Interpreting The Great Moderation

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The article entitled “Interpreting the Great Moderation” documents a number of facts on the changing variability of macro and micro data.
Main Findings:

- Fall in durable goods volatility is an important factor for the fall in GDP volatility.
- Fall in GDP volatility occurs at “high frequencies”.
- Volatility in firm-level employment growth rate falls.
- Household-level consumption volatility does not decrease when GDP volatility decreases.
Great Moderation

Finding 1: volatility falls after 1984

Figure 1: GDP Growth, 1947-2007
Quarterly, Annual Rate. Source: NIPA
Note: Shaded periods represent NBER-designated recessions
Finding 2: durable goods volatility falls after 1984
Great Moderation

Finding 2

Figure 3: Volatility* over Time in Key Categories

*5-year rolling standard deviations of quarterly annualized growth contributions.

**Inventory investment growth contributions were computed by subtracting fixed investment’s contribution from total investment’s.
Finding 2

The authors constructed Figure 3 by calculating rolling standard deviations. They use a 5-year window to construct the standard deviation that they report for a given year. The fall in the standard deviation for durable goods is especially large.
Finding 3: volatility falls at high frequencies

Figure 4: GDP Volatility by Frequency

Note: Units are standard deviations of annualized growth rates.
The authors constructed Figure 4 in a few steps. Step 1 involves applying the Hodrick-Prescott filter to the quarterly GDP data. This amounts to passing a smooth curve through the data. This “smooth curve” ends up taking low frequency fluctuations out of the data. Step 2 involves representing the series from step 1 as the sum of two components. One component they call a high frequency component - sine and cosine waves with a frequency of less than 12 quarters. The other component they term “business cycle frequency component” - sine and cosine waves with a frequency of 12 quarters or more.
Finding 4: firm volatility falls over time

Figure 7: Volatility in Firm-Level Employment Growth Rates, Overall and by Ownership Status, U.S. Private Sector, 1977 to 2001

- Average firm volatility calculated as a ten-year weighted moving average of growth rates, inclusive of entry and exit and with a degrees-of-freedom correction. See equation (6) in Davis et al. (2006).
- Average volatility across firms computed on an employment-weighted basis.

Source: Calculations on the Longitudinal Business Database by Davis et al. (2006).
Finding 4

The authors note that firm-level employment growth at all private sector firms has fallen from the late 1970’s to the early 2000’s. This pattern in the micro data fits with the pattern in aggregate data (e.g. GDP and components) whereby over the time period aggregate data become less volatile.

Thus, micro volatility and macro volatility measures follow a similar pattern.
Finding 5: consumption volatility does NOT fall

Figure 8: Household-Level Consumption Volatility by Deciles of Predicted Consumption

Note: We compute the absolute value of six-month log changes in expenditures on nondurable goods and services per adult equivalent in each household. Averaging the absolute changes by time period and decile yields the reported measure of consumption volatility.
Finding 5

The authors constructed Figure 5 using US data from the Consumer Expenditure Survey (CEX). This is a household level survey on consumption expenditures and income among other observations. The survey is roughly 5000 households and the frequency is quarterly.

The authors sort households by consumption deciles. For all households in a given decile they calculate the absolute value of the log change in consumption and plot the average decile value over the time period.

They find that the consumption variability tends to increase with consumption decile and variability measure INCREASES in the period 1992-2004 compared to 1980-1991!