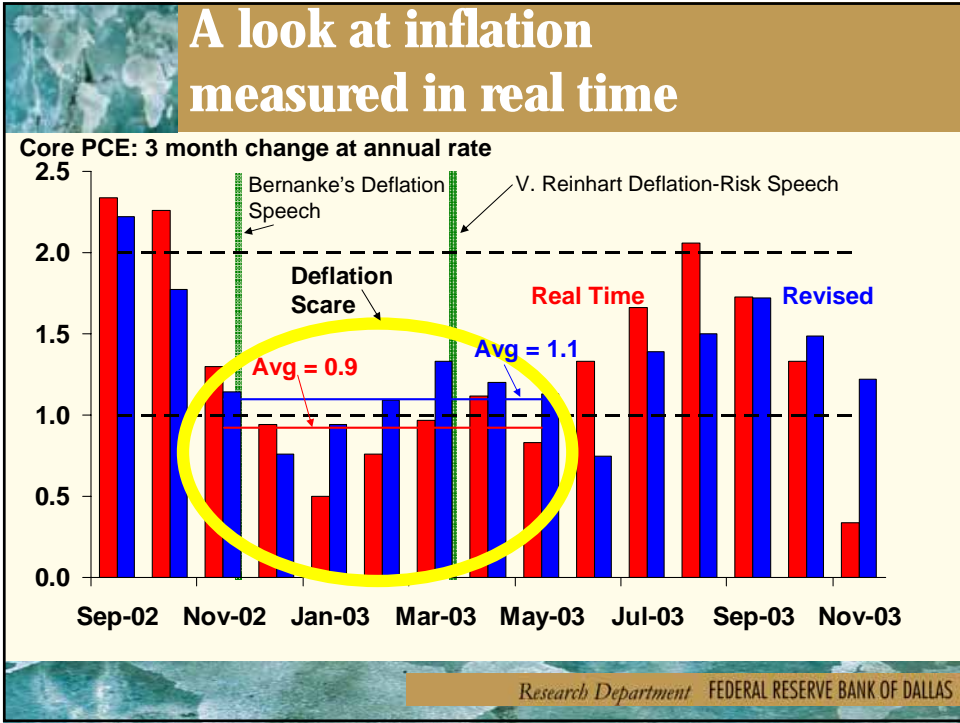
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A tale of two time zones

**Monetary policy made in real time
but evaluated in historical time**

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Possible improvements to trimmed mean PCE

- ✓ Housing
 - Should an index ever exclude components with large weights that must always be purchased?
- ✓ Globalization
 - Should an index routinely exclude items like consumer electronics whose prices are falling steeply?
 - Two-step trim: volatility and extremes

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Conclusion

- Despite a few shortcomings, the trimmed mean PCE is the inflation measure that best meets the criteria for use in monetary policy in the United States.

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