

# The Evolution of Household Income Volatility

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June 2007

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or other members of their staffs.

This draft is preliminary; comments welcome.

# The Aggregate Economy Is More Stable ... What Happened to Individual Households?

- The aggregate U.S. economy has been markedly more stable since the mid-1980s than in preceding decades.
- Yet, many commentators argue that the economy is more “dynamic”—that globalization, deregulation, and rapid technological change have increased creative destruction and competitive pressures bearing on workers and firms.
- Empirical evidence is mixed: Some researchers find that individual households and firms have faced greater volatility recently, while other researchers do not.

# Measuring Household Income Volatility

- The simplest possible metric: The cross-sectional distribution of income changes.
  - Does not say anything about persistence of changes (but also not sensitive to model of income dynamics).
  - Measure income changes in percentage form, which is a straightforward way to scale them.
  - We look at:  
$$100 * (Y_t - Y_{t-2}) / Y_{\text{average}}, \text{ where } Y_{\text{average}} = (Y_{t-2} + Y_{t-3} + Y_{t-4}) / 3.$$
- Like existing literature on earnings volatility, this does not distinguish between voluntary and involuntary changes.

# Data from the PSID

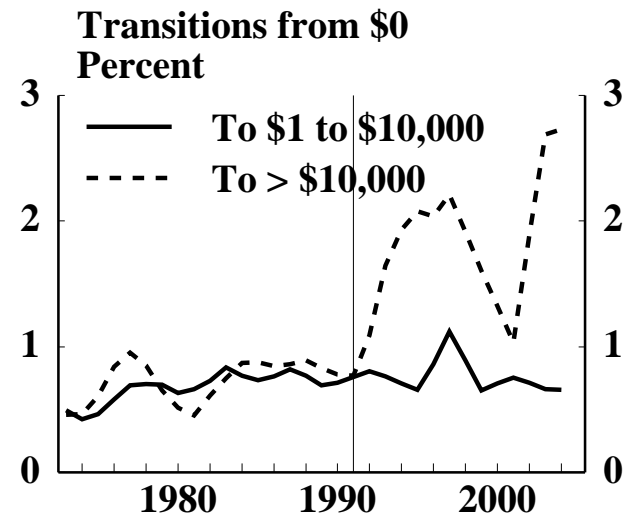
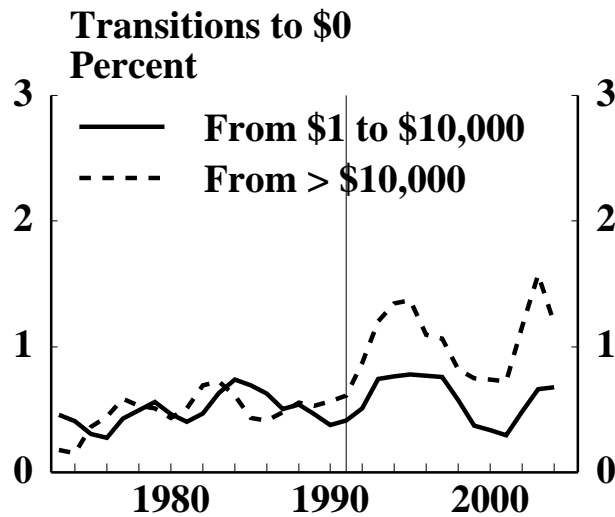
- Data for 1968 to 2004; annually through 1996 and biannually thereafter.
- Household “heads” and “spouses.”
- Drop observations where head is under age 25 or retired.
- Impose consistent top-coding and bottom-coding.

# Volatility of Individual Labor Earnings

- Household heads
- Heads with different demographic characteristics
- Spouses
- Comparisons with previous research

# Household Head Labor Earnings

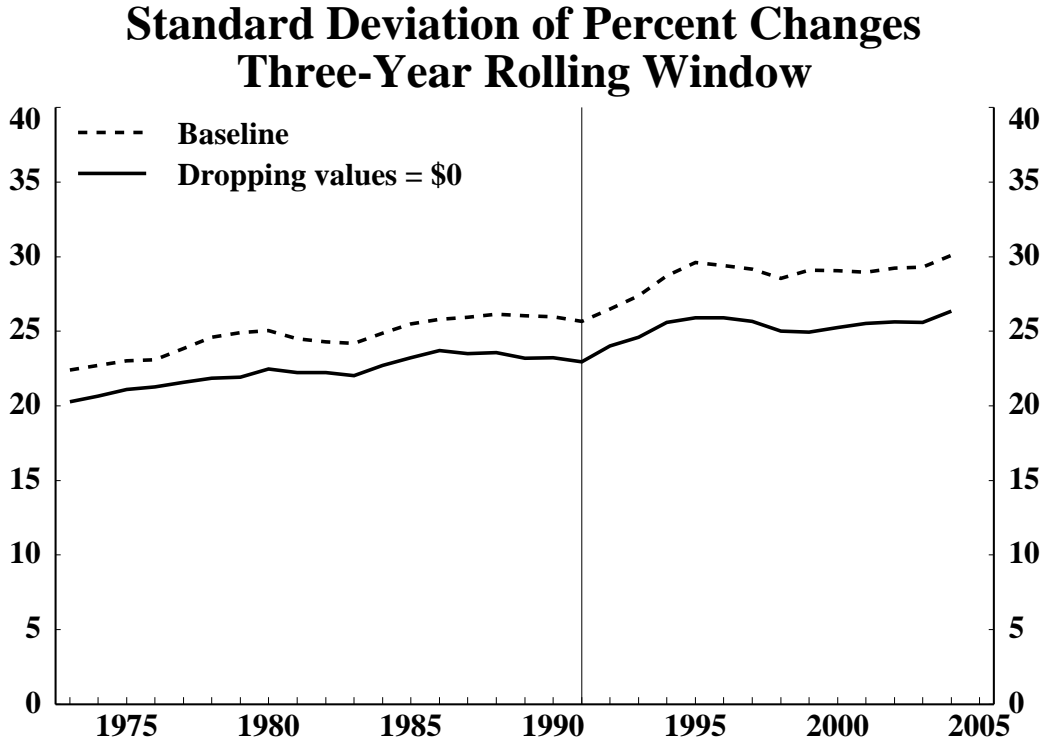
## Three-Year Rolling Window



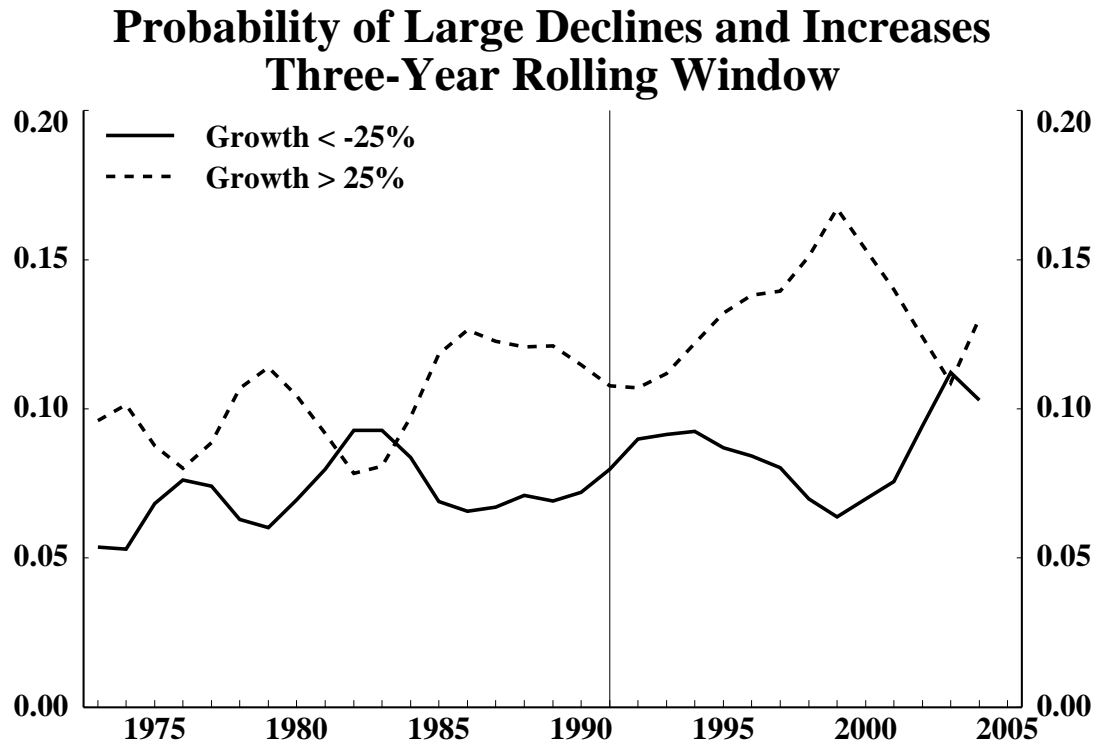
# PSID Methodological Changes

- Appear to cause jump in early 1990s in the frequency of zero earnings following and preceding substantial earnings—which generates very large percent changes.
- Measurement, rather than economic, shifts:
  - Coincidence of timing with PSID changes (which are admitted to have raised variance).
  - Identifying economic changes that would have had such a large and sudden effect is fairly difficult.
  - No change in frequency of low earnings sandwiched between substantial earnings.
  - No change for spouses of this sort.

# Adjusted Head Labor Earnings

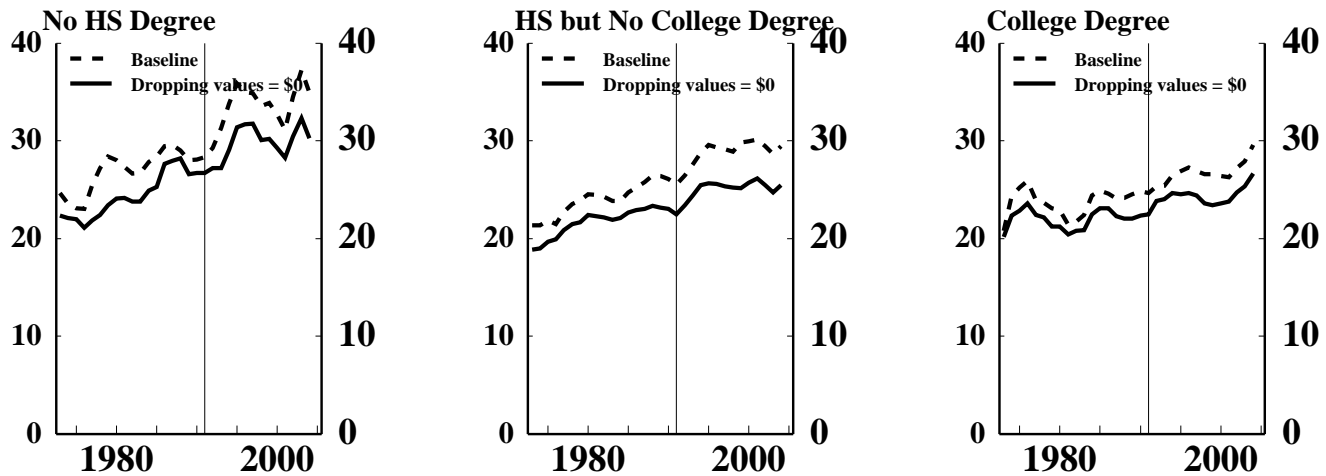


# Cyclical Pattern of Large Changes

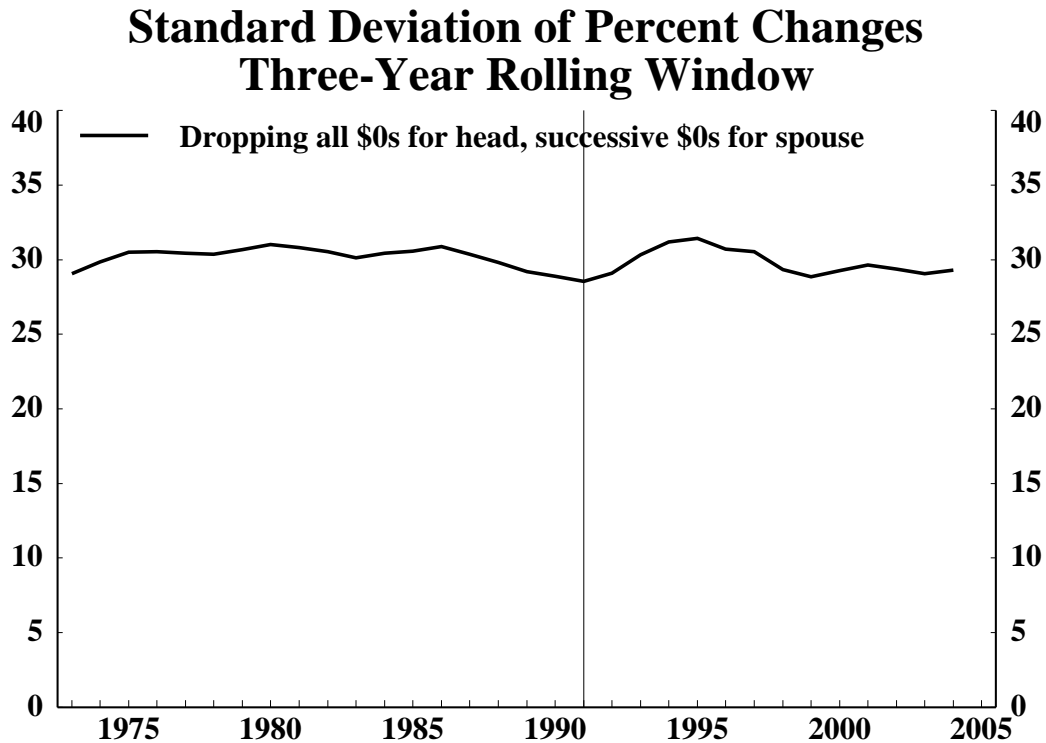


# Differences Across Education Groups

## Standard Deviation of Percent Changes Three-Year Rolling Window



# Labor Earnings for All Heads and Spouses

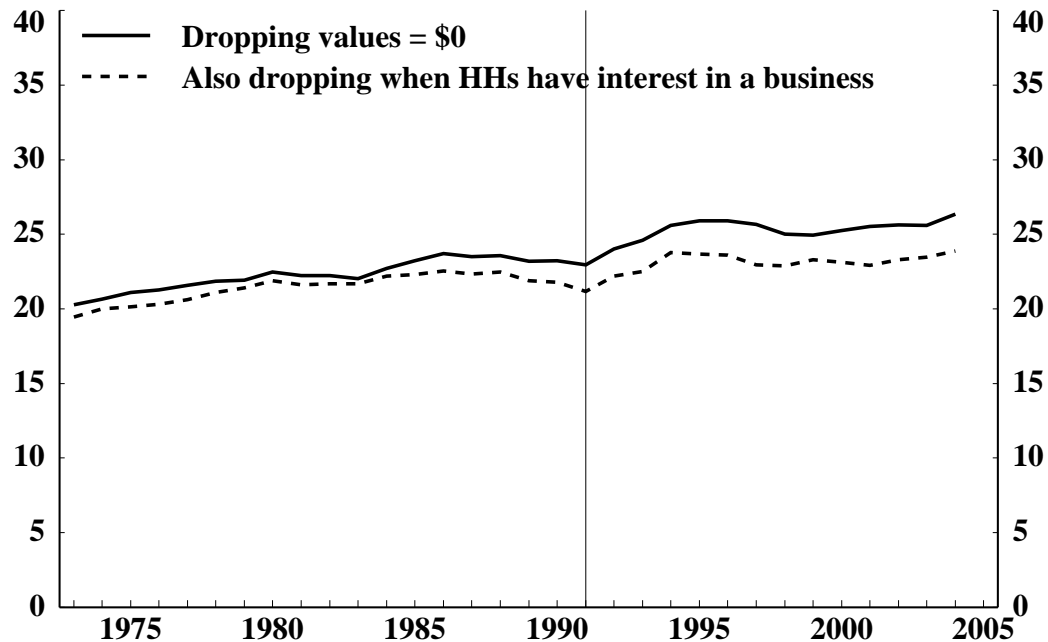


# Comparison with CBO Findings

- CBO finds small decline in earnings volatility for all workers; we find no change for pooled heads and spouses. Moreover, CBO finds small decline for men; we find an increase.
- Why? Several differences between studies:
  - We include self-employment income; CBO does not.
  - We include only heads who are 25 or older; CBO includes all workers.
  - We cap all increases at 100 percent; CBO handles very large increases in different ways.
  - We use PSID; CBO uses CWHS. Two-year change vs. one-year change; transitions to and from zero earnings; has measurement error changed over time?

# Head Labor Earnings Dropping Households with Financial Interest in Business

**Standard Deviation of Percent Changes  
Three-Year Rolling Window**



# Comparison with Other Findings

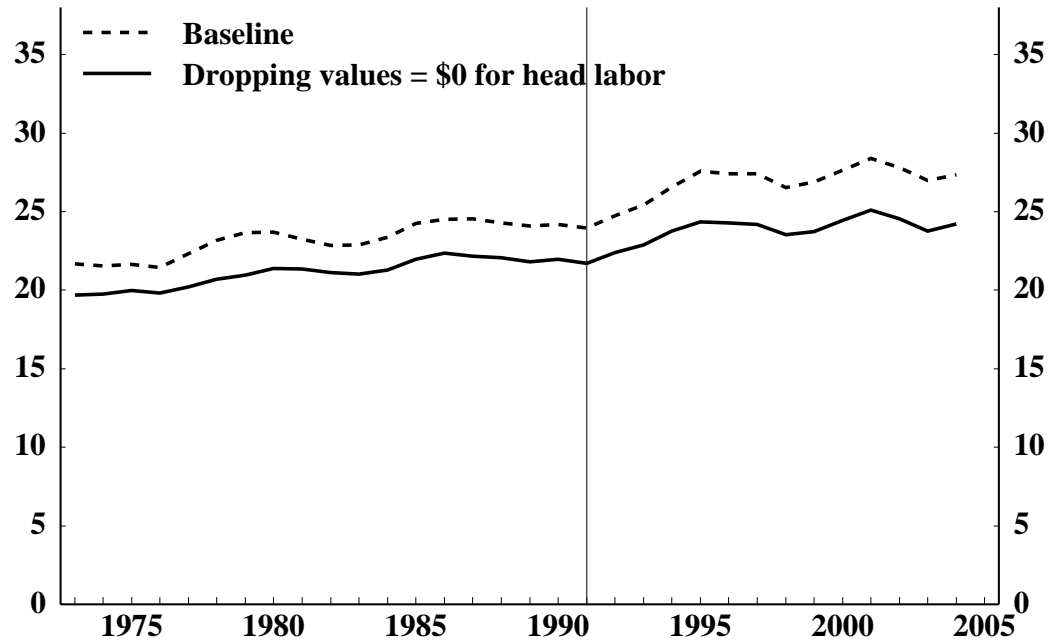
- Gottschalk-Moffitt find that standard deviation of transitory earnings nearly doubled. Compared with our analysis, they used:
  - Different age cutoffs.
  - Narrower measure of earnings.
  - No adjustment for measurement changes.
  - Model-based decomposition into permanent and transitory variance of earnings.
- Other studies generally conclude that earnings volatility has risen, but disagree about timing and magnitude.

# Volatility of Household Income

- Combined head and spouse labor earnings
- Capital income
- Transfer income
- Total household income

# Combined Head and Spouse Earnings

**Standard Deviation of Percent Changes  
Three-Year Rolling Window**

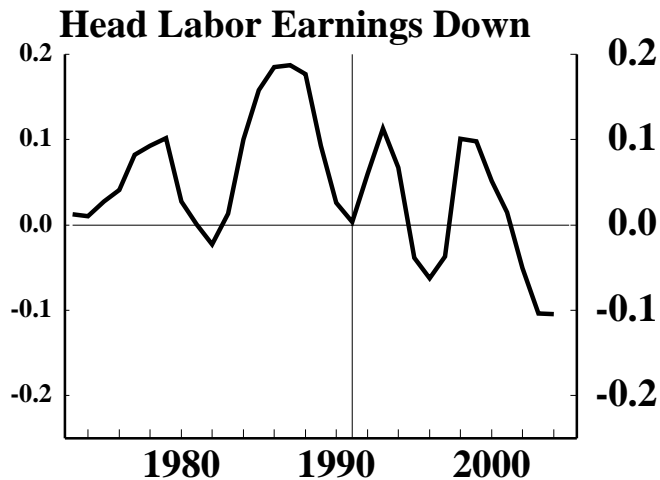


# Why Does Volatility Rise for Combined Earnings But Not for Individual Earnings?

- Not because of the rise in women's labor force participation, which reduces household volatility relative to individual volatility.
- Not because of change in correlation of earnings of household heads and spouses.
- Because: Household heads have higher average earnings than spouses, so the rise in volatility they experienced has a bigger effect on household earnings than the decline in volatility for spouses.

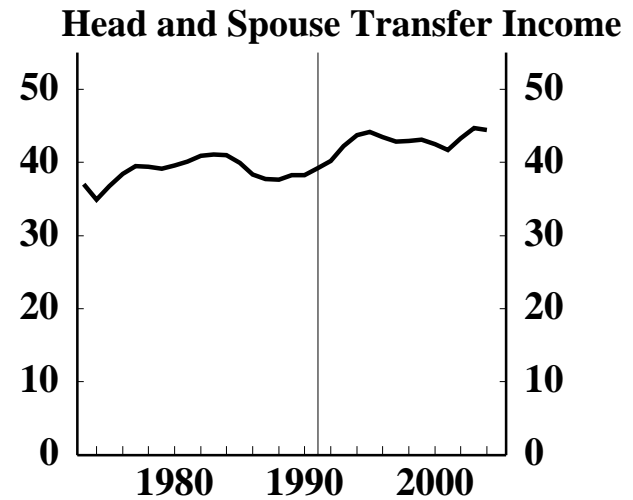
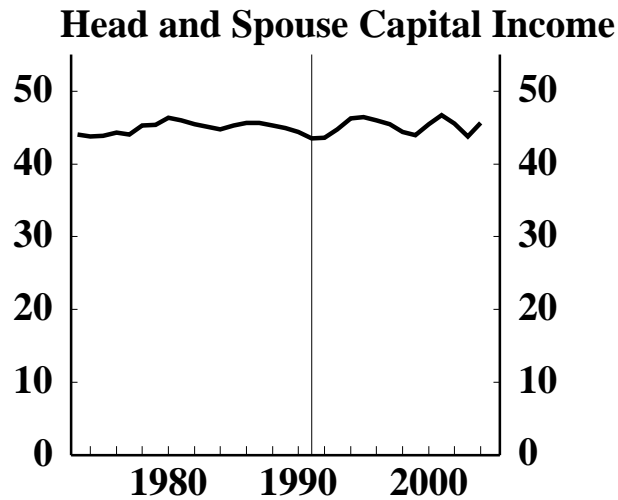
# Average Offset to Shifts in Head Earnings from Shifts in Spouse Earnings

**Amount Replaced by Spouse Labor Earnings  
Three-Year Rolling Window  
Income within |5%| Called Unchanged**



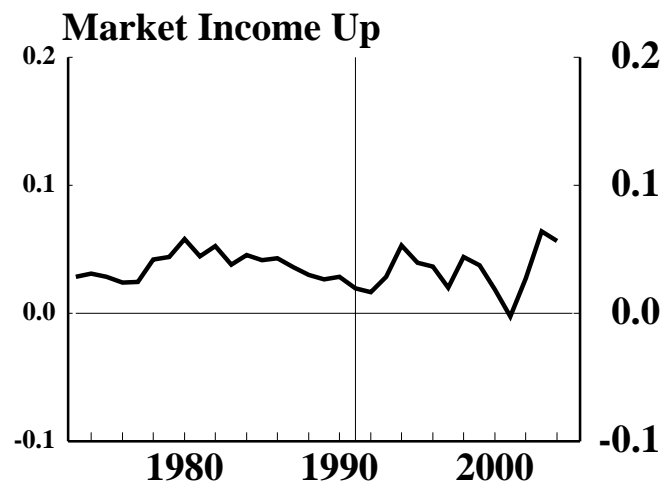
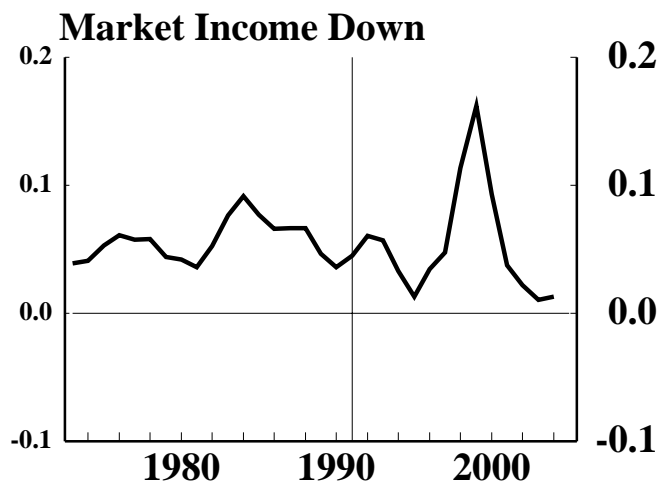
# Capital Income and Transfer Income

## Standard Deviation of Percent Changes Three-Year Rolling Window



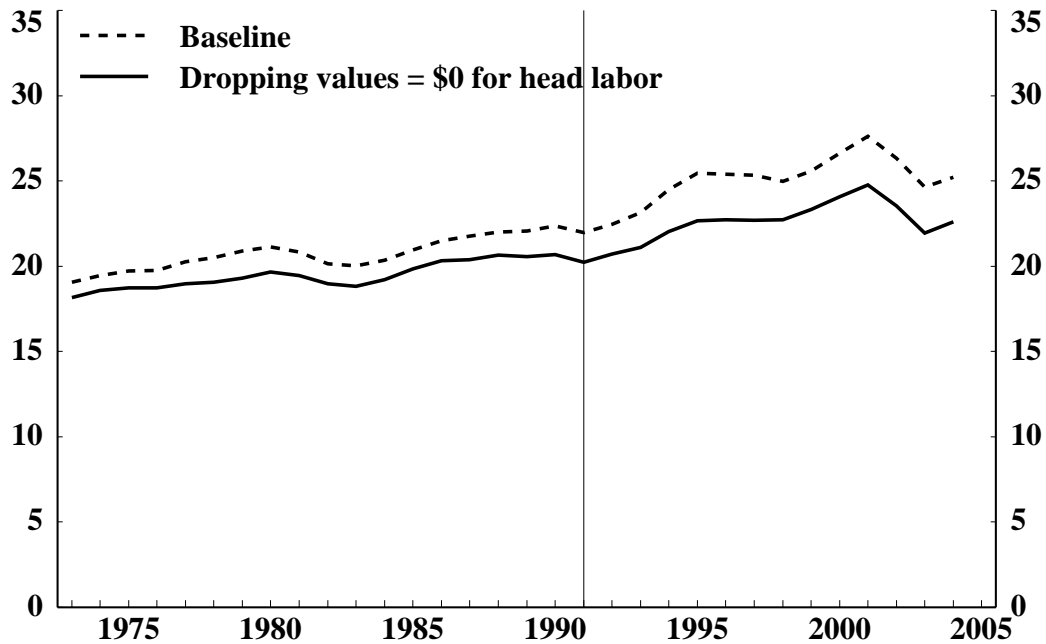
# Average Offset to Shifts in Market Income from Shifts in Transfers

## Amount Replaced by Transfer Income Three-Year Rolling Window Income within |5%| Called Unchanged



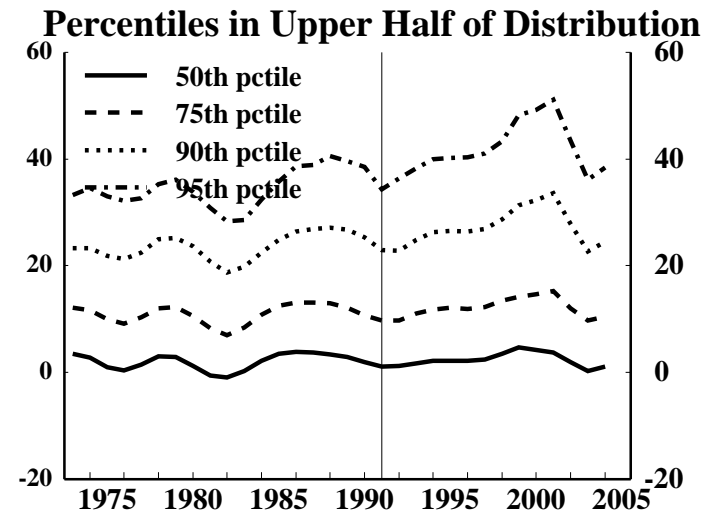
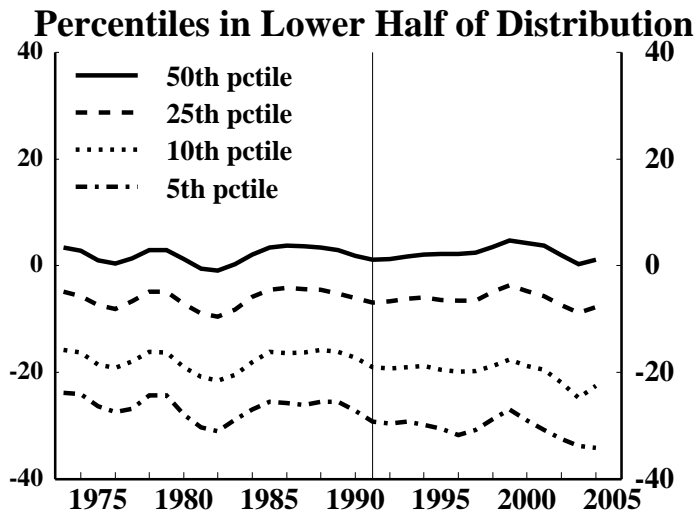
# Total Household Income

## Standard Deviation of Percent Changes Three-Year Rolling Window



# Percentiles of Distribution of Changes in Total Household Income

**Dropping Values = \$0 for Head Labor  
Three-Year Rolling Window**



# Conclusion

- Household income has become noticeably more volatile during the past thirty years.
  - Standard deviation of percent changes in income rose one-fourth between early 1970s and early 2000s.
  - Widening of distribution is concentrated in tails.
  - Boost in volatility occurred throughout the 1970s, 1980s, and 1990s, and it can be seen in both labor earnings and transfer income.

# Limitations of Analysis

- An increase in *volatility* of household income does not imply a corresponding increase in *risk*.
  - We do not distinguish between voluntary and involuntary income changes.
  - We do not include shocks to desired spending.
  - We do not account for changes in saving and borrowing that can buffer income shifts.
- We focus on prime-age households, so have nothing to say about youngest and oldest households.
- Our findings are based on a particular methodology applied to a single dataset.