Reconciling Trends in U.S. Male Earnings Volatility: A Report from a Group Project of Four Data Sets

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Earnings and income volatility: important topic in many areas

Labor economics: instability of jobs, turnover, uncertainty of future earnings path

Household finance: effect of income volatility on ability to save, smooth consumption, etc.

Macro: permanent income hypothesis, saving, etc.; Great Moderation

To name just a few
This project: about calendar time trends in "gross" male earnings volatility

"Gross": volatility in year-to-year changes without decomposition into permanent and transitory components

Men: Only because are trying to replicate past work; extensions to women discussed at the end

Earnings: labor market focus; not unearned income or family income
The issue: different papers have found different trends, usually with different data sets

1. PSID: Starting with Gottschalk-Moffitt (1994), upward trends; Moffitt-Zhang (2018) has a full listing
3. But other SSA earnings studies find no trend on average: DeBacker et al. (2013), Hryshko et al. (2017)
4. UI administrative earnings: Celik et al. (2012) found no trend
5. SIPP: Celik et al. (2012) found declines
This project: Try to reconcile disparate findings using common specifications, common samples, common measures of volatility, common sensitivity testing with 4 data sets and 6 data series (3 survey, 3 administrative):

1. New PSID Estimates (Moffitt-Zhang)
2. Matched CPS linked to SSA earnings records (Ziliak-Hokayem-Bollinger)
3. SIPP and matched SSA earnings records (Carr-Moffitt-Wiemers)
4. UI earnings records from the LEHD (McKinney-Abowd)
Volatility rose from 1970s to 1980s
After 1990, cyclical and other fluctuations
Possibly a downturn in last 4 years or so

BUT, OVERALL, NO SIGNIFICANT TRENDS IN AVERAGE VOLATILITY SINCE 1990, UP OR DOWN, IN THE SURVEY OR ADMINISTRATIVE DATA

Some issues of importance: large left hand tail of earnings distribution in administrative data
Trimming method can matter
Common specifications

- Men 25-59 in each year
- Trim and bottom 1 percentiles (do sensitivity test)
- Volatility: either change in log earnings from $t$ to $t + 1$ or arc percent change
- Residuals from regs on age and age squared (do sensitivity test)
- Baseline: men working at both $t$ and $t + 1$ (do sensitivity test to inclusion of nonworkers)
Increase from 1970s to 1980s
Fluctuations after that
Runup in Great Recession, decline afterwards
Ends at mid-2000s level; could decline further
Figure 1: PSID Volatility, 1972-2016
No effect of percentile trimming method, attrition, imputation, residuals, etc.

Early upward trend stronger among low earners

Real earnings bottom trend could bias trend downward

Representation of left tail of earnings could matter
Nonresponse huge (45 percent), hot deck imputation: critical
In non-imputed observations, volatility levels identical in survey and admin (so no evidence of any survey response error)
Both show no trend whatsoever 1995-2015
Imputed earnings observations: very different in level and trend from admin
Figure 2: CPS Volatility, 1995-2015

Administrative

Survey

Year


Percent
Other results:

- Insensitive to attrition and other specification issues
- Volatility declining for women
- No differences in trends for most other demographic groups
Nonresponse and imputation also important
Spend a lot of time constructing a non-imputed measure consistent over time
Results: Admin volatility higher in level than survey volatility
Are only small differences in trends from 1980s-2012/2014
Reconciling Volatility Trends

The Question and the Project
PSID, CPS-DER, SIPP-DER, LEHD

Volatility Trends in SIPP Survey and Admin Data
Figure 3

Year
Variance
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4

SIPP-Administrative
SIPP-Survey
Other results:

- Difference in volatility levels entirely due to larger left-hand-tail in the admin
- And some of the (small) difference in trends also a result of that
- Results insensitive to attrition and imputation
- Bottom trimming by real earnings level can bias trends downward
1998-2011: countercyclical fluctuations but no trend
2011-2016: continues to fall after Great Recession
Left hand tail matters: excluding it to match PSID generates a slightly upward trend
Job changers are a falling share but have rising volatility
Figure 4: LEHD Volatility, 1998-2016

- Untrimmed
- 1% Trim, Fixed and Variable
Directions for Future Research

- Women; family as an insurance mechanism
- Job mobility, recent work showing declines (Hyatt-Spletzer, Davis-Haltiwanger, Molloy et al.)
- Permanent-transitory and relationship to earnings inequality
- Heterogeneity and the lower tail