

The PCE Price Index: Appendix on Indicators of Price Trends

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BEA Advisory Committee Meeting

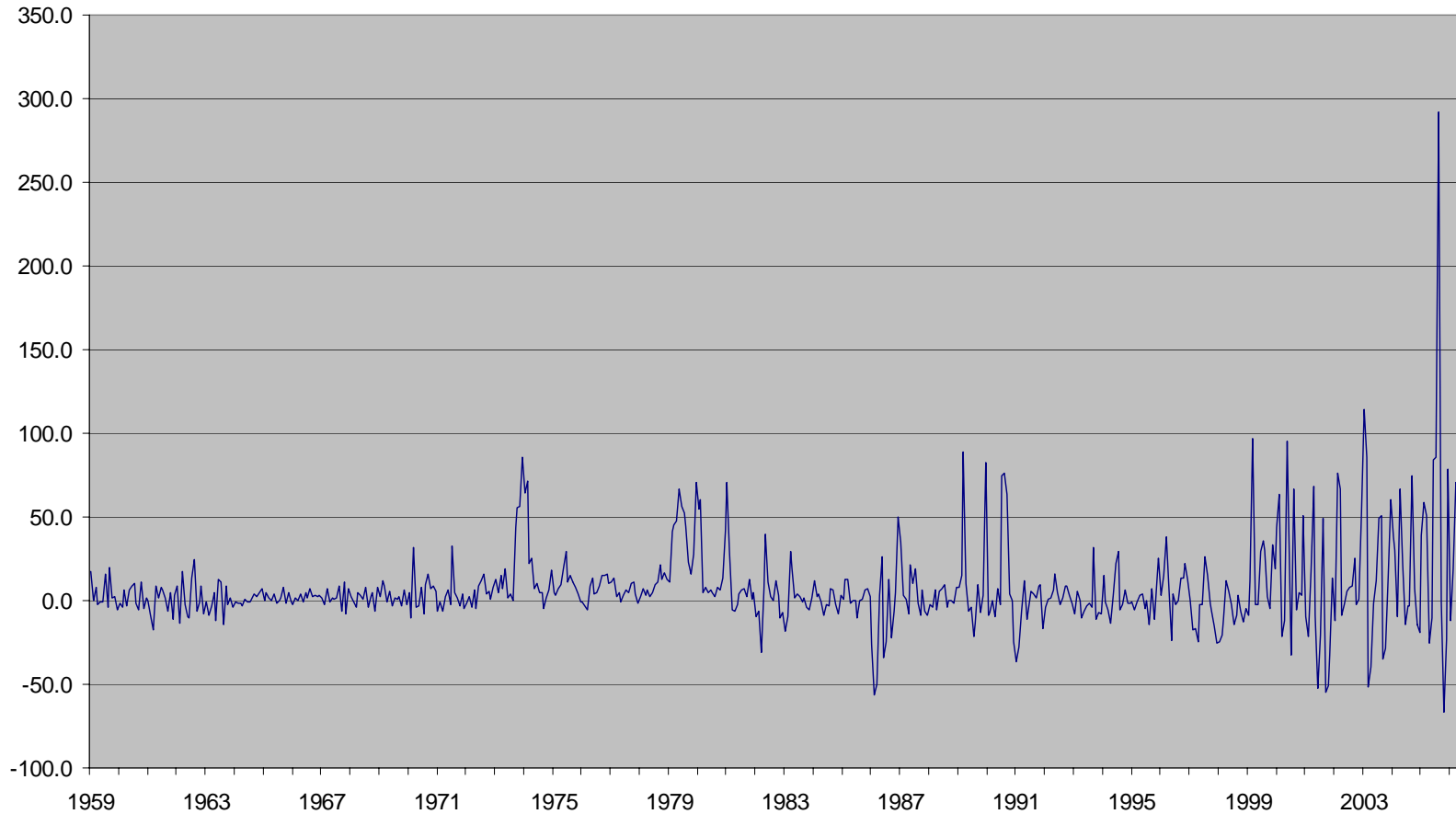
November 3, 2006

Measuring the Nation's Economy.



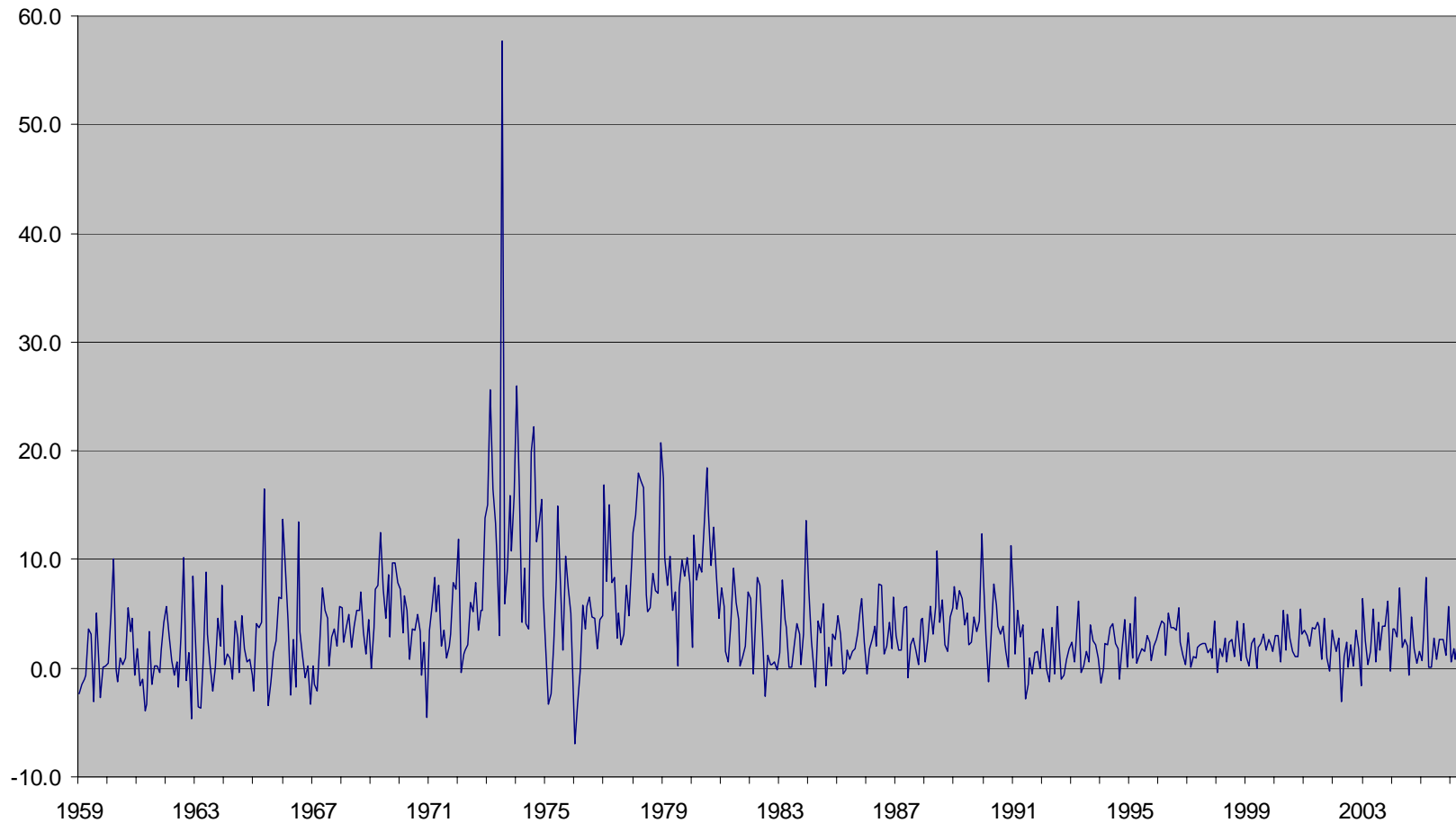
PCE Energy Price Index

Percent change from previous month, annual rate



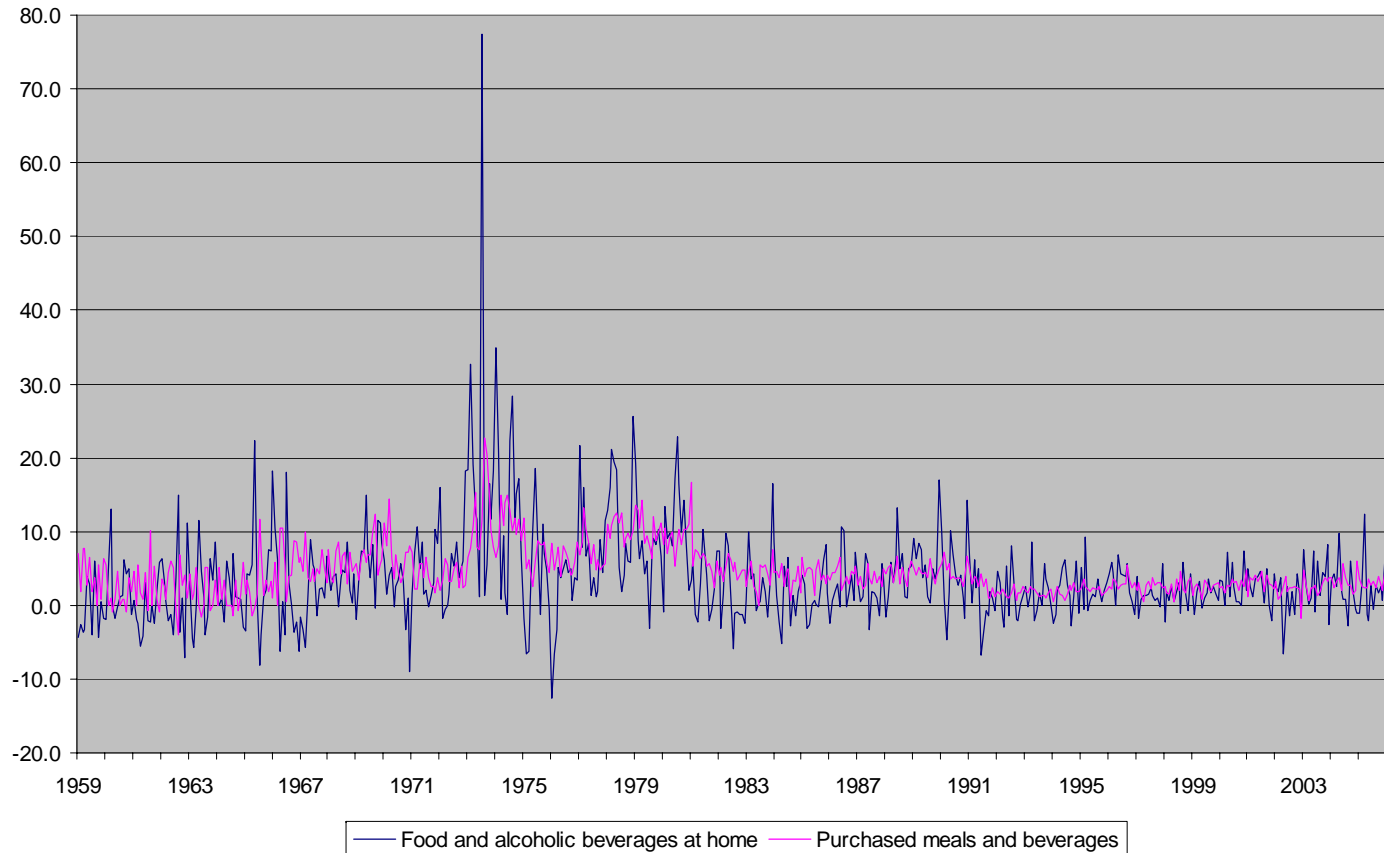
PCE Food Price Index

Percent change from previous month, annual rate



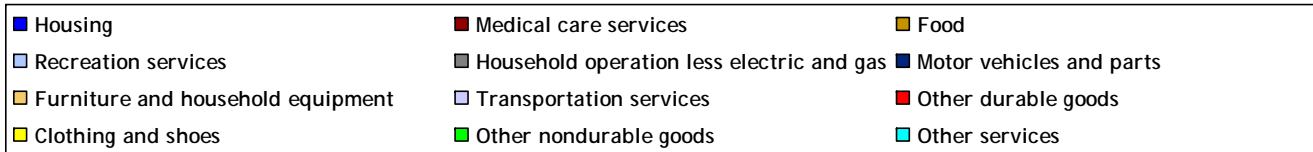
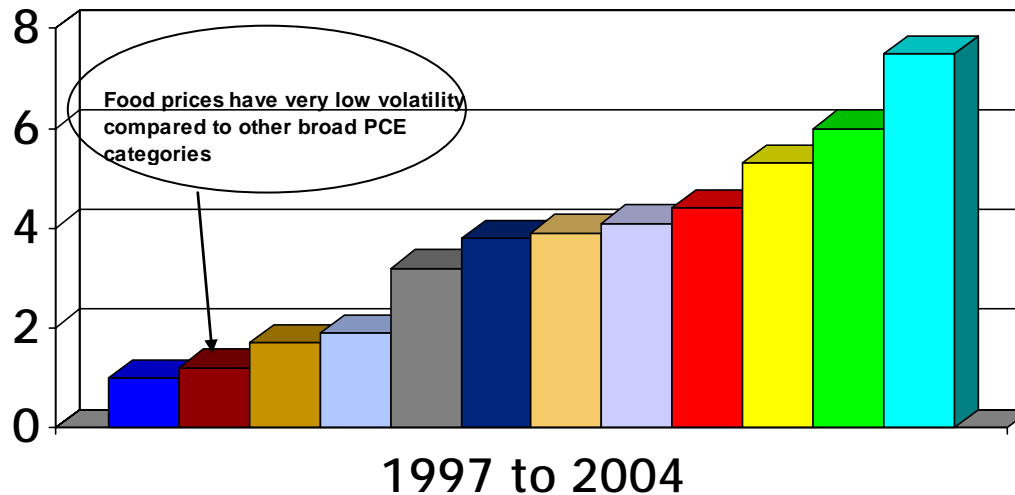
PCE Food Price Indexes

Percent change from previous month, annual rate



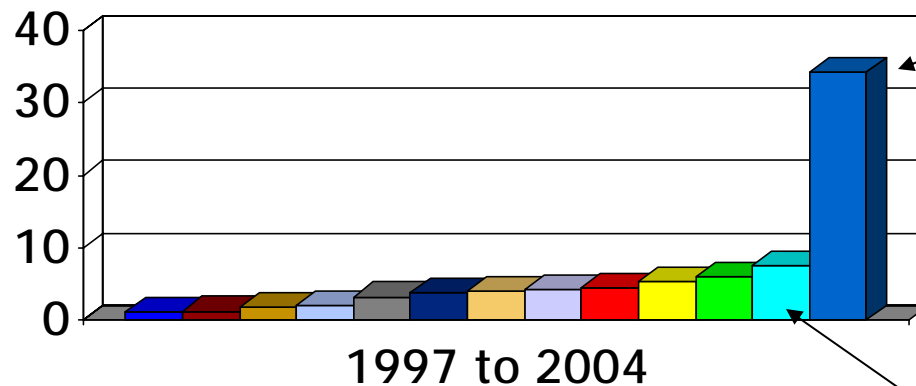
Volatility of PCE Food and Other Non-Energy Prices

RMSE of 1-month annual rate percent changes vs. trend



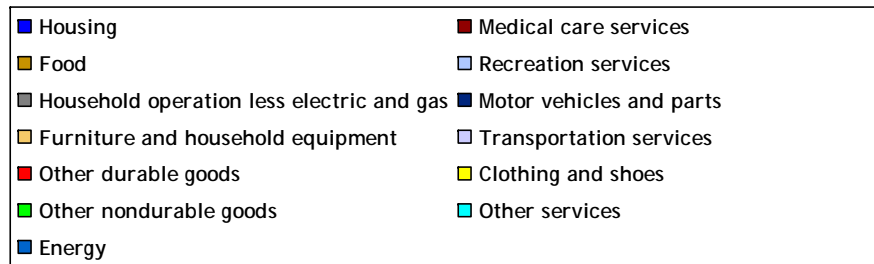
Volatility of PCE Food and Other Prices

RMSE of 1-month annual rate percent changes vs. trend



Energy prices have by far the highest volatility of any of the broad PCE categories

Other services, which includes many "non-market" prices, has the highest volatility other than energy



Defining a Core Index

Issues with defining a core:

- May have to be redefined periodically
 - Food prices, though once volatile, now have less volatility than prices in almost all of the broad PCE categories
 - Energy prices clearly are very volatile, and have become more so over time
 - Other prices may become more or less stable over time
- May be biased as an indicator of underlying inflation trends
 - To the extent that categories excluded from the core have price trends that differ from those included in the core



Other Approaches to Estimating “Underlying Inflation”

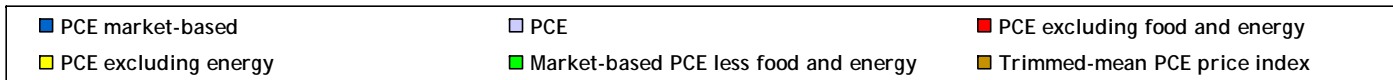
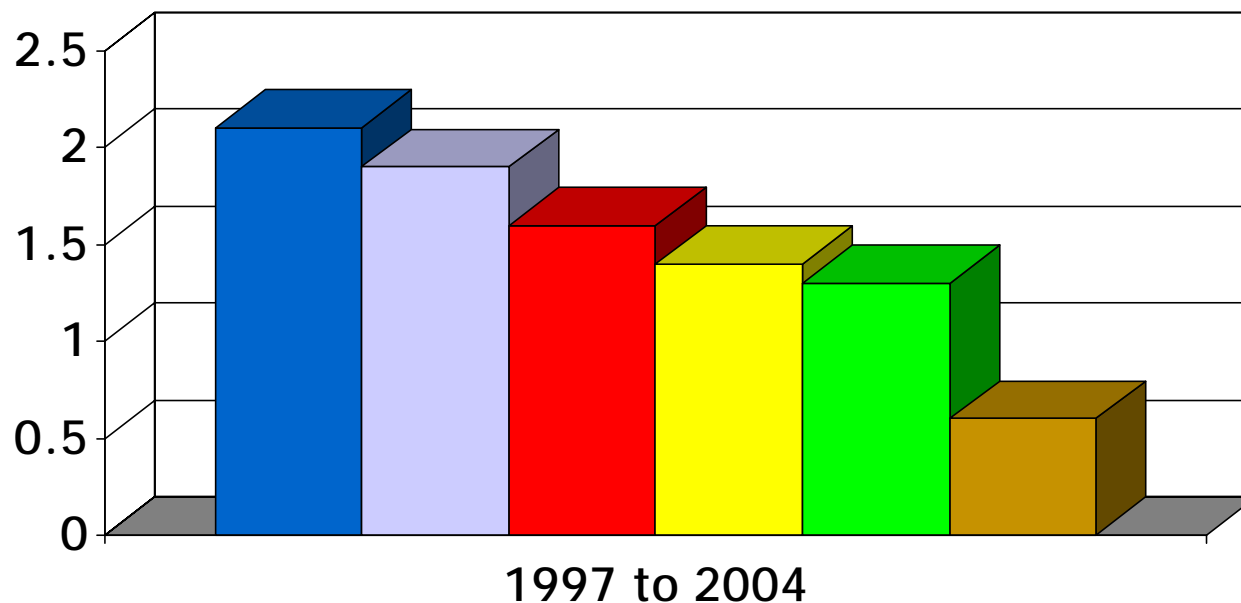
- Lower-frequency indicators
 - Observations over longer time periods (such as year-over-year changes) are useful because “noise” lessens and “signal” strengthens over time.
 - For this purpose, use total index, because for volatile series as well the signal should be stronger than the noise
 - This dramatically reduces RMSEs, to 0.5 for the period 1977 through 2004
- Define core by excluding volatile individual price changes
 - Identity of volatile price changes may change over time
 - Some volatile prices may have insignificant weights
- Use change in “weighted median” index
 - Ranks percent changes from lowest to highest and cumulates weights of price changes until arriving at the price change which has a cumulative weight encompassing the 50th percentile
- “Trimmed mean” PCE price index (Dallas Fed)
 - Trims prices with large changes on a monthly basis
 - Identity of excluded series changes each month
 - Has lower dispersion (RMSE) than PCE core index, so may be a better indicator of underlying inflation
 - Advantage lessens as length of observation increases
 - RMSE and mean error of overall PCE price index is comparable for 12-month changes



Comparing Trend Inflation Indicators

One-Month Changes

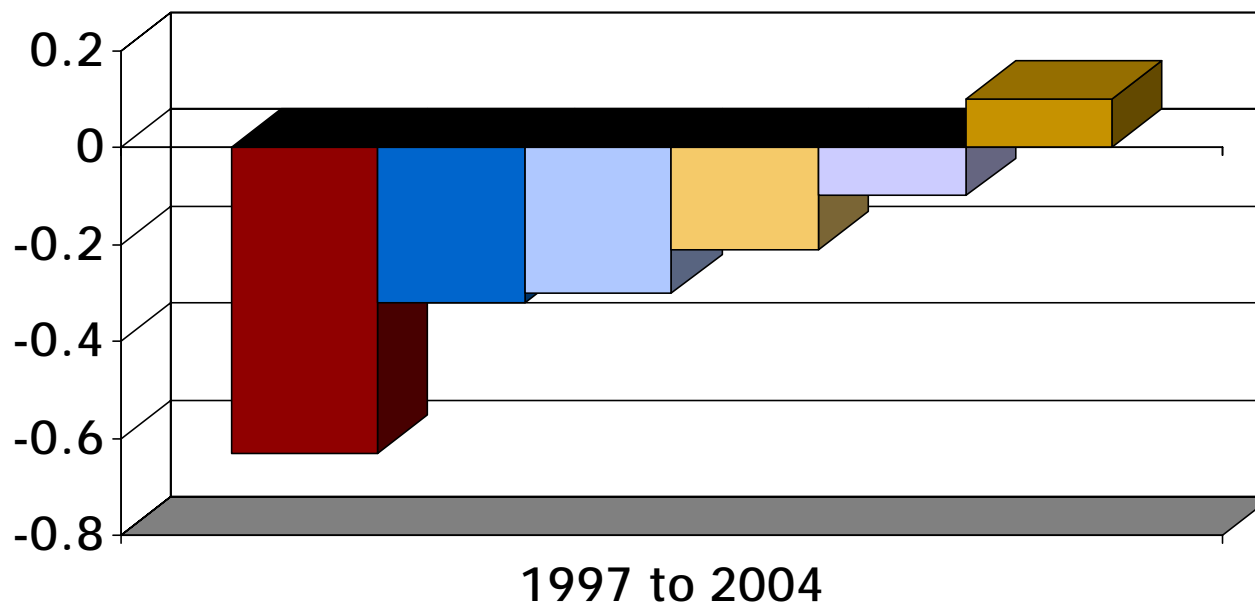
RMSE of annual rate percent changes vs. PCE trend



Comparing Trend Inflation Indicators

One-Month Changes

Mean errors of annual rate percent changes vs. PCE trend



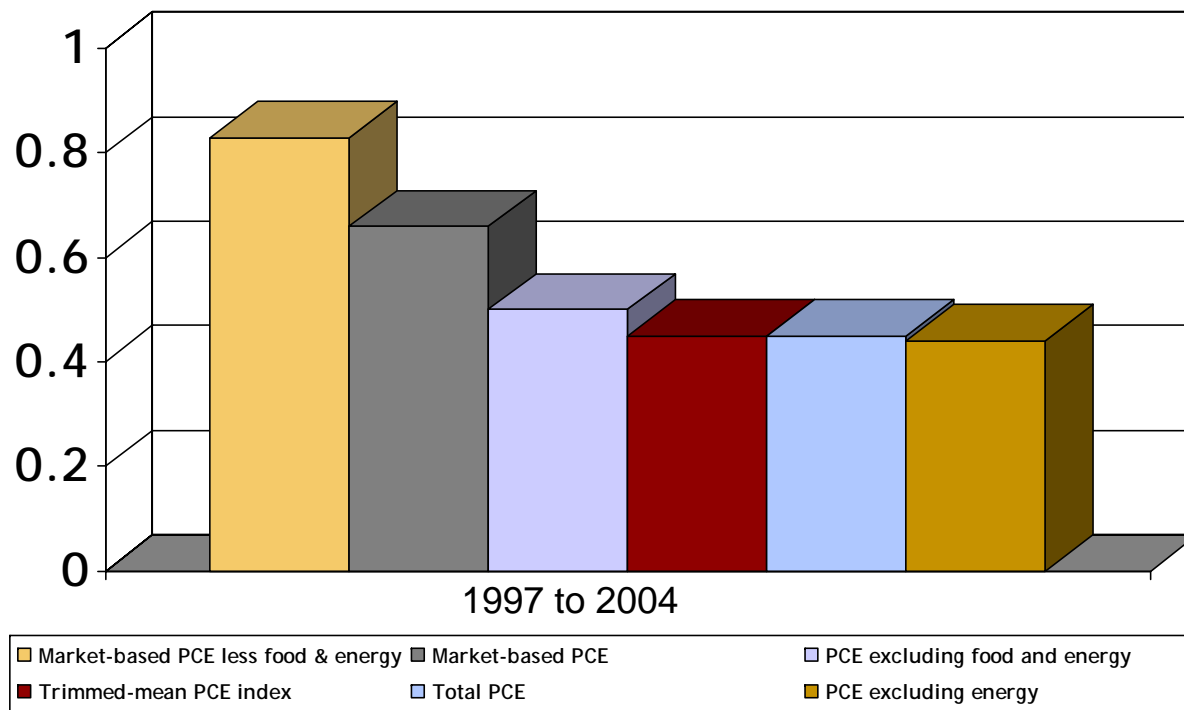
- Market-based PCE less food and energy
- PCE market-based
- PCE excluding food and energy
- PCE excluding energy
- PCE
- Trimmed-mean PCE price index



Comparing Trend Inflation Indicators

12-Month Changes

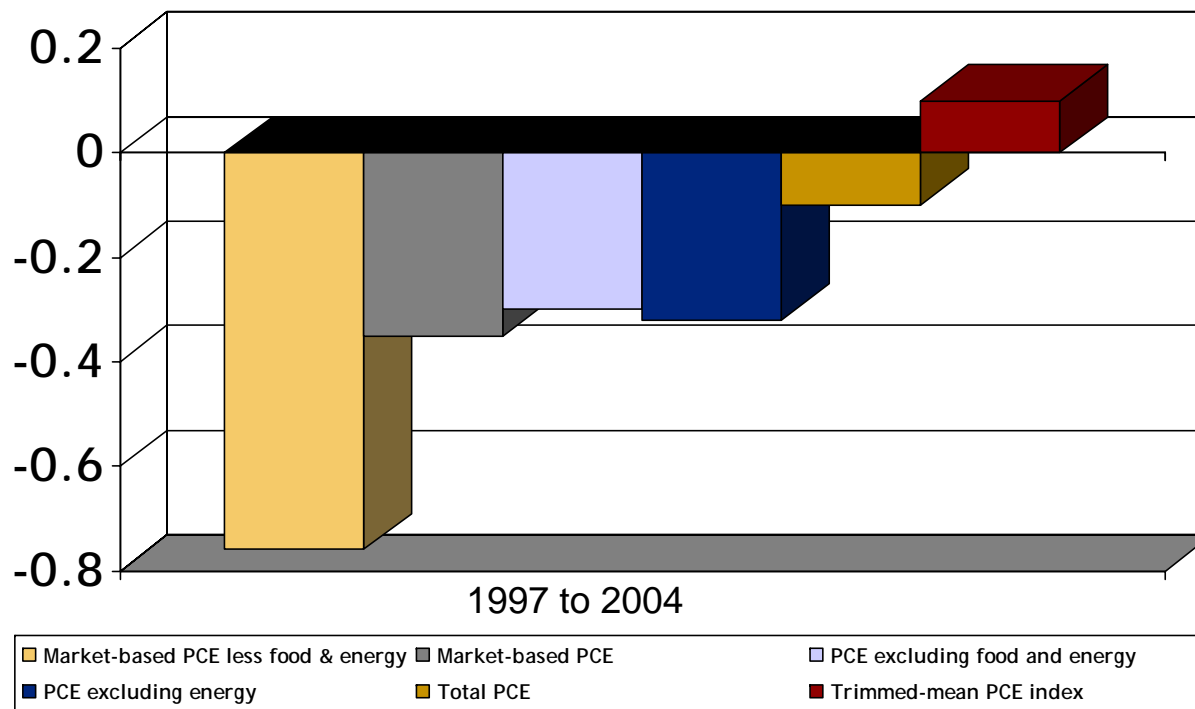
RMSE of percent changes vs. PCE trend



Comparing Trend Inflation Indicators

12-Month Changes

Mean errors of percent changes vs. PCE trend



PCE Price Index

Percent change from month one year ago

