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

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NBER CRIW
13 July, 2020

I. The Question and the Project

- 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
2. Social Security Earnings: Sabelhaus-Song(2009,2010), Dahl et al. (2011), Guvenen et al. (2014), Bloom et al. (2017) found declines
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
6. CPS: Ziliak et al. (2011), Celik et al. (2012): volatility rose from 1970s to 1980s, stable thereafter (on average)

- 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)

Findings in Brief

- 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 TREND 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)

PSID

- Increase from 1970s to 1980s
- Fluctuations after that
- Runup in Great Recession,decline afterwards
- Ends at mid-2000s level; could decline further

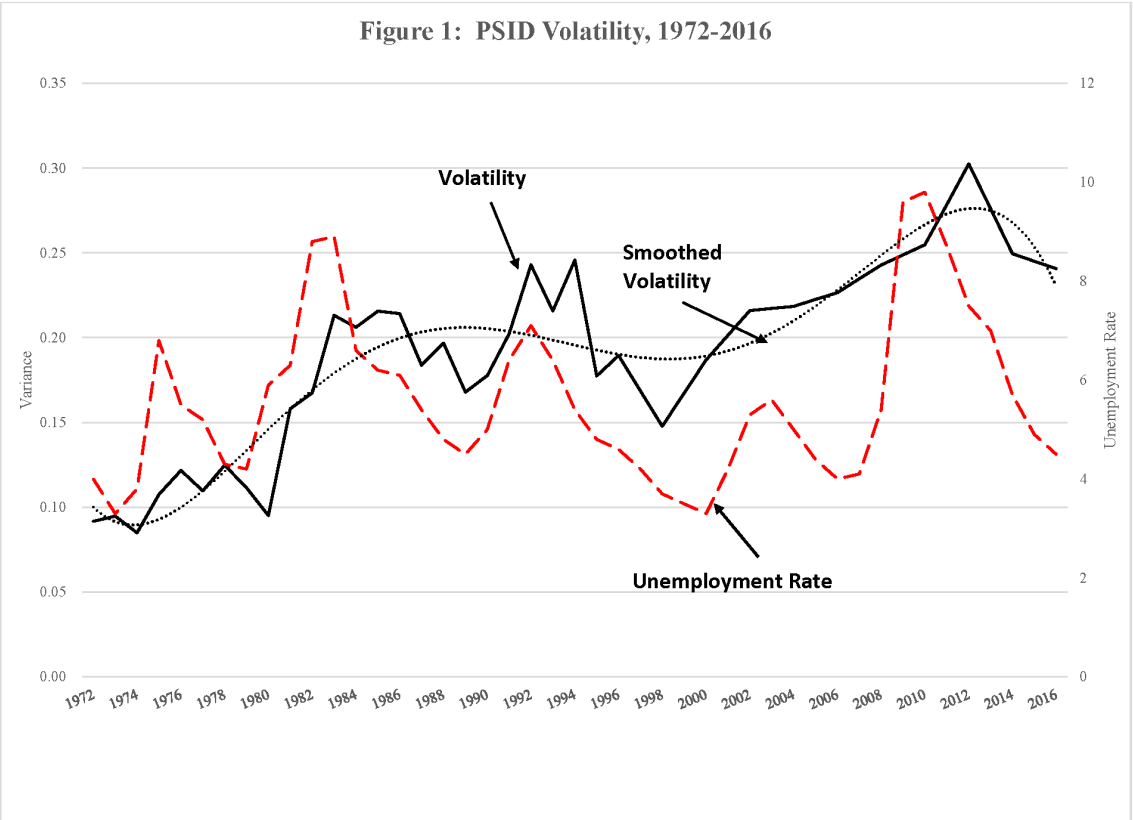


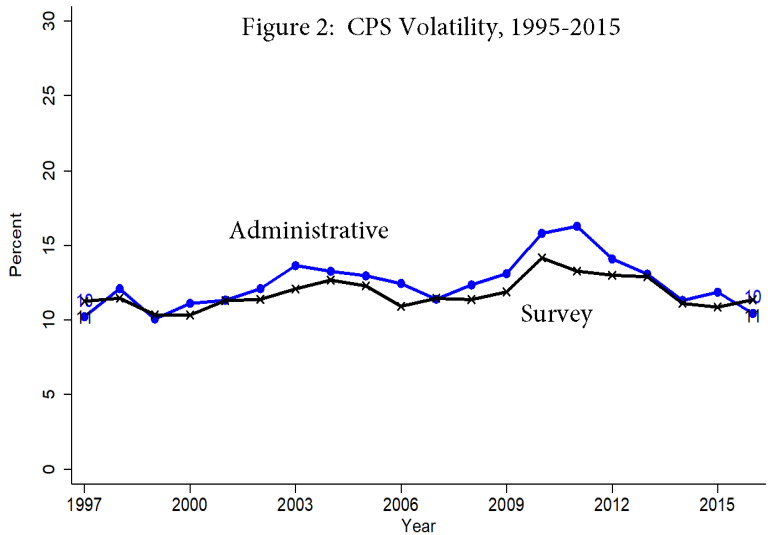
Figure 1: PSID Volatility, 1972-2016
Volatility
Smoothed Volatility
Unemployment Rate
Variance
Unemployment Rate
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
12
10
8
6
4
2
0
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016

- No effect of percentile trimmming 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

CPS

- 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

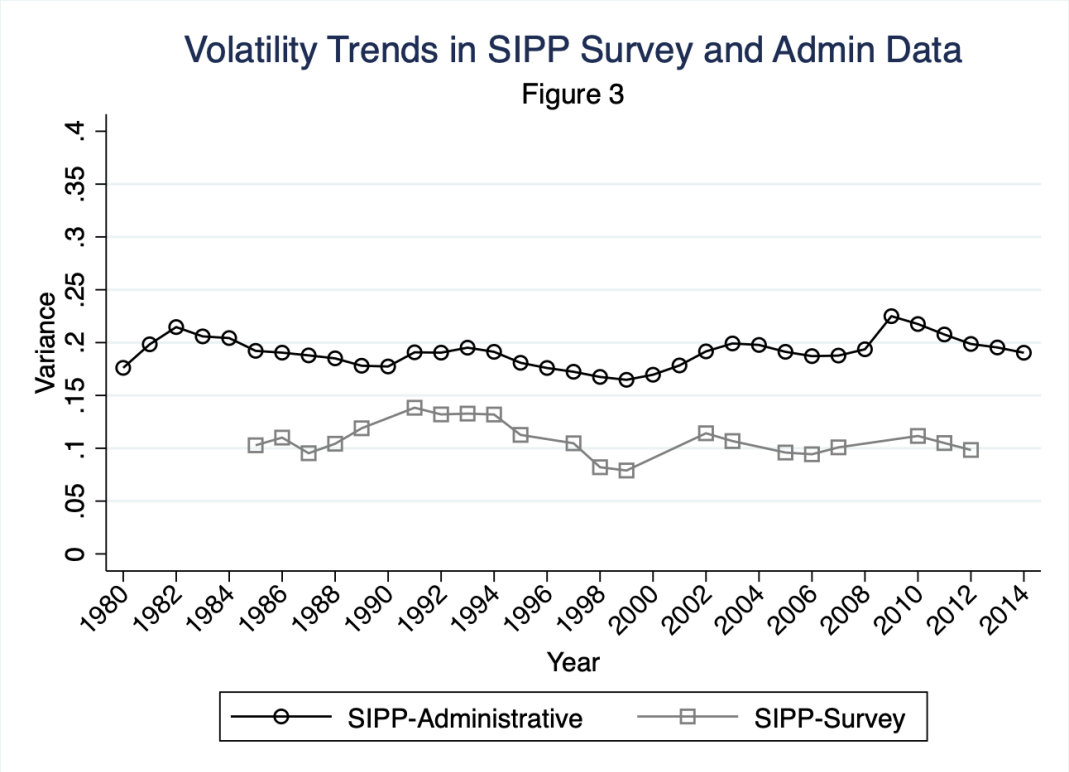
Figure 2: CPS Volatility, 1995-2015



- Other results:
- Insensitive to attrition and other specification issues
- Volatility declining for women
- No differences in trends for most other demographic groups

SIPP

- 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


Volatility Trends in SIPP Survey and Admin Data
Figure 3
Variance
0
.05
.1
.15
.2
.25
.3
.35
.4
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
Year
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

LEHD

- 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

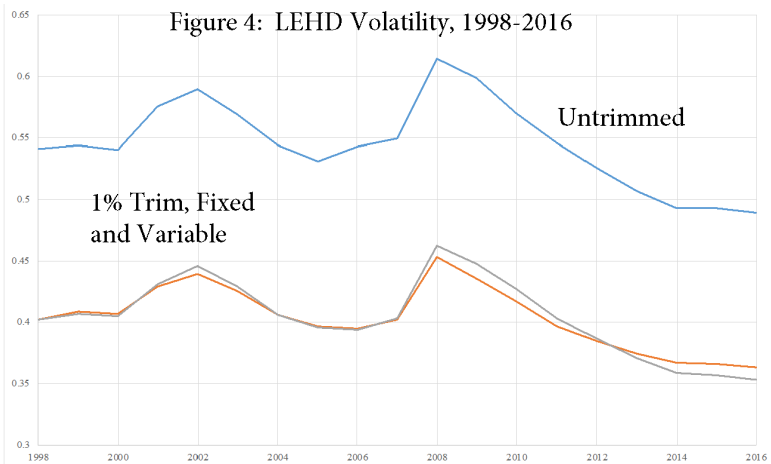


Figure 4: LEHD Volatility, 1998-2016
Untrimmed
1% Trim, Fixed
and Variable
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016

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