

The Rise and (mild) Fall of German Income Inequality

Global Income Dynamics Project

Preliminary Results – Please Do Not Cite!

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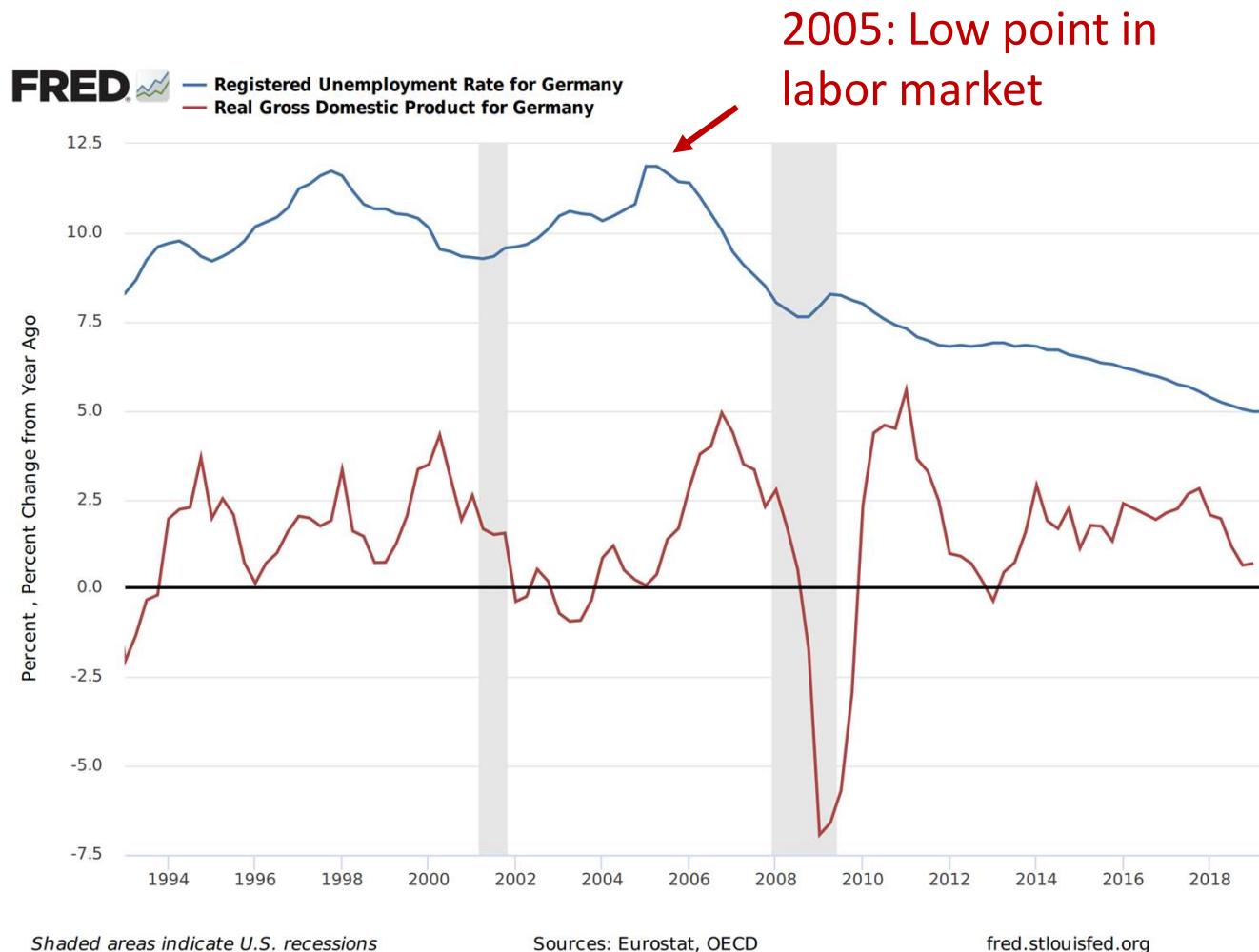
Boston University, NBER

Stefanie Wolter

Institute for Employment
Research (IAB)

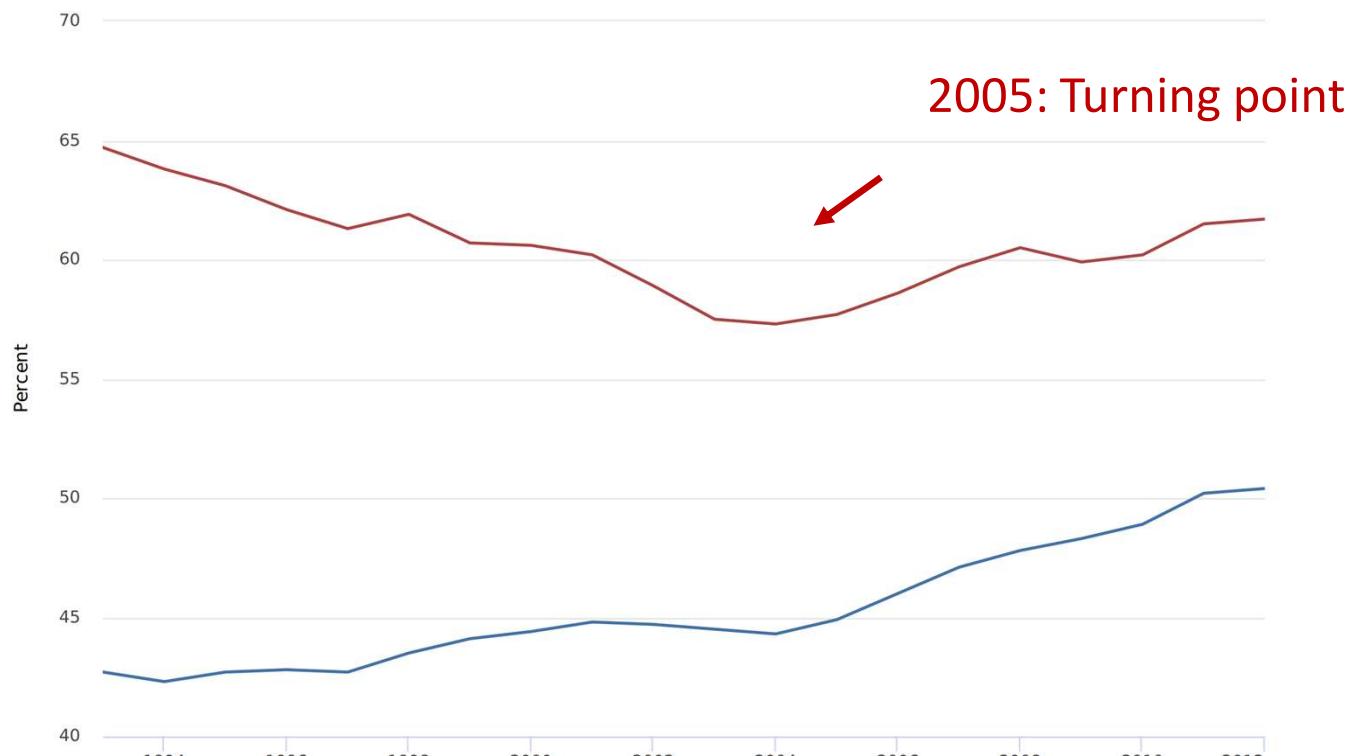
Background

- West German wage inequality was quite low until late 1980s, but rose sharply during the 1990s.
 - Dustmann and Schoenberg (QJE 2009)
- Many explanations:
 - SBTC
 - Labor supply shock (Reunification, EU expansion)
 - Trade shocks
 - Domestic outsourcing
- Existing literature tends to focus on:
 - Fulltime male workers (avoids composition effects, unobserved hours)
 - West Germany (for long time series)
 - Wages (not earnings)





— Employment-Population Ratio for Women in Germany (DISCONTINUED)
— Employment-Population Ratio for Men in Germany (DISCONTINUED)



Source: U.S. Bureau of Labor Statistics

fred.stlouisfed.org

Contribution

- Up to date data (up to 2018) to address recent trends:
 - Minimum wage (since 2015)
 - Exceptionally strong labor market over recent years
- Broad approach:
 - West + East Germany
 - Men + Women
 - Earnings instead of wages:
 - Fulltime + Parttime + Minijobs
- International comparability - GID Project!
- Germany specific part:
 - Investigate the role of firm wage premia (AKM Model) for explaining trends in Inequality, Mobility and Volatility

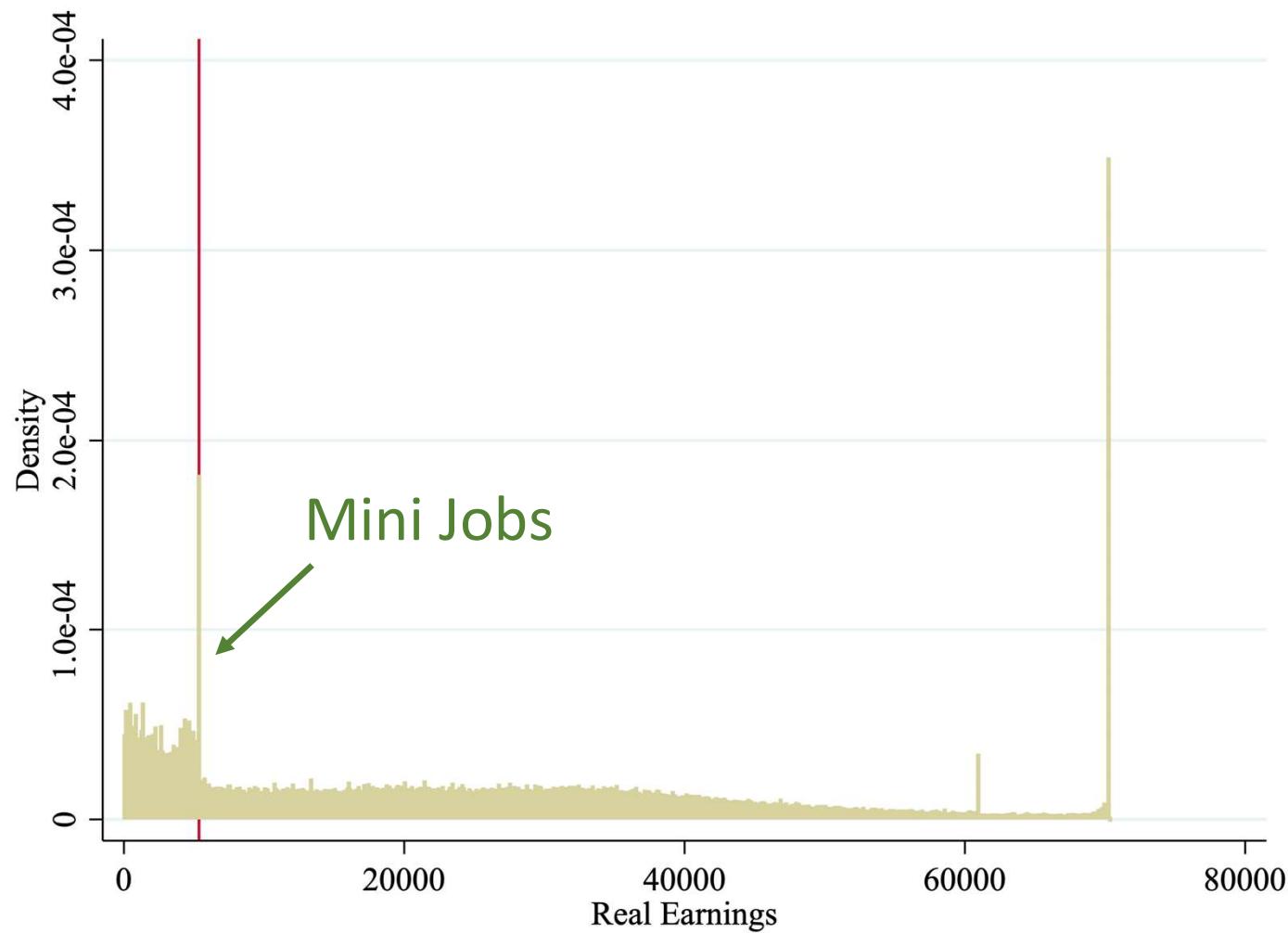
Data

- Social security data from the **Institute of Employment Research (IAB)**.
- Employment records with job duration, daily wages, full-time / part-time information, demographics.
- **Key Coverage challenges:**
 - Does not cover self-employment and civil servants.
 - Earnings are top-coded (at roughly 85th percentile for fulltime employees).
 - Special tax exempt jobs ("Mini Jobs") not included before 1999.
- Sample:
 - Time Period 1993 to 2018
 - Use 2 Samples: [1993 to 2018](#) and [2000-2018](#)
 - East and West Germany (most prior studies focus on West)
 - Other GID Restrictions

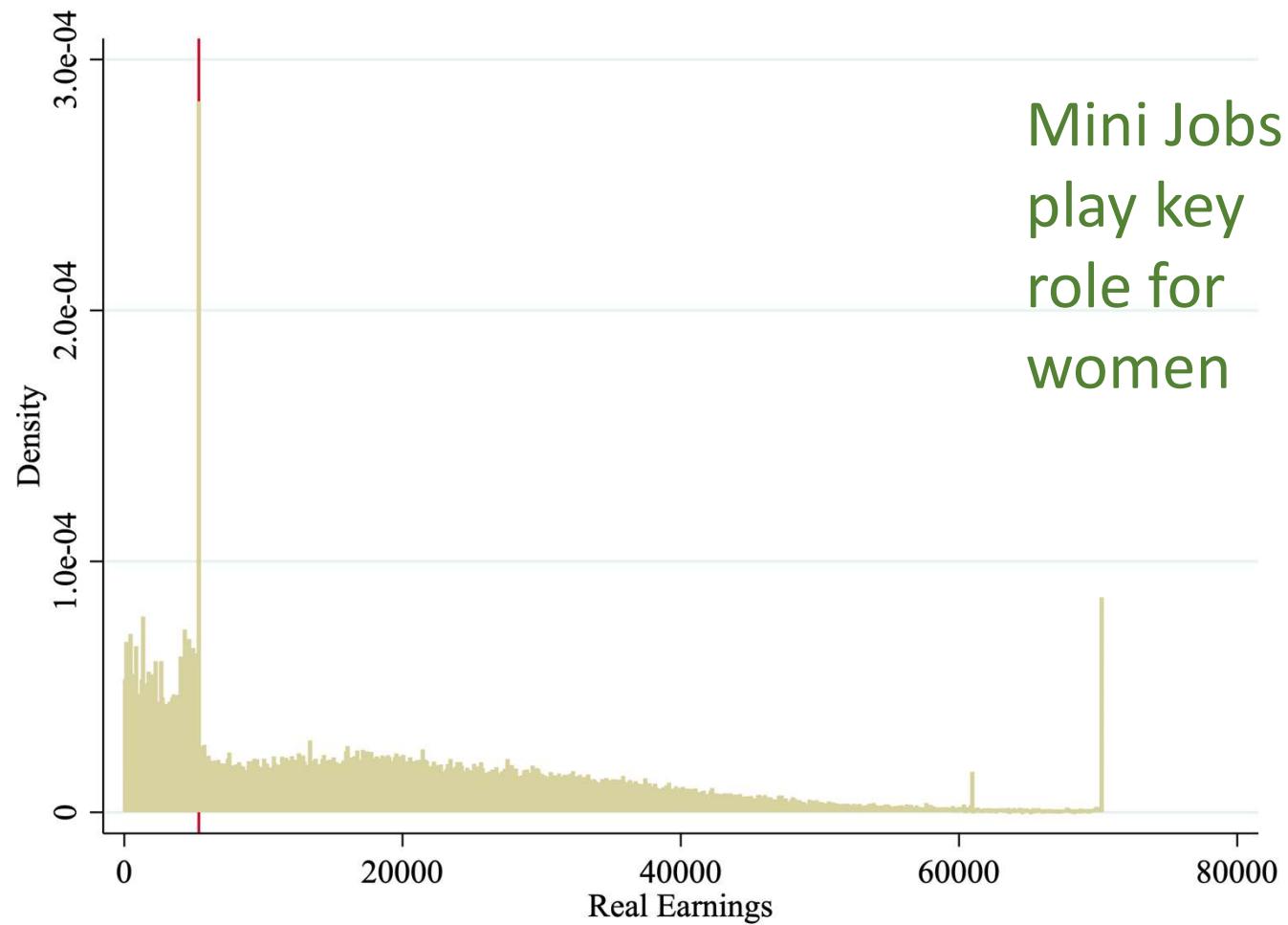
Institutions

- Top Coding
 - Contribution limit to social security (similar to US).
 - About 88th percentile
- Mini Jobs
 - Jobs (secondary or primary) paying less than 450 Euro per month exempt from income and payroll taxes (even if in high tax bracket).
 - Thresholds vary over time.
 - Much more common in recent years
- Minimum Wage
 - Introduced in 2015 at 8.50 Euro (small increases since then).
 - Before that only sectoral level MW (CLAs)

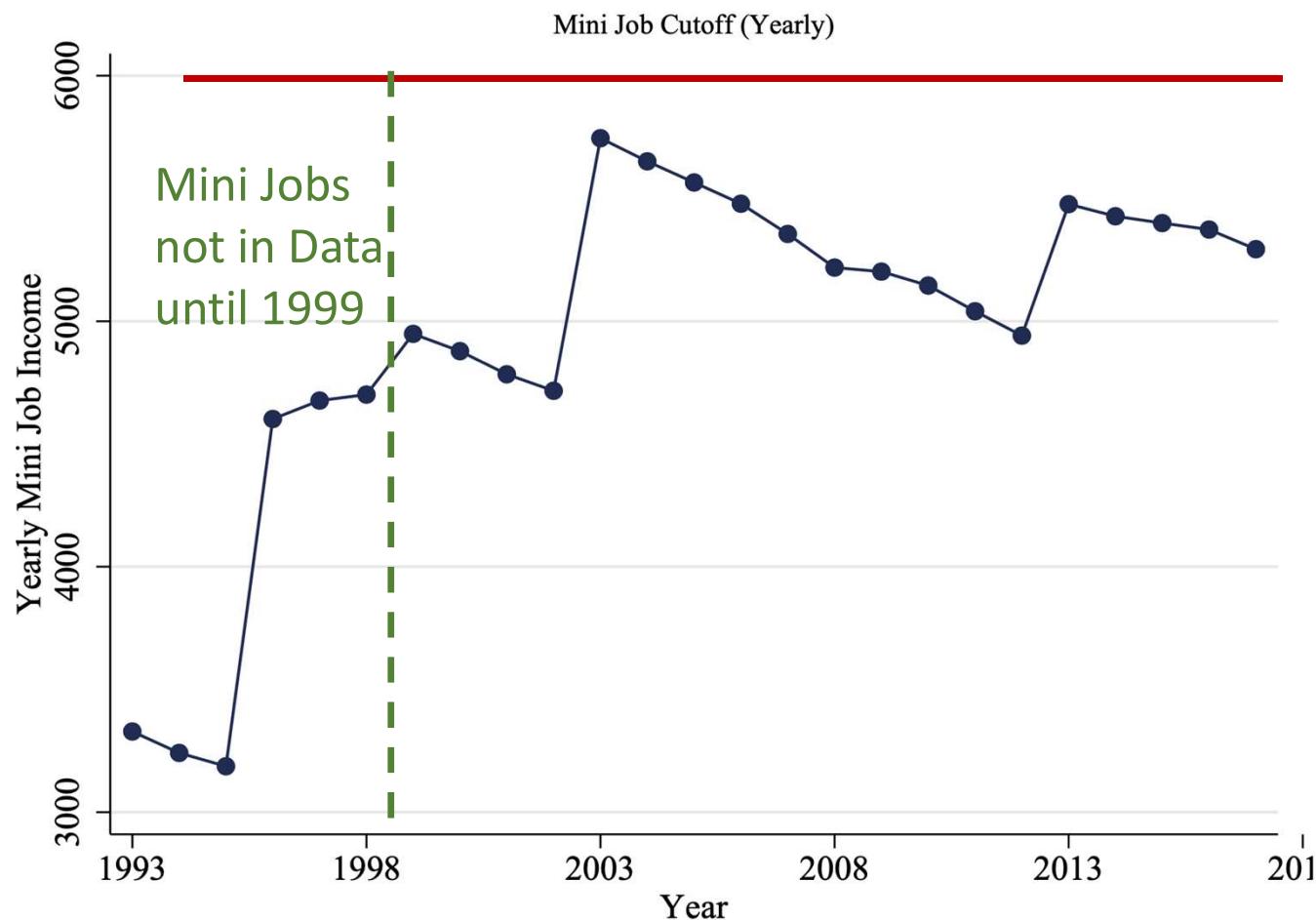
Earnings Distribution –2007



Earnings Distribution – Women 2007

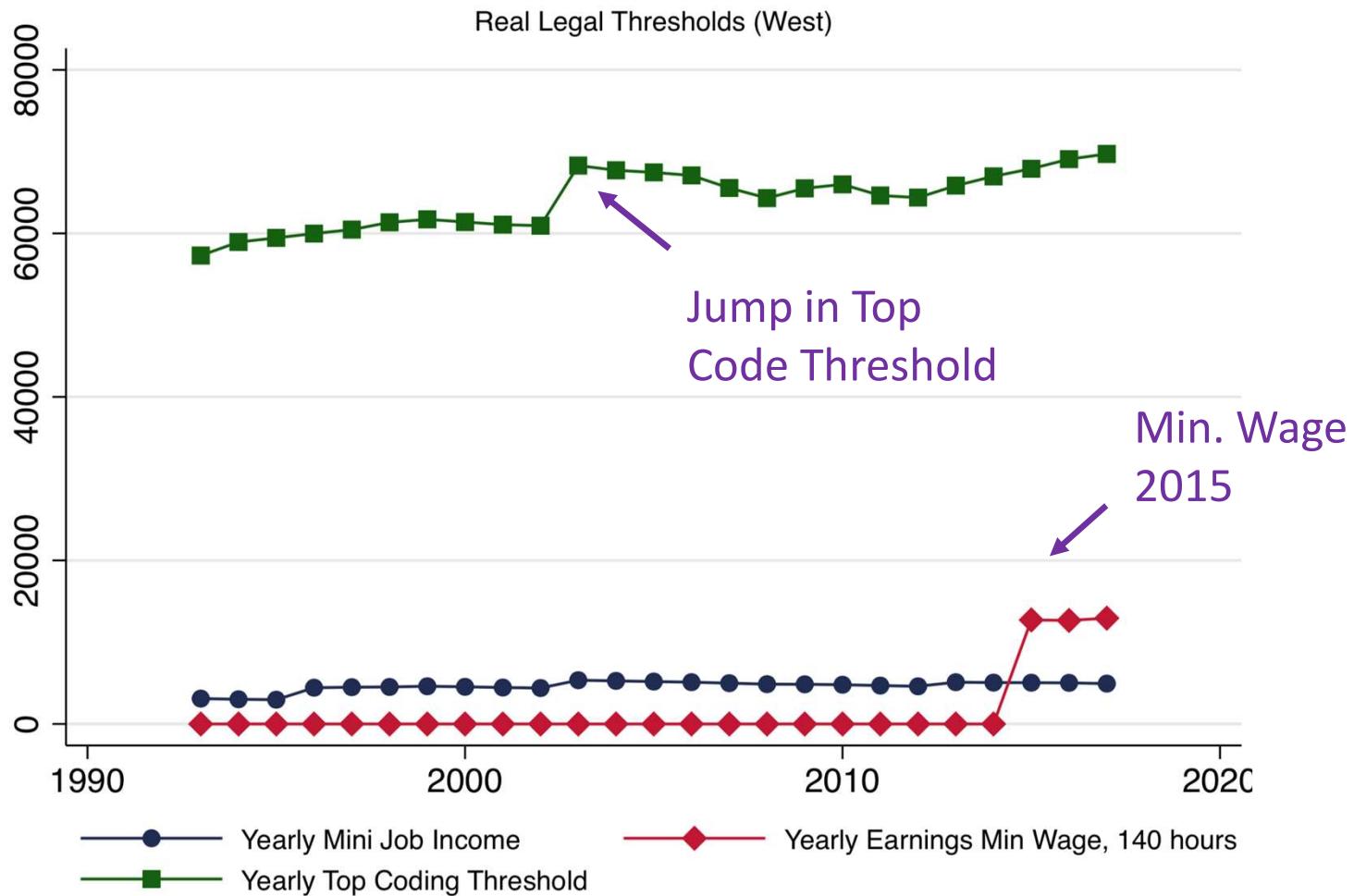


Mini Jobs



Sample 1: 93-17
Exclude mini jobs and people earning less than 6000 per day.

Sample 2: 99-17
Include mini jobs, exclude people earning less than 8.50 Euro *
260 in real terms (2015).

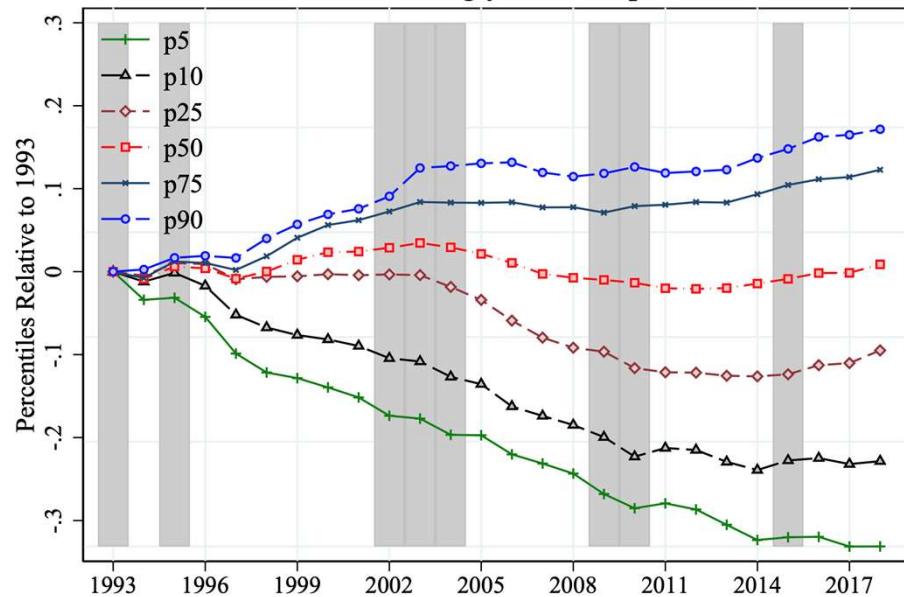


Top Coding

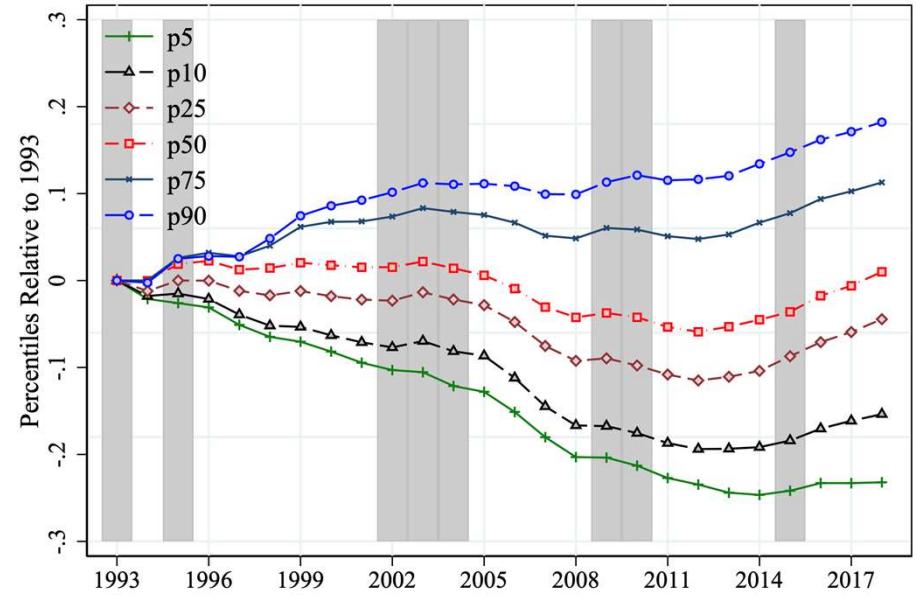
- Imputation is tricky
- A lot of mass above threshold and presumably long right tail.
 - We used the Card, Heining, Kline (QJE 2013) imputation. But this leads to real yearly earnings at the 99th percentile of about 400,000 Euro, about 6 times as the threshold.
 - Not easily possible to verify.
 - Clearly this is far out of sample.
 - Less of an issue for women.
- Most results do not use imputed wages
- Do not show percentiles above the 90th percentile

Inequality and Concentration

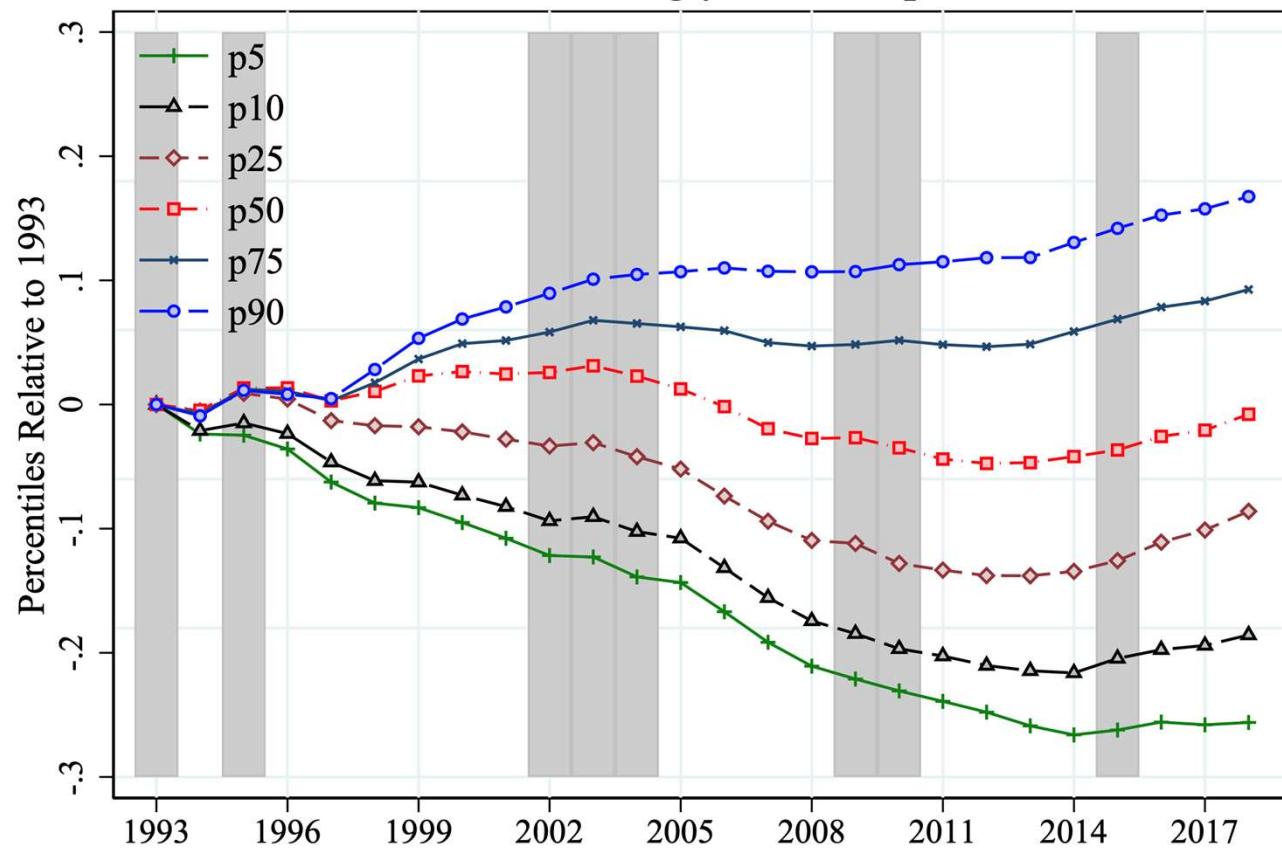
Percentiles of $\log y_{it}$ for Sample: Men



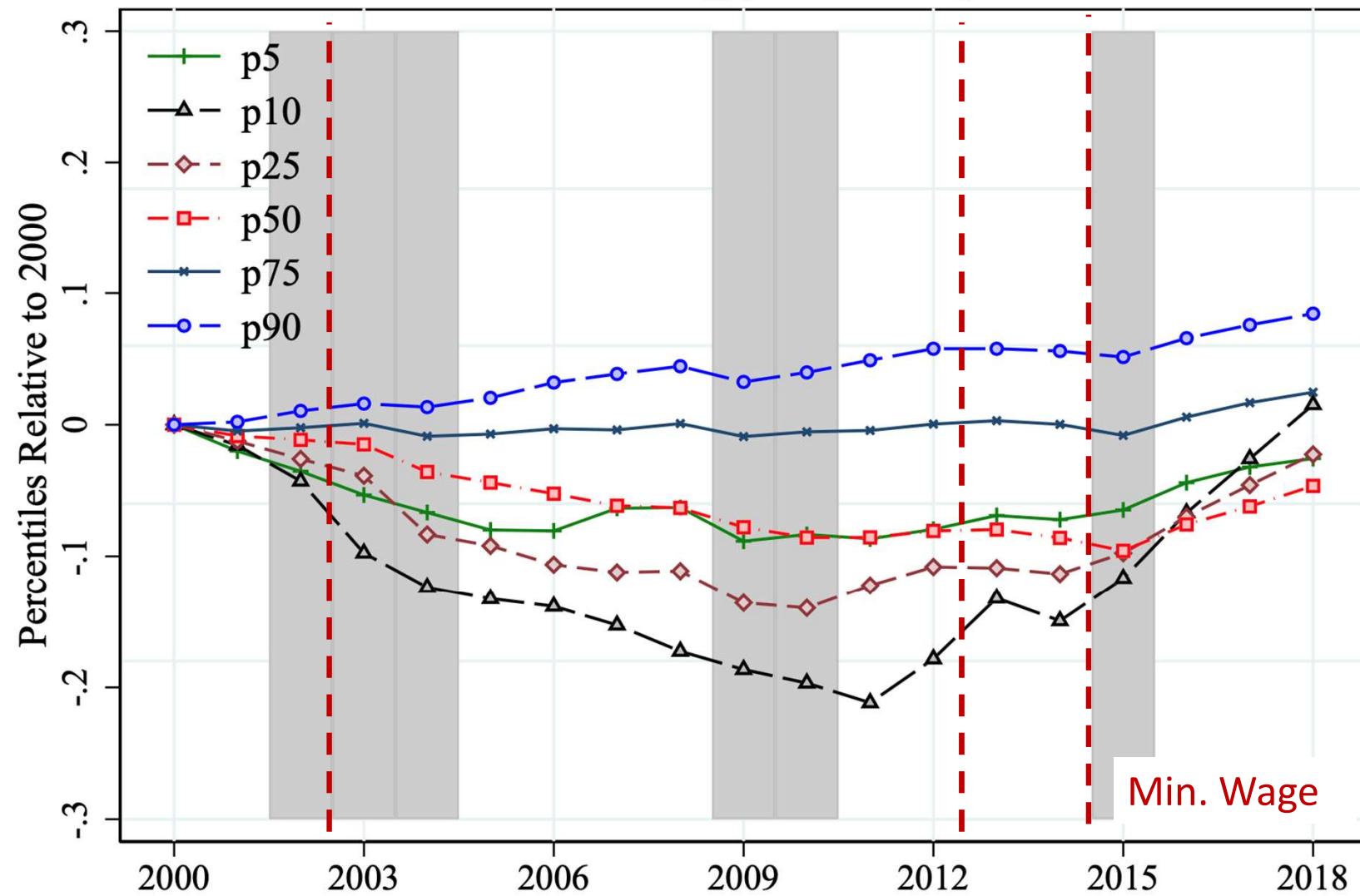
Percentiles of $\log y_{it}$ for Sample: Women



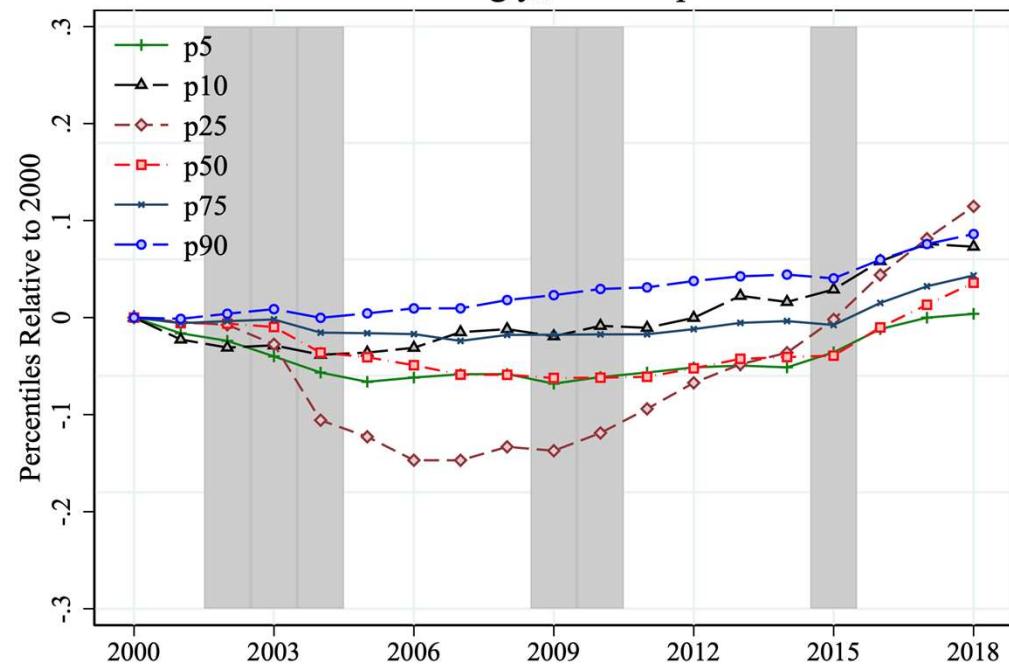
Percentiles of log y_{it} for Sample: All



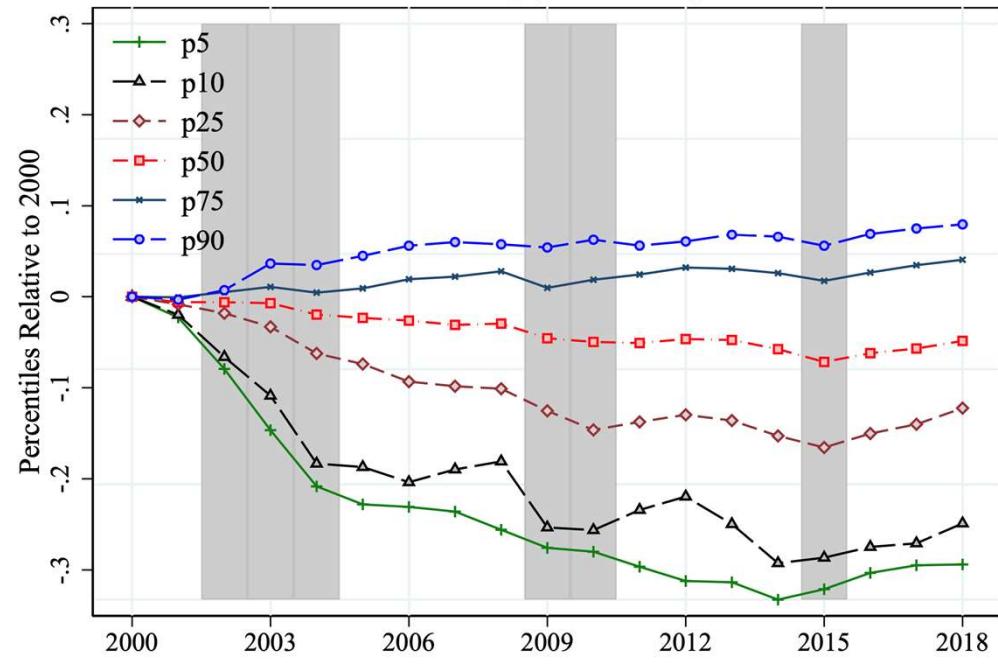
Percentiles of $\log y_{it}$ for Sample: All

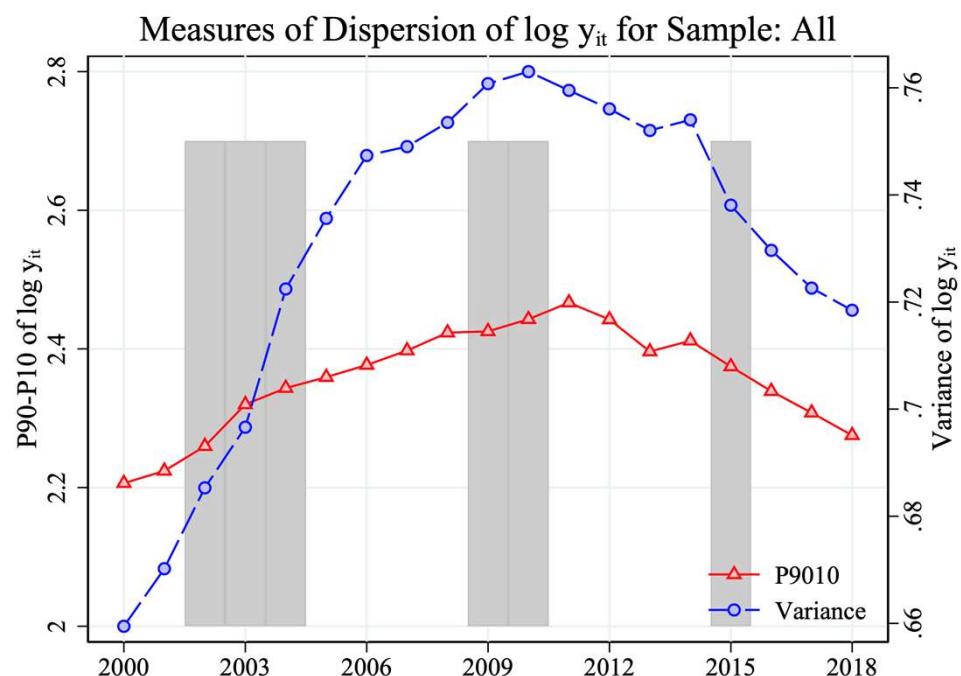
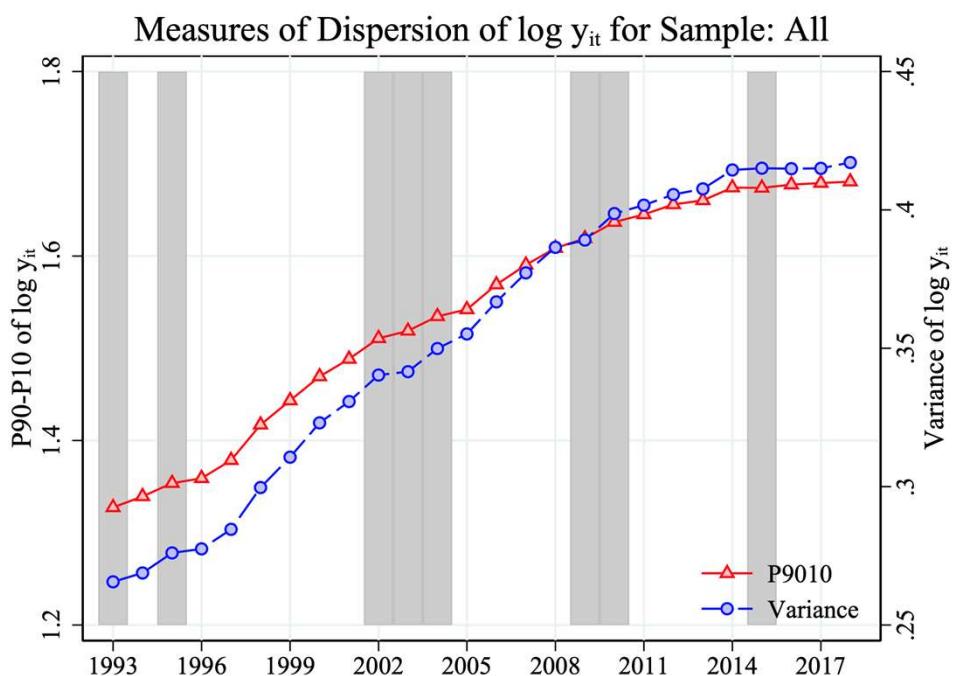


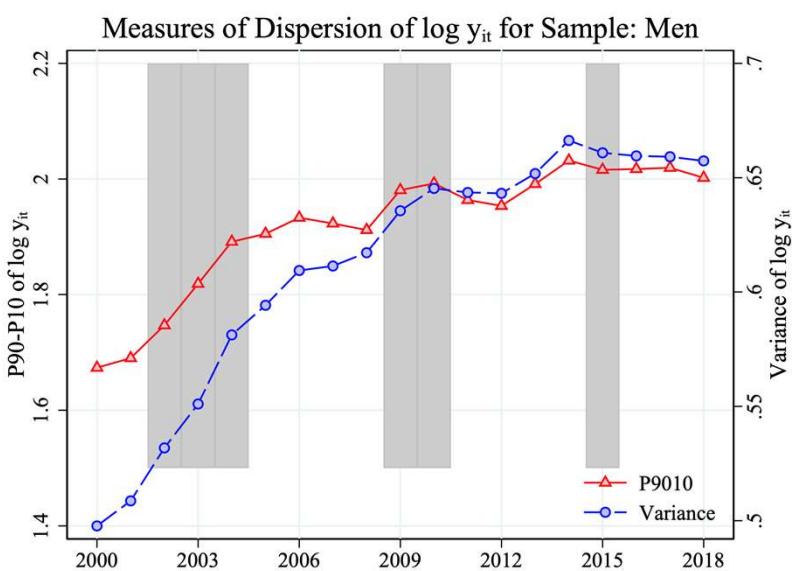
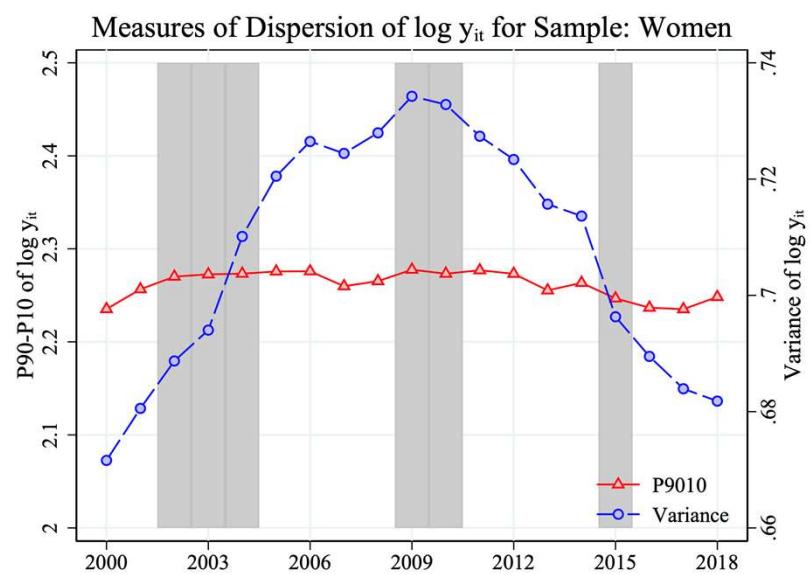
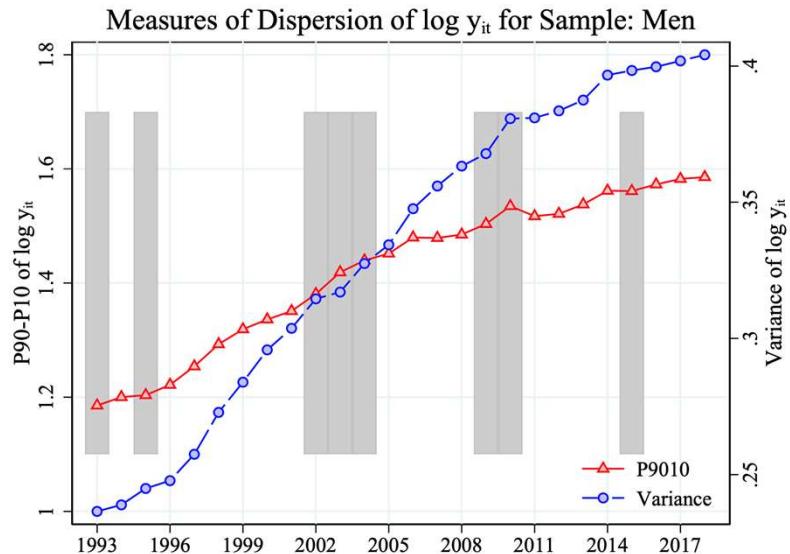
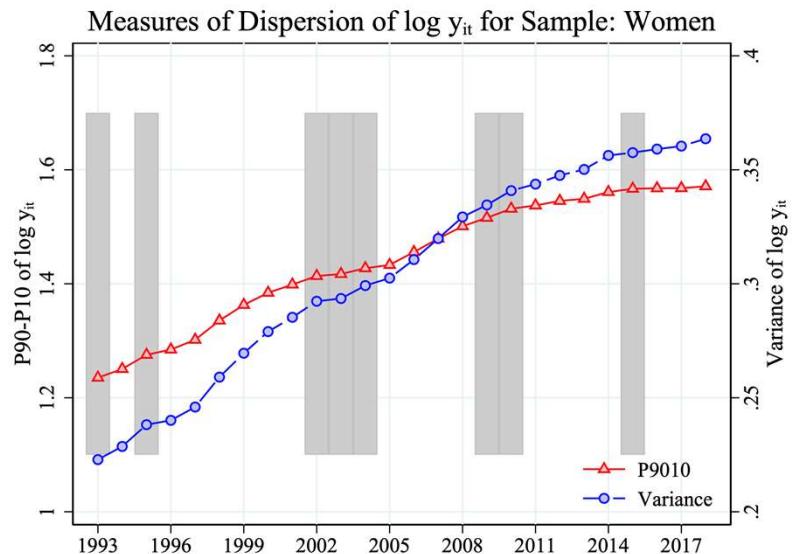
Percentiles of $\log y_{it}$ for Sample: Women

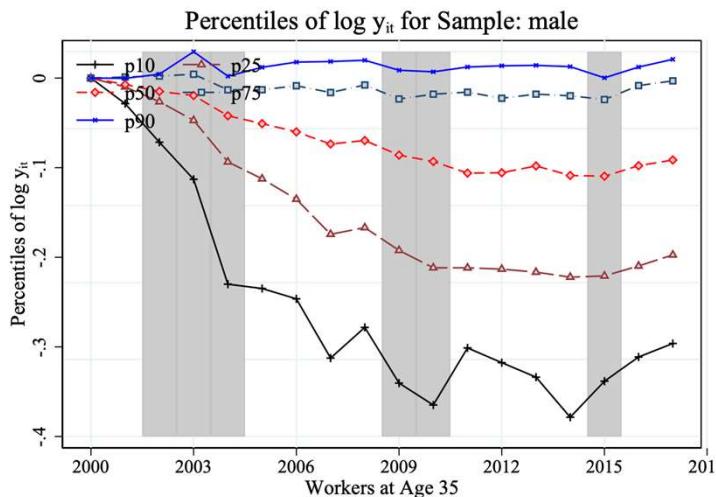
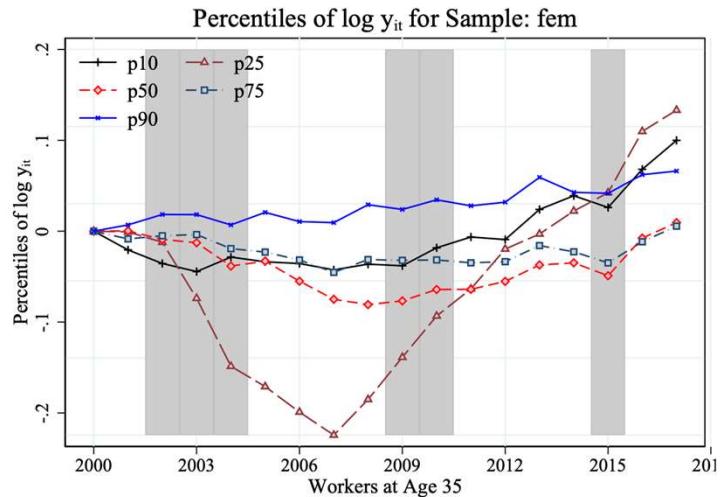
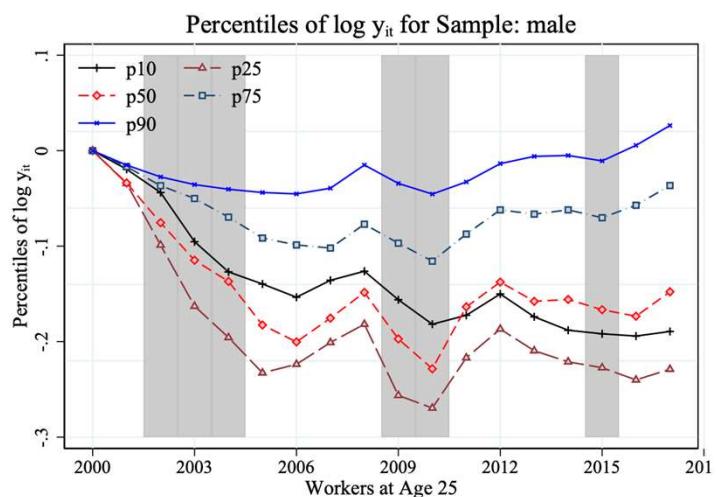
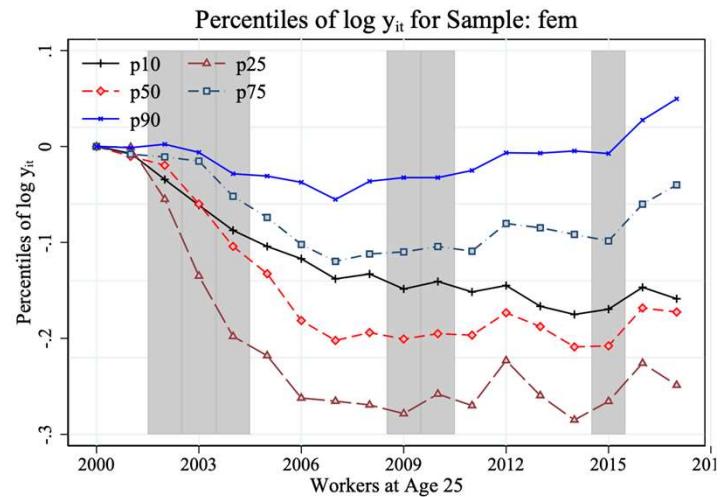


Percentiles of $\log y_{it}$ for Sample: Men

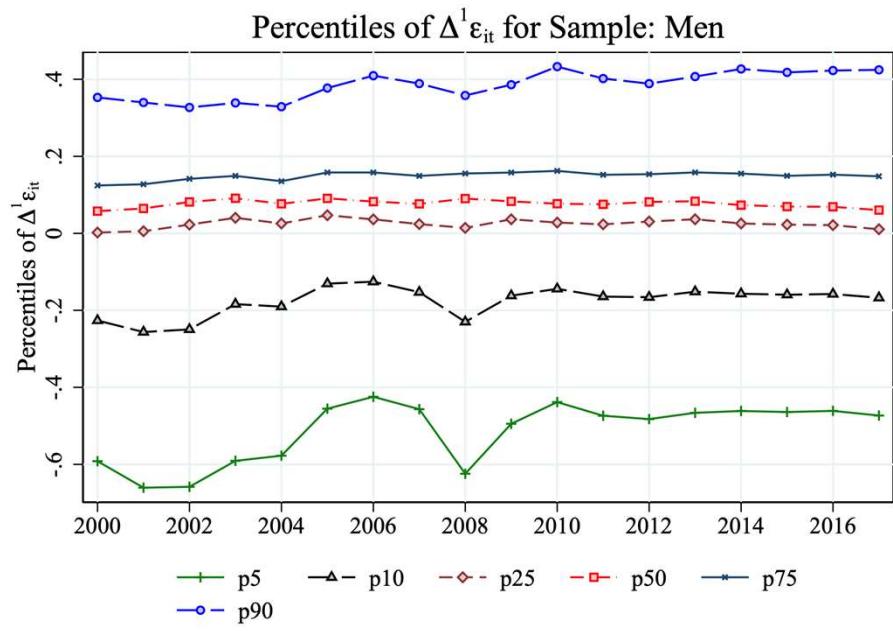
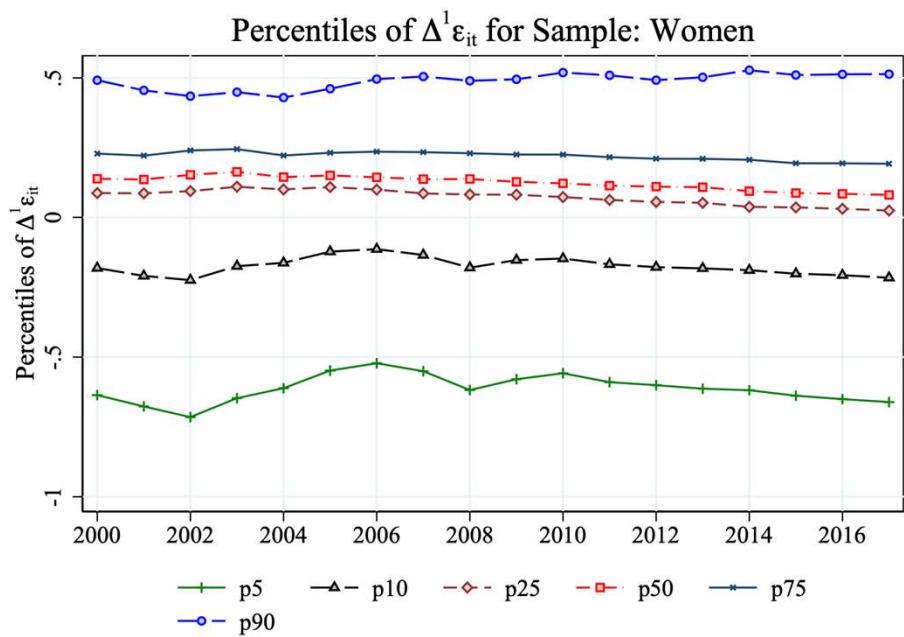




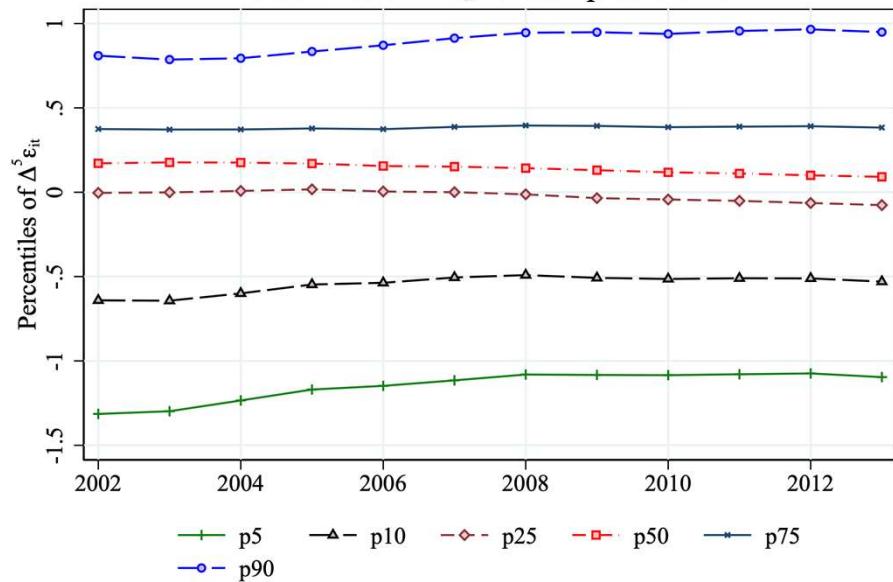




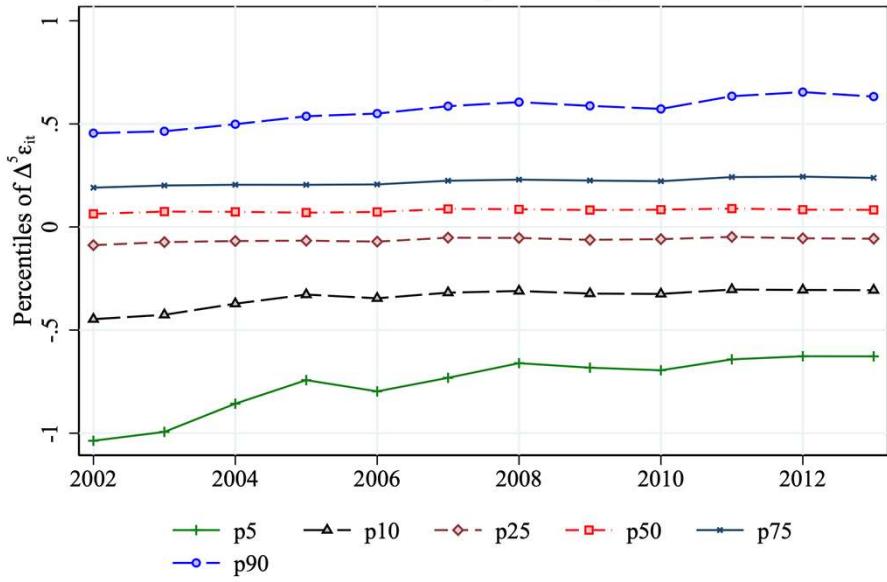
Volatility

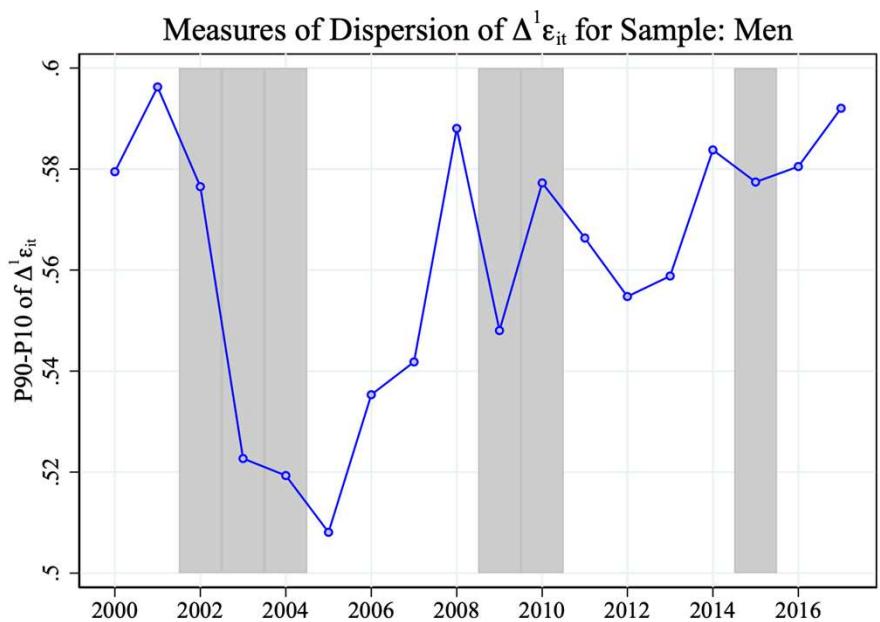
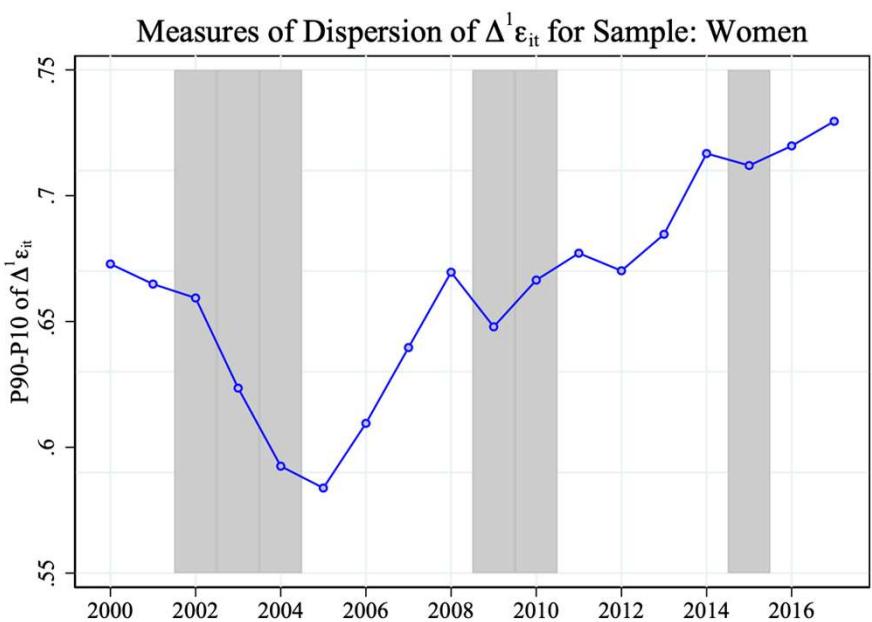


Percentiles of $\Delta^5 \varepsilon_{it}$ for Sample: Women

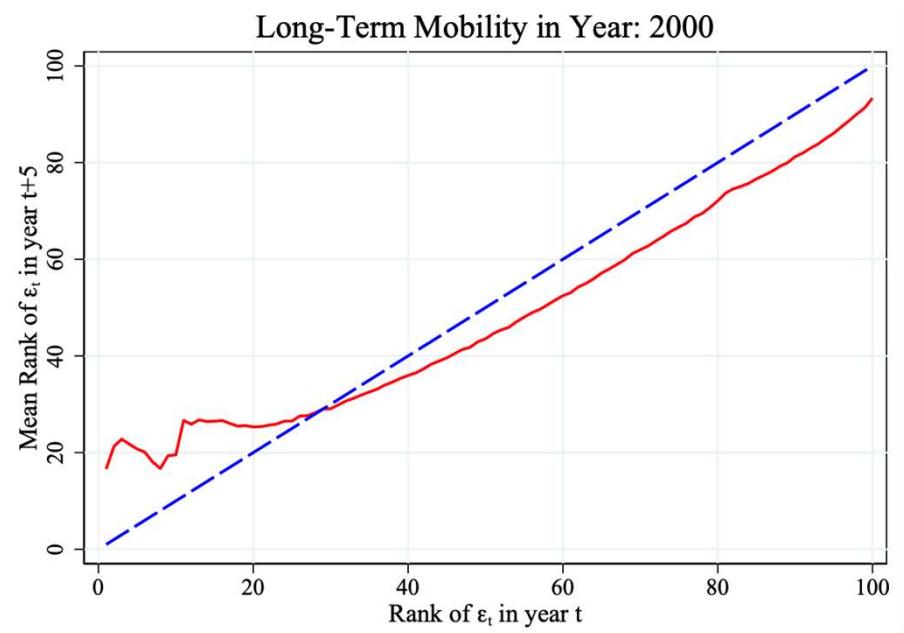
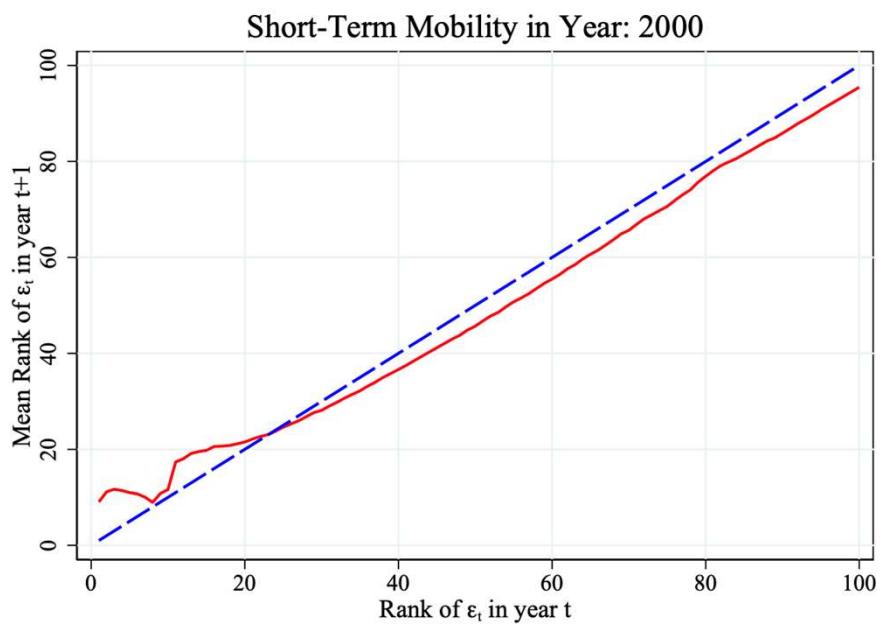


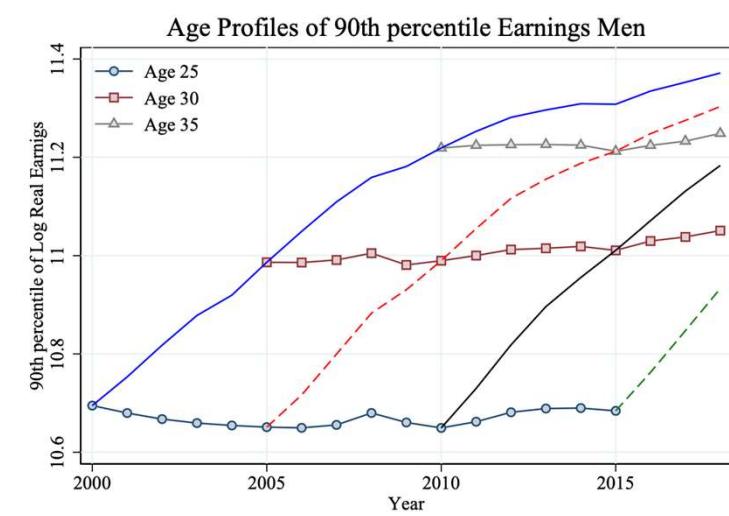
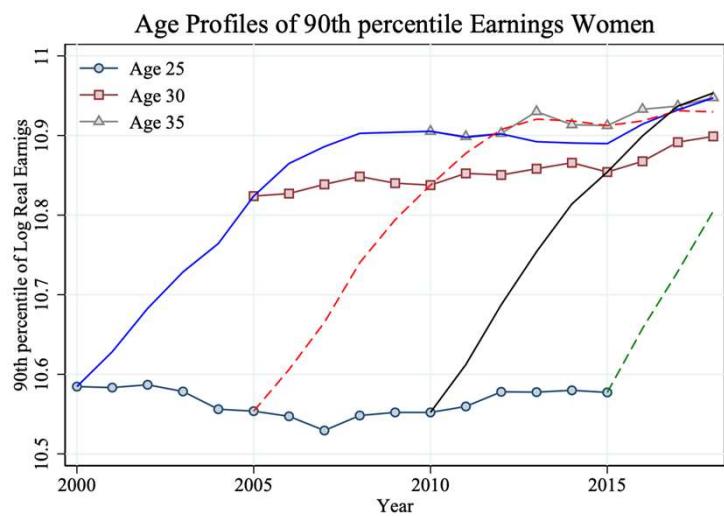
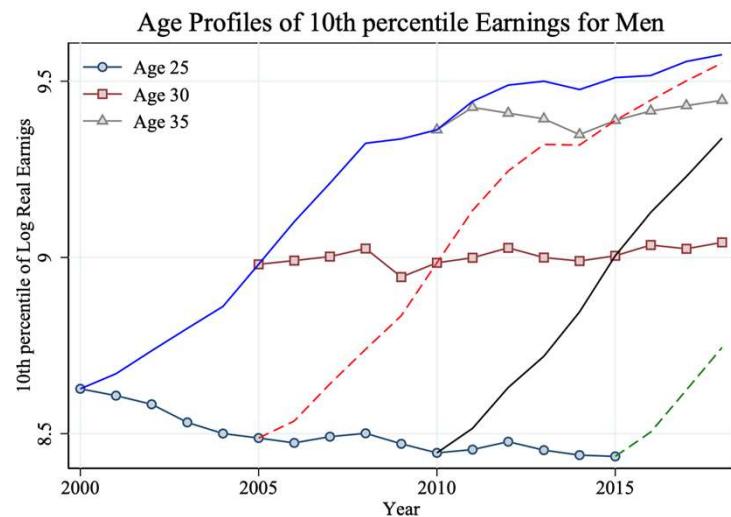
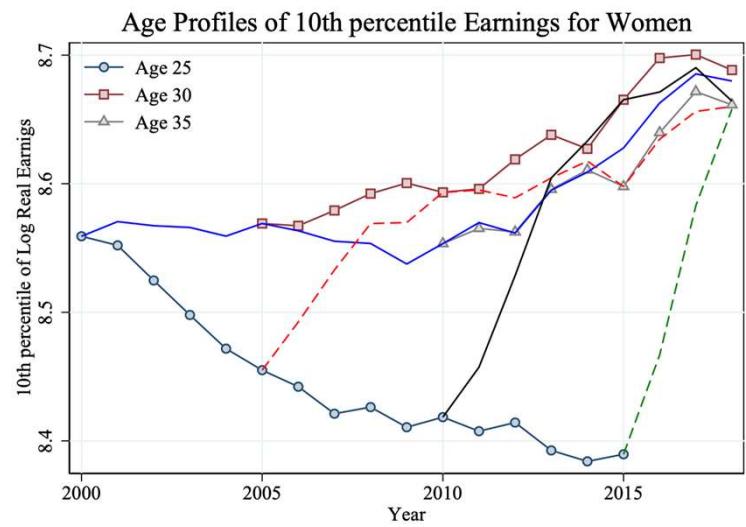
Percentiles of $\Delta^5 \varepsilon_{it}$ for Sample: Men





Mobility





Outlook

“Country specific” Part is still very preliminary

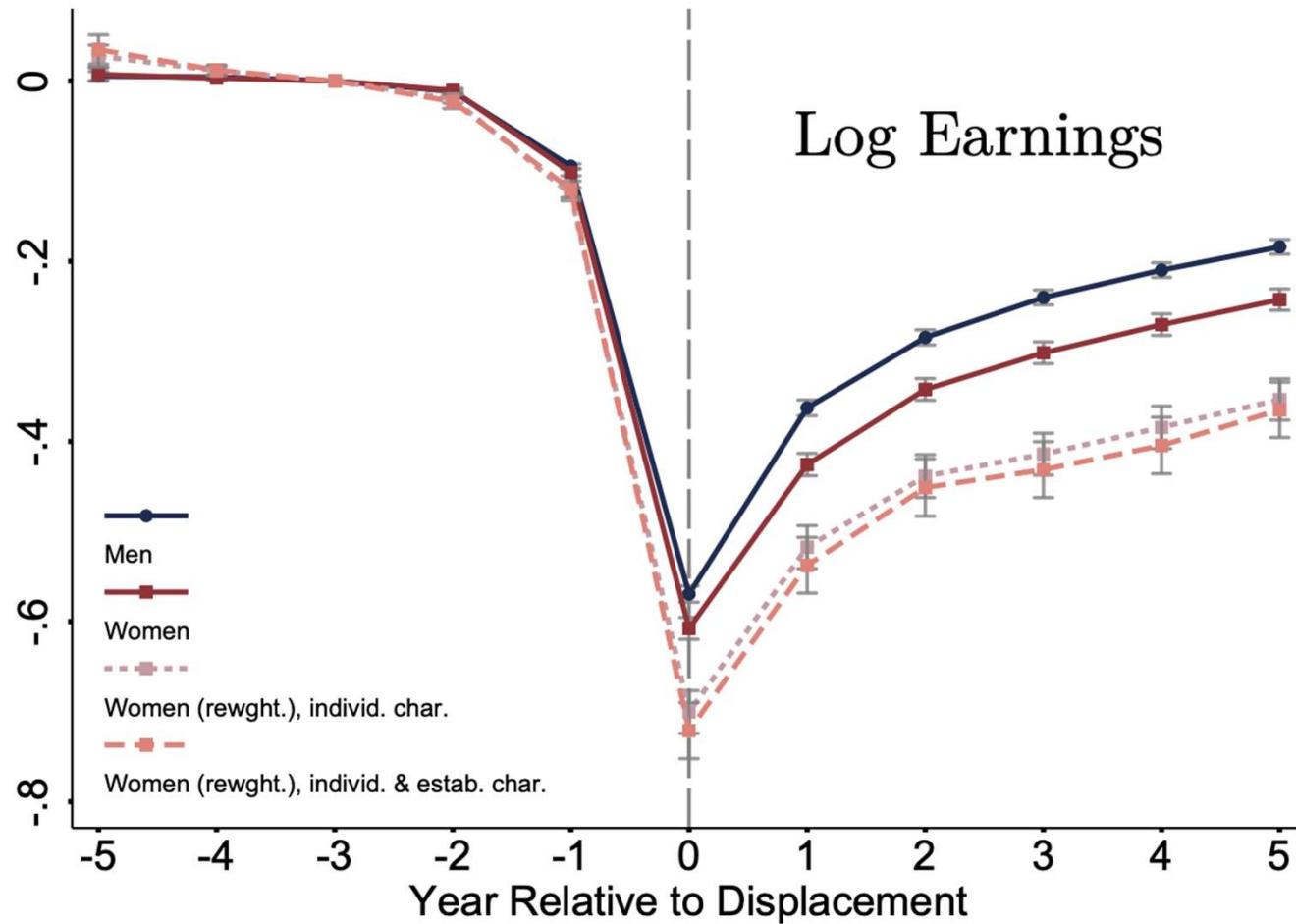
2 areas we want to explore:

a) What drives the very different experiences of men and women?

- Role of Institutions:
 - Mini-jobs
 - Minimum wage
- Hypothesis: Women are much more affected by those two institutions, explaining fall in inequality.

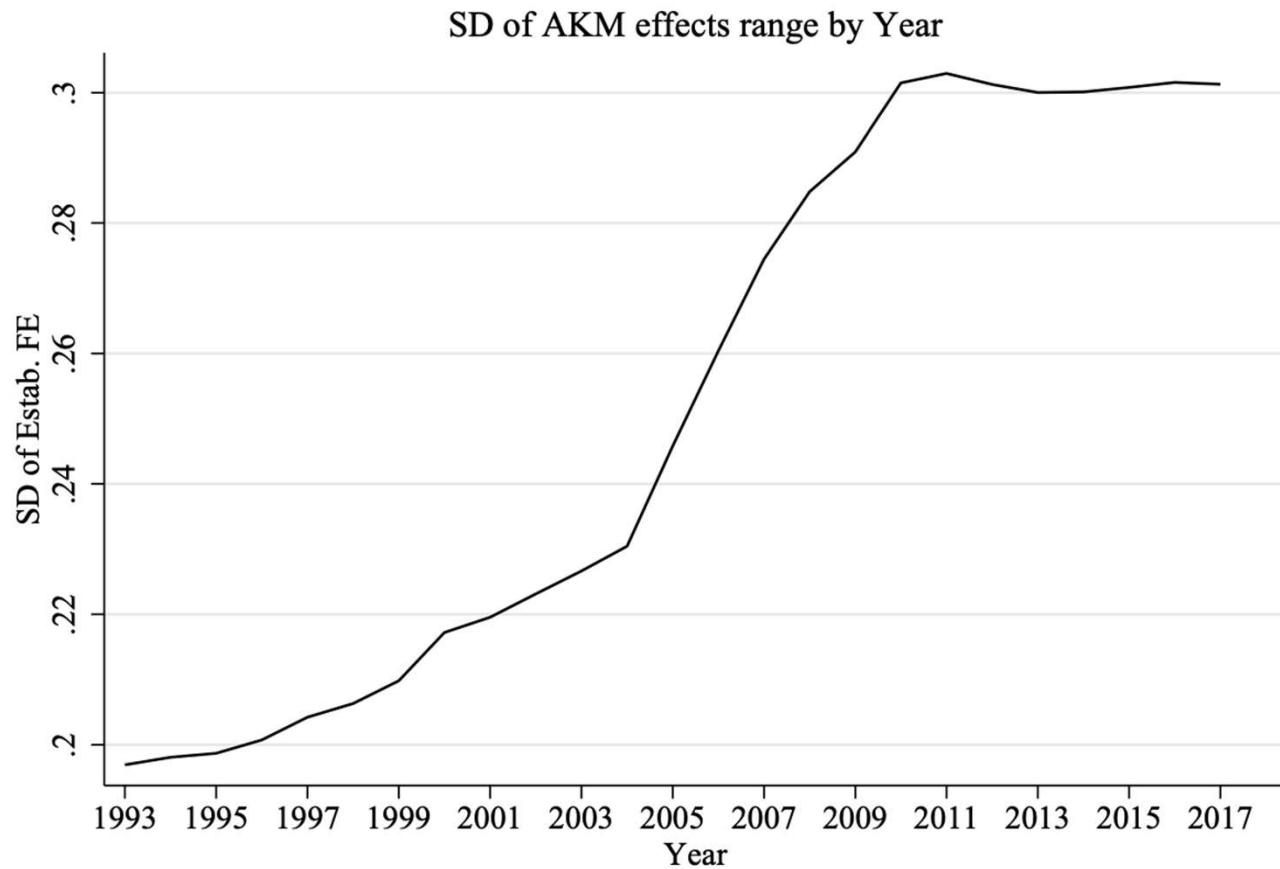
b) Role of firms in shaping earnings inequality and volatility

Women have larger earnings losses after Jobloss



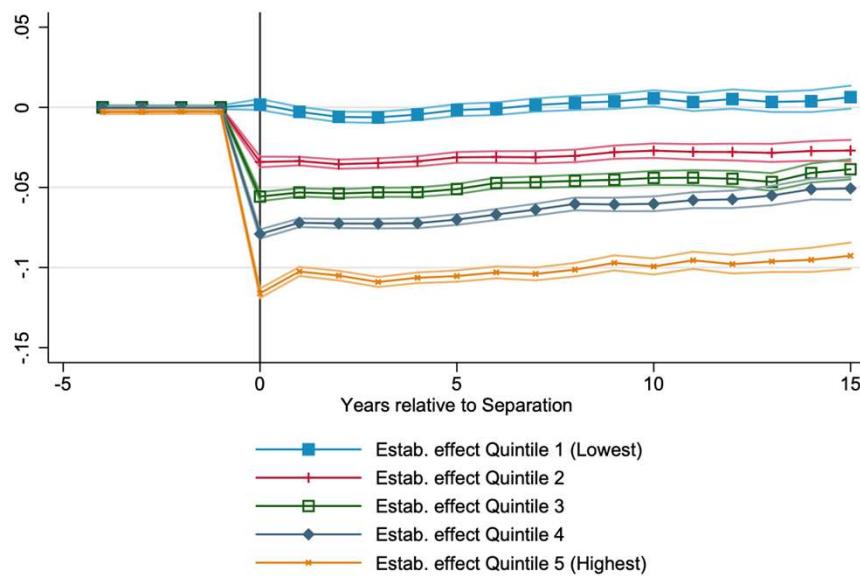
Illing, Schmieder
& Trenkle 2020

Role of Firms in Wage Setting

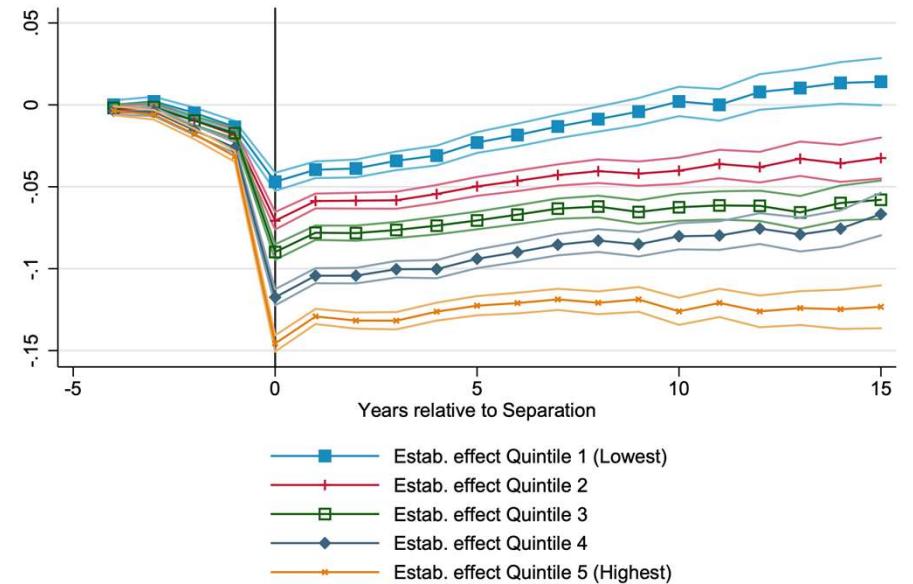


AKM Model explains Wage Losses after Job Loss well

Loss in Firm Effect by Quintile of Disp. Firm



Loss in Log Wage by Quintile of Disp. Firm



Preliminary Conclusions

- Inequality rose steadily from the mid 1990s onwards until 2009.
 - Preliminary evidence suggests that there were substantial wage gains in the lower part of the distribution from 2015 onwards after introduction of Min. Wage.
- Volatility relatively stable, but some increase after 2005

Inequality and the Role of Firms

Very Preliminary

Role of Employers

- Recent literature has emphasized role of employer wage premia for the wage structure,
 - Inspired by the seminal Abowd, Kramarz, Margolis (1999) “AKM” paper.
 - GER: Card, Heining and Kline (2013), Goldschmidt and Schmieder (2017)
 - US: Song et al. (2018)
 - Overview: Card, Cardoso, Heining, Kline (2017)
- Rising wage inequality partly explained by rise in dispersion of establishment effects.

AKM Model

- Consider the standard AKM Model for the wage of a spell:

$$\ln(w_{itj}) = \psi_J + \alpha_i + \theta_t + x'_{it}\beta + \varepsilon_{it}$$

- Earnings from a spell can then be written as:

$$\ln(y_{itj}) = \ln(N_{itj}) + \ln(w_{itj})$$

$$\ln(y_{itj}) = \ln(N_{itj}) + \psi_J + \alpha_i + \theta_t + x'_{it}\beta + \varepsilon_{it}$$

Complication: multiple employers per year:

- Yearly earnings can be written as the sum of earning from each employer:

$$Y_{it} = \sum_{j=1}^n y_{itj}$$

In practice main employer accounts for 96-97% of earnings in this sample.

AKM Model

- We can write the variance of log earnings in year t , ignoring the $x'_{it}\beta$ component:

$$\begin{aligned} \text{Var}[\ln(y_{it1})] &= \text{Var}[\ln(N_{it1})] + \text{Var}[\psi_J] + \text{Var}[\alpha_i] \\ &+ 2\text{Cov}(\ln(N_{it1}), \psi_J) + 2\text{Cov}(\ln(N_{it1}), \alpha_i) + 2\text{Cov}(\psi_J, \alpha_i) \\ &+ \text{Var}[\varepsilon_{it}] \end{aligned}$$

- One can similarly decompose mobility and volatility
 - Not ready for today.

Appendix

Additional results / background information

Goldschmidt & Schmieder 2017

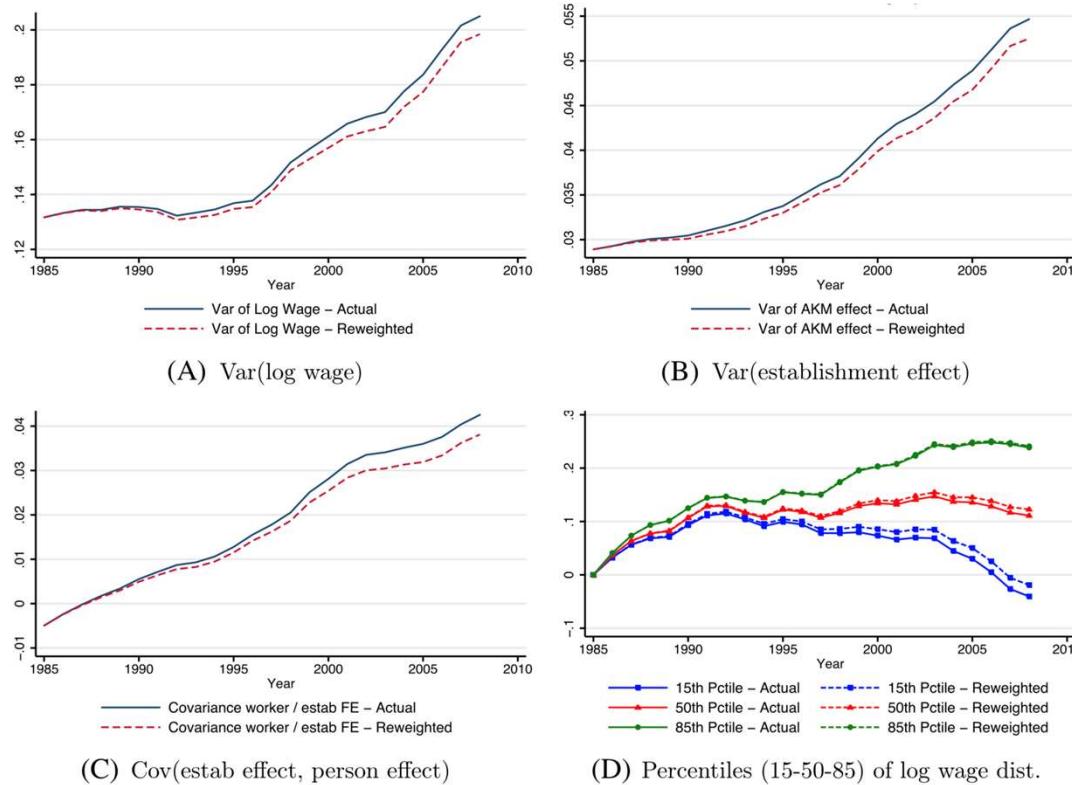


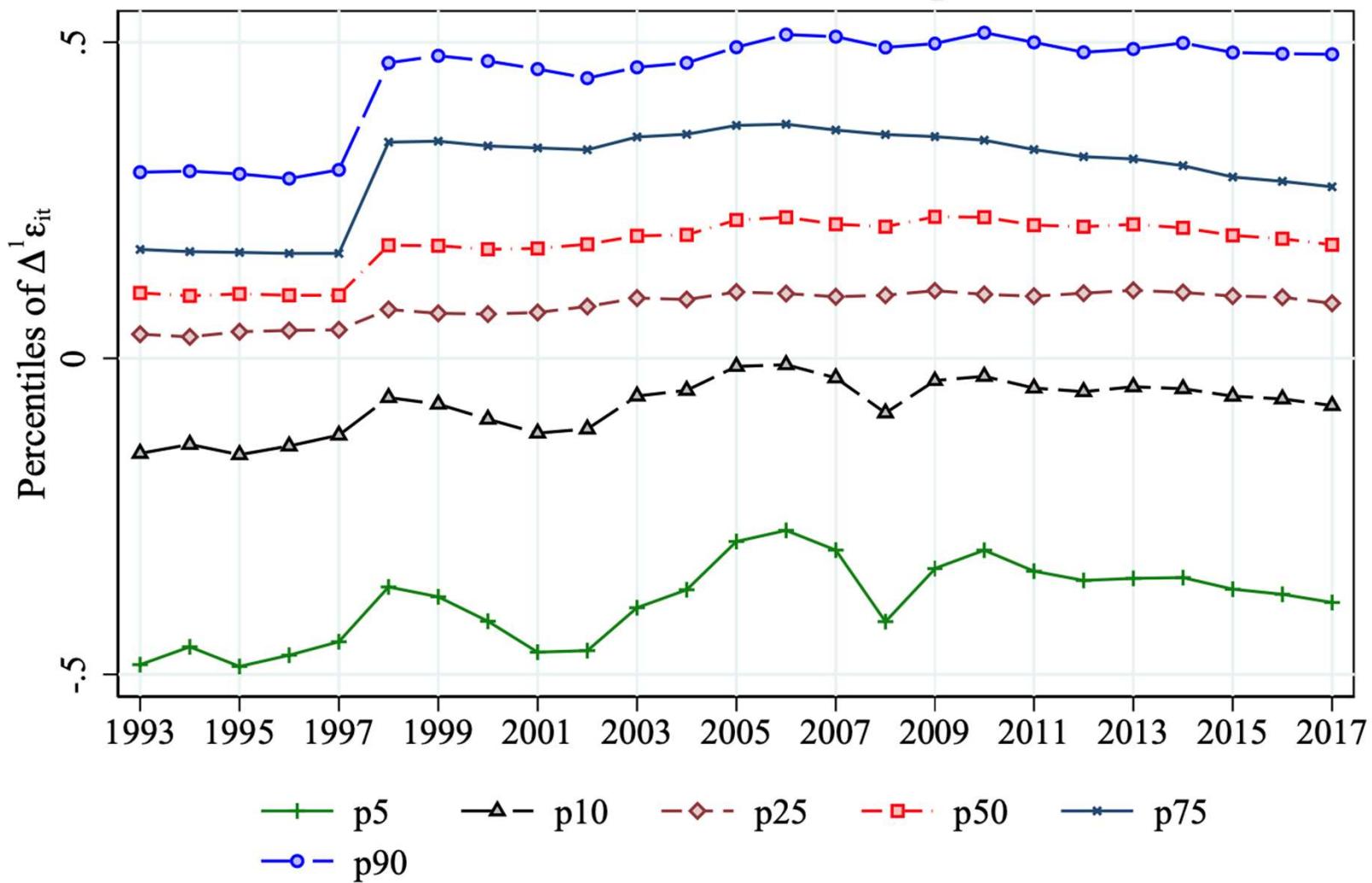
FIGURE X

The Evolution of the West German Wage Structure for Men, Actual and DFL
Reweighted

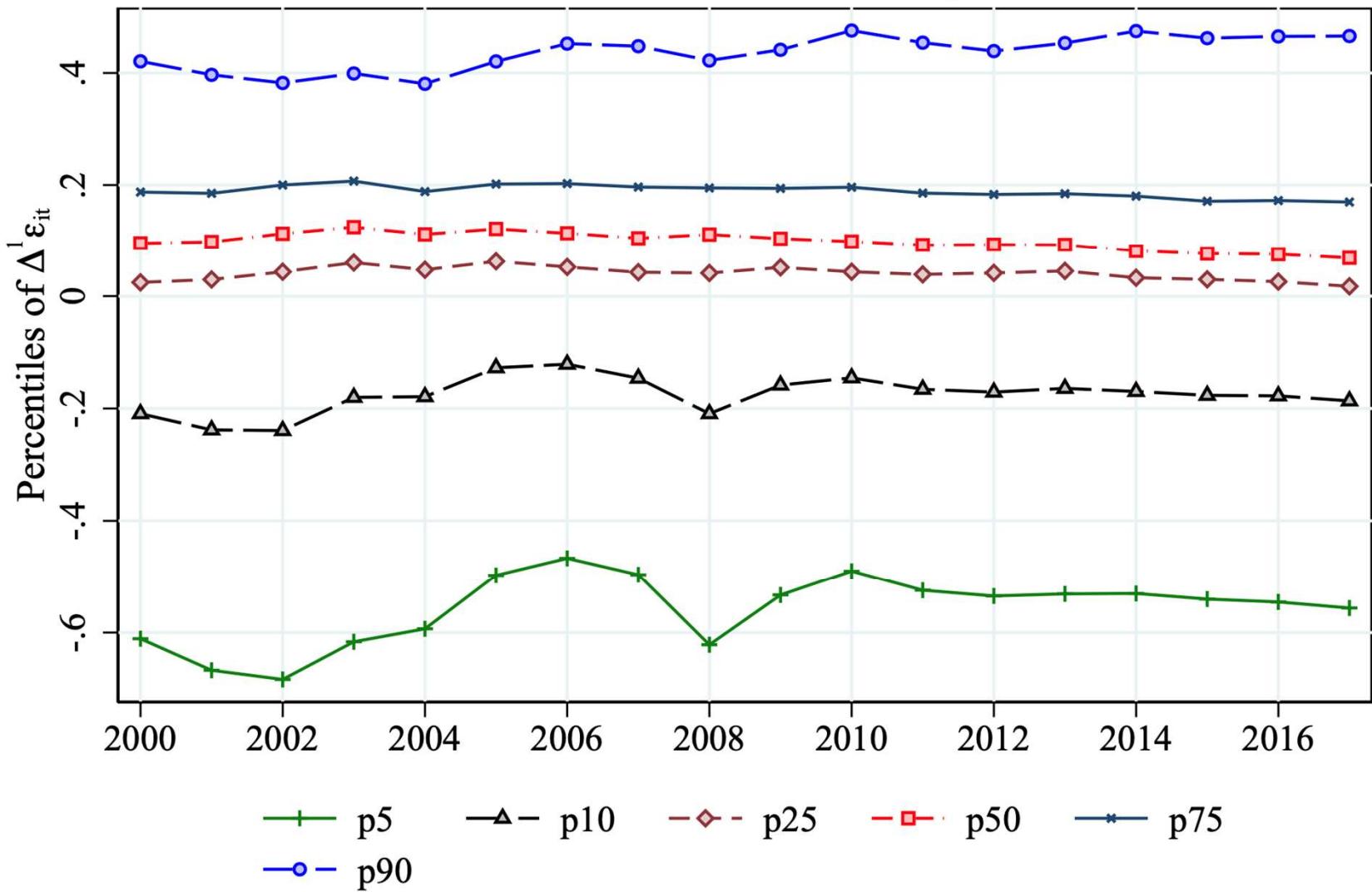
Preliminary Conclusions

- Inequality rose steadily from the mid 1990s onwards until 2009.
 - Preliminary evidence suggests that there were substantial wage gains in the lower part of the distribution from 2015 onwards after introduction of Min. Wage.
- Volatility decreased until 2005 (which was also a low point in the labor market), then steadily increased, even until 2017.
- Firms play a key role in determining earnings inequality.
 - Increase in Variance of Estab FE and Cov(Estab FE, Worker FE) explains most of the increase in earnings inequality.
 - Mobility between Estab FE ranks is quite low.
 - Other components of earnings play only a minor role

Percentiles of $\Delta^1 \varepsilon_{it}$ for Sample: All



Percentiles of $\Delta^1 \varepsilon_{it}$ for Sample: All



Top Incomes – Borrowing from Bartels (JEH 2019)

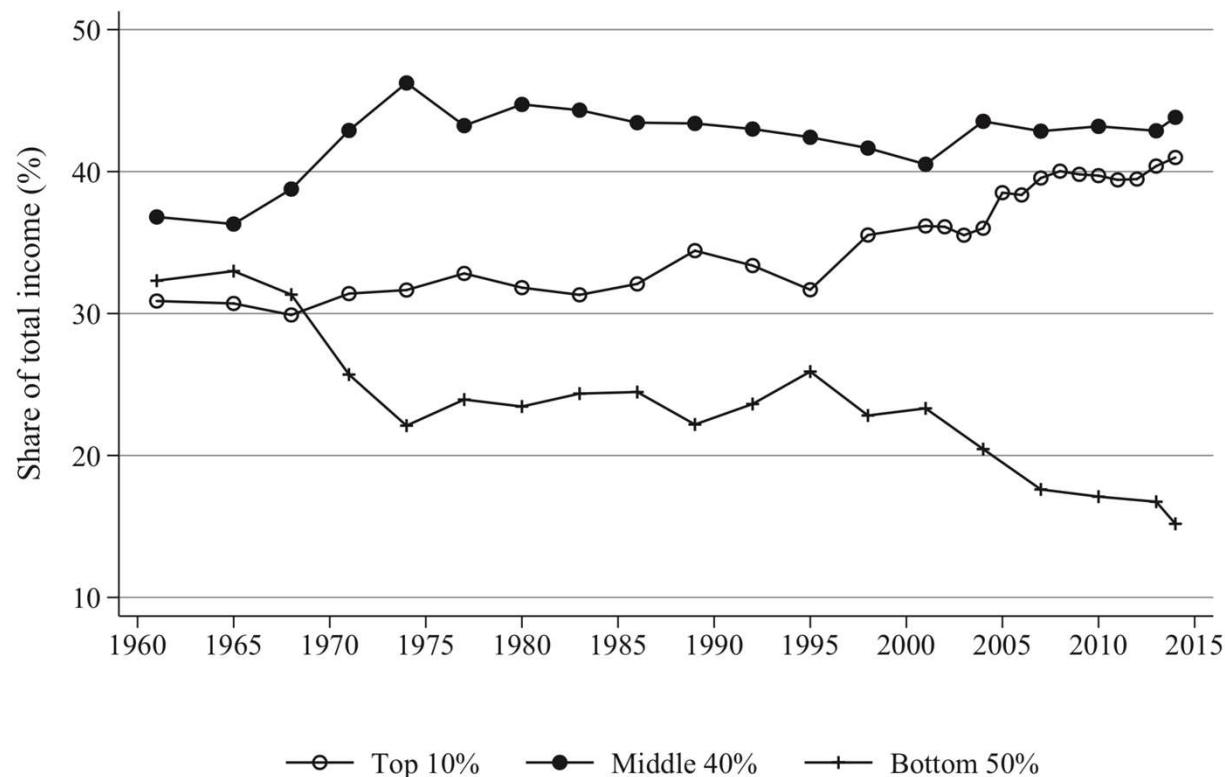


FIGURE 4
THE INCOME SHARE OF THE BOTTOM 50 PERCENT, MIDDLE 40 PERCENT, AND
TOP 10 PERCENT IN GERMANY, 1961–2014

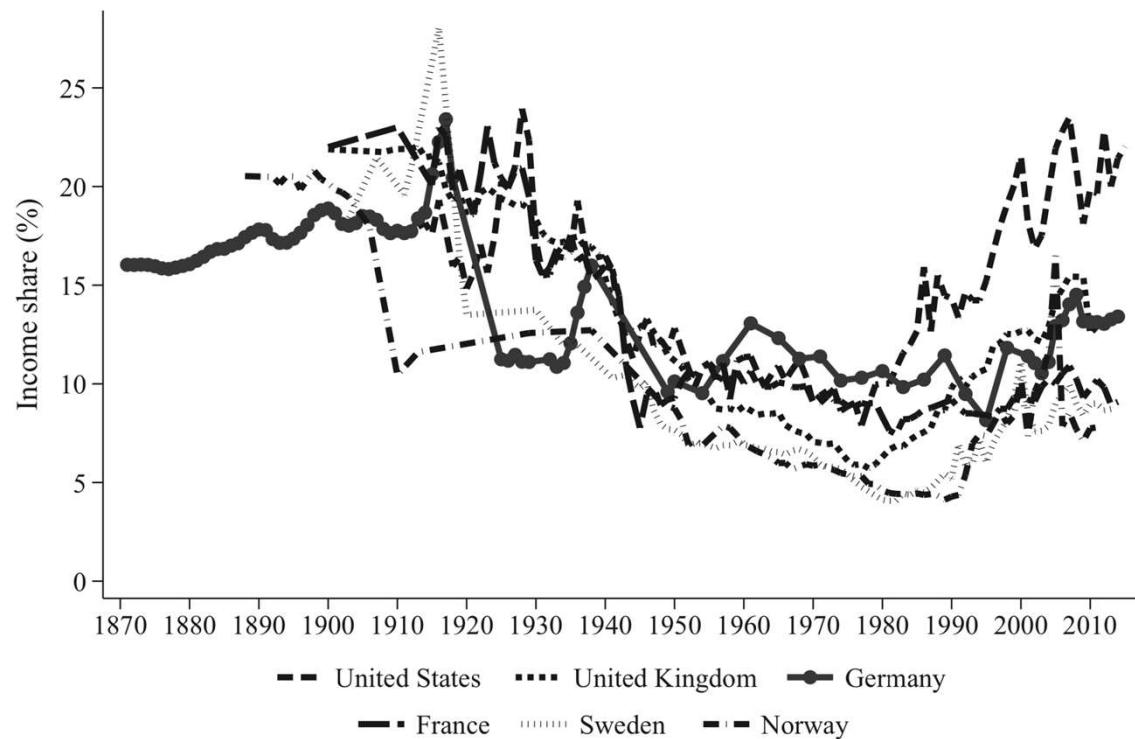


FIGURE 6
TOP 1 PERCENT INCOME SHARE IN INTERNATIONAL COMPARISON

Source: World Inequality Database (WID) and own calculations based on income tax data (Bartels 2019).

Goldschmidt & Schmieder 2017

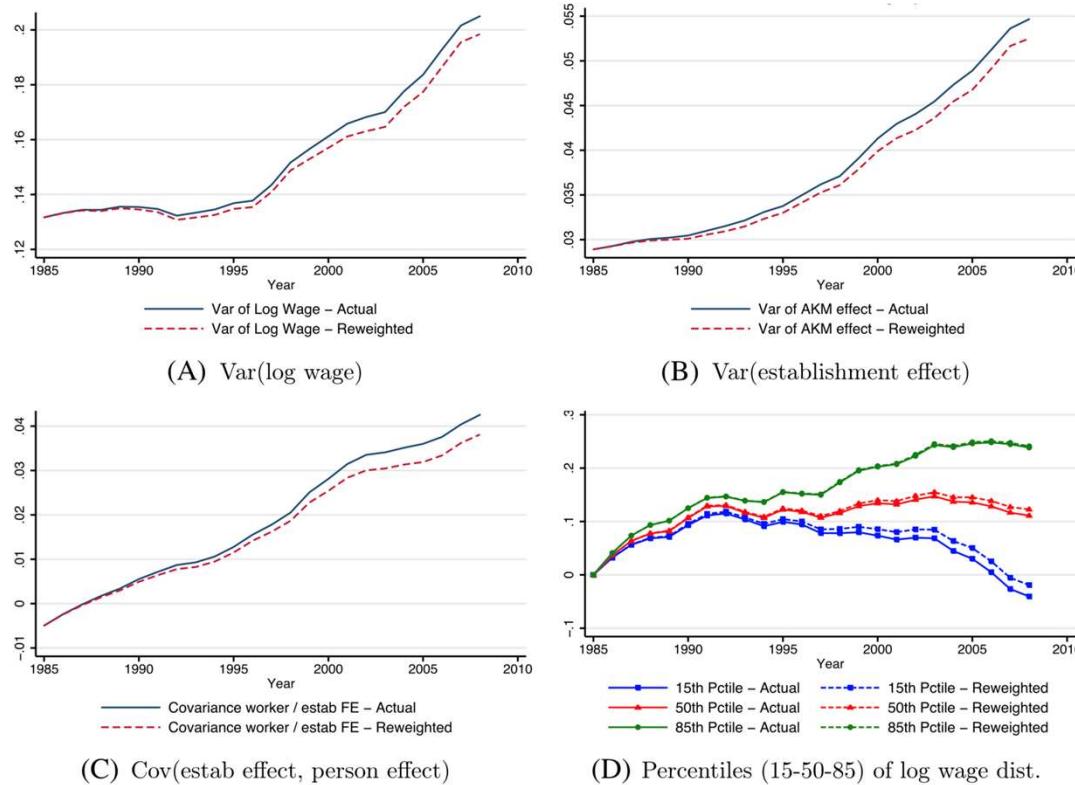


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Dustmann & Schoenberg 2009

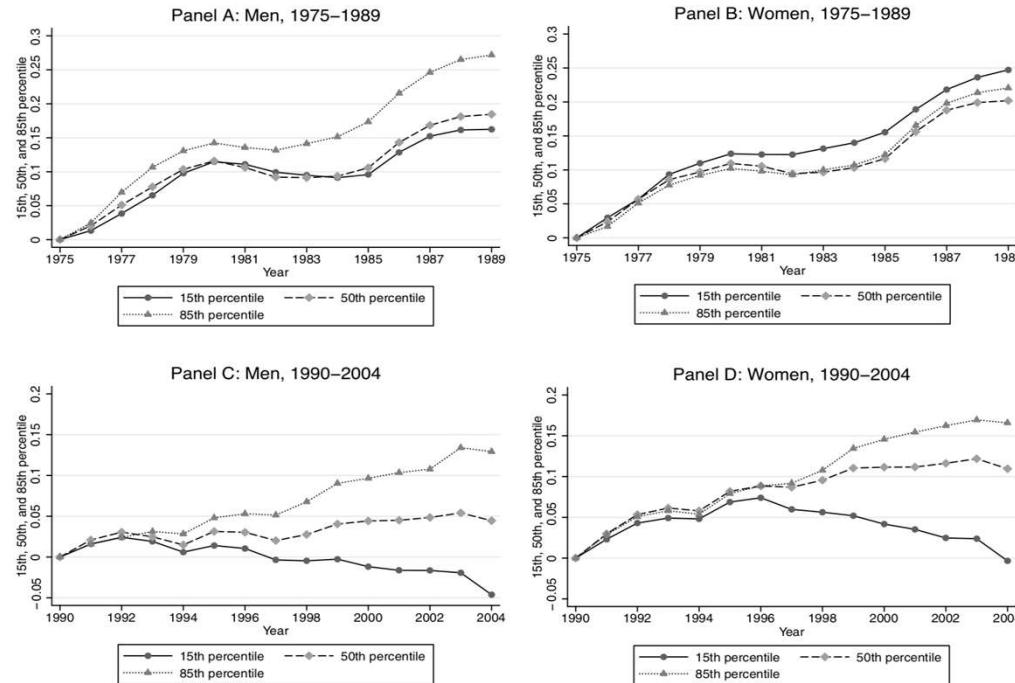


FIGURE II
Indexed Wage Growth of the 15th, 50th, and 85th Percentiles: The Pre- versus the Postunification Period

Source. 2% IABS Sample for full-time workers between 21 and 60 years of age.

The figures show the indexed (log) real wage growth of the 15th, 50th, and 85th percentiles of the wage distribution. Panels A and B refer to the pre-unification period between 1975 and 1989, with 1975 as the base year. Panels C and D refer to the post-unification period between 1990 and 2004, with 1990 as the base year.

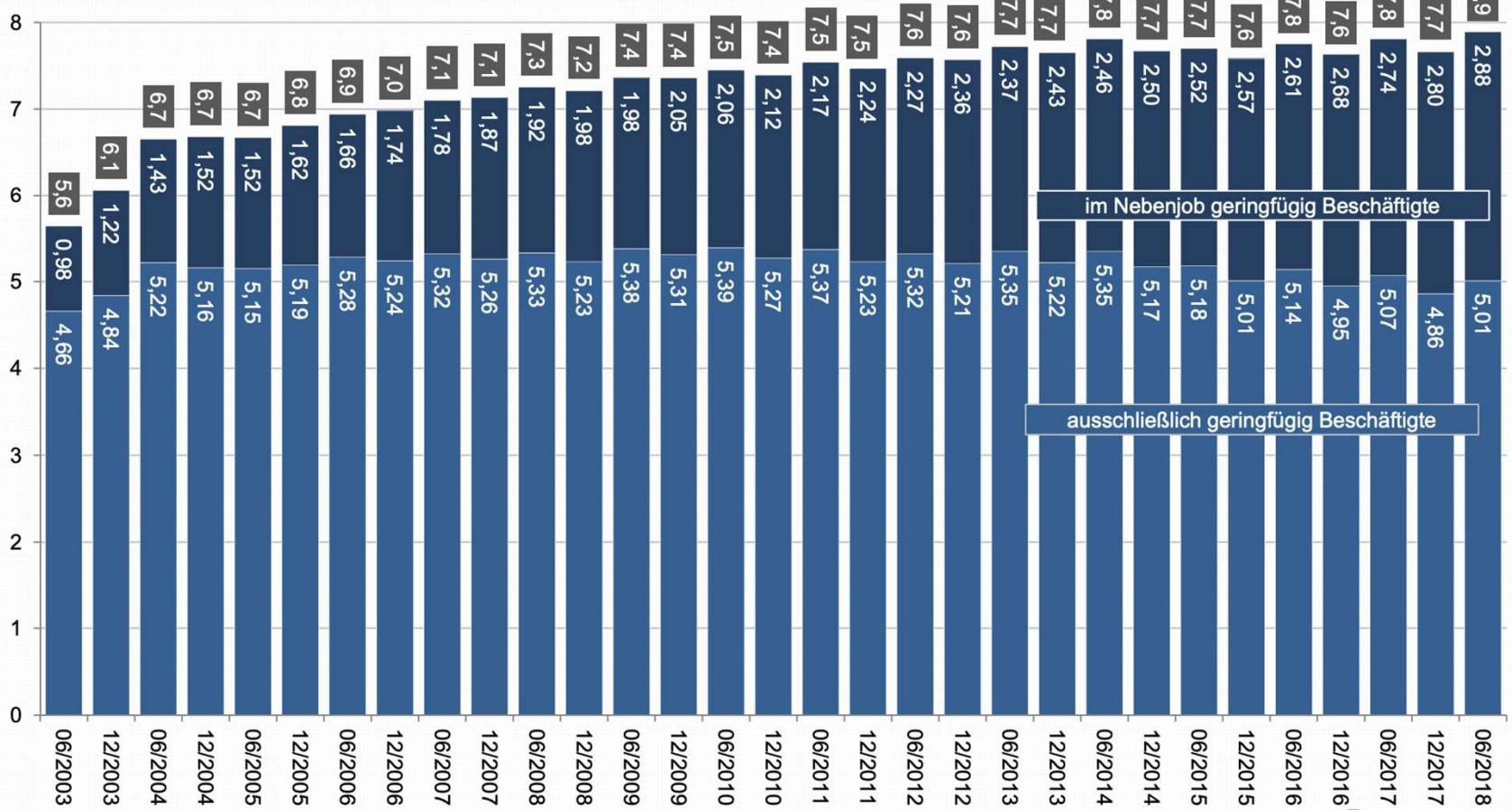
■ Beschäftigte in Mini-Jobs 2003 - 2018

Geringfügig Nebenbeschäftigte und Hauptbeschäftigte in Mio.

insgesamt in Mio

im Nebenjob geringfügig Beschäftigte

ausschließlich geringfügig Beschäftigte



Quelle: Bundesagentur für Arbeit (2018), Beschäftigungsstatistik

Bartels (2019)

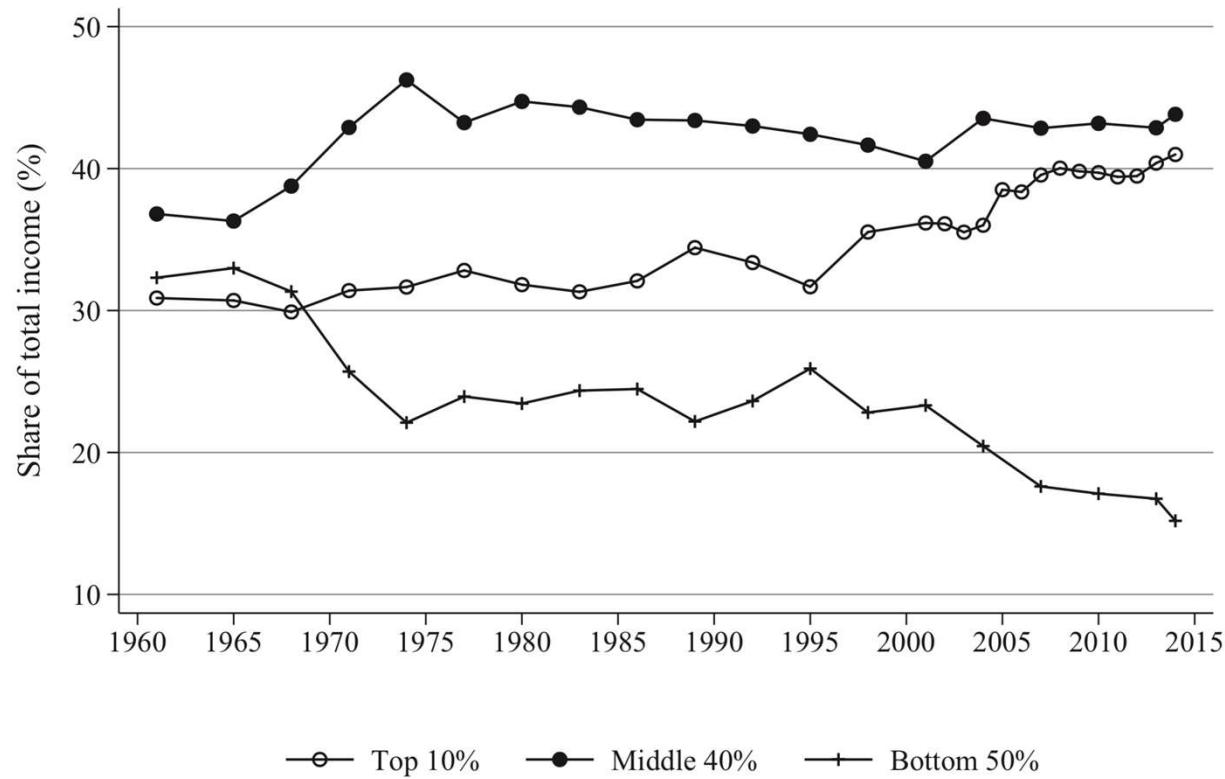


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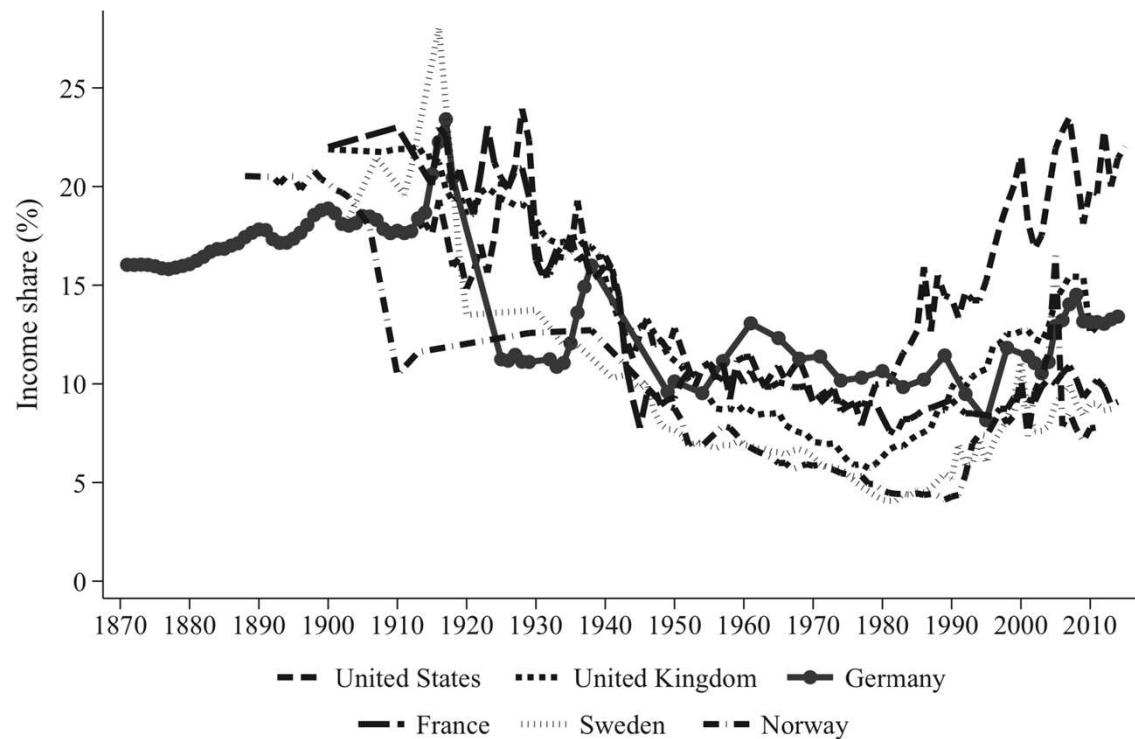
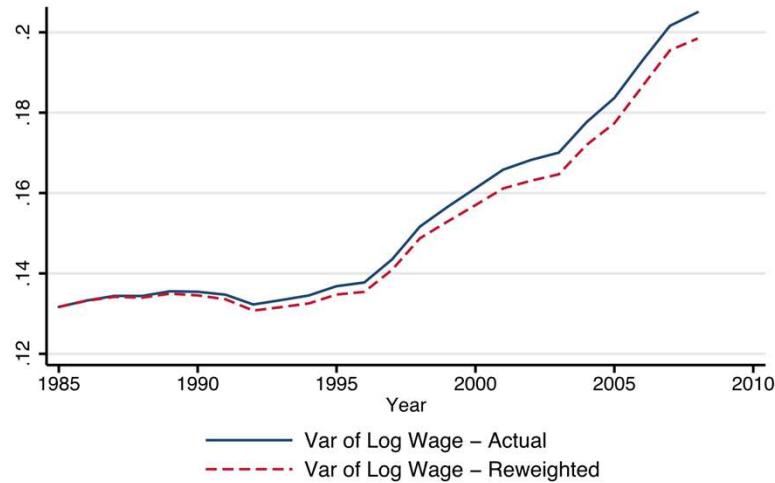
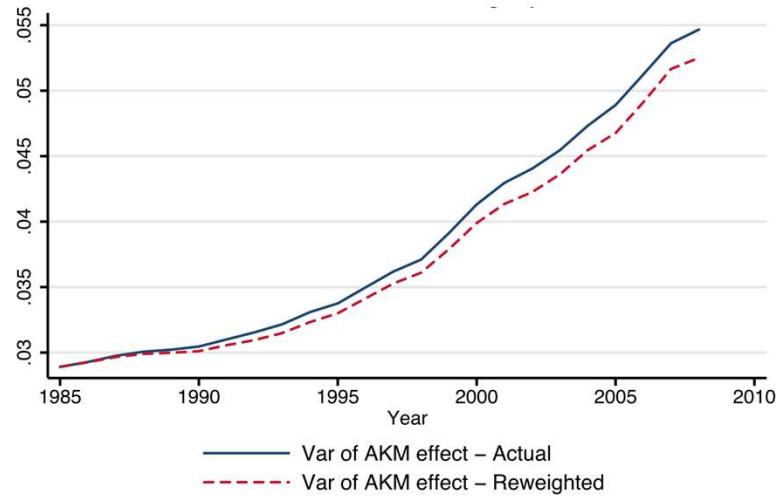


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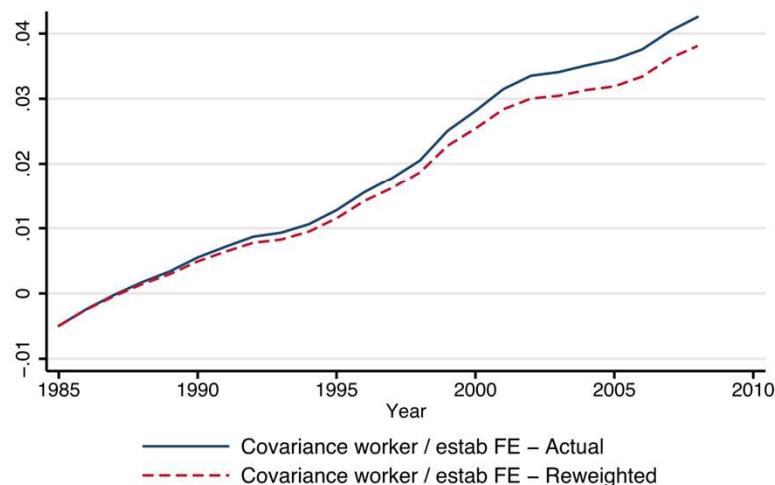
Source: World Inequality Database (WID) and own calculations based on income tax data (Bartels 2019).



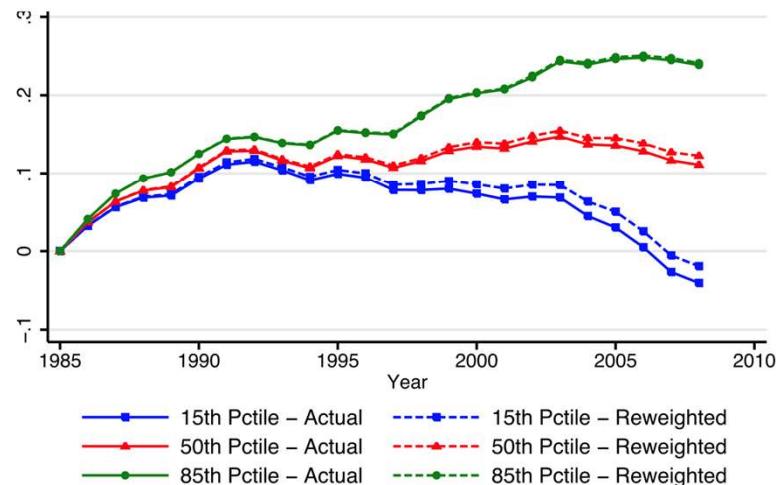
(A) $\text{Var}(\log \text{wage})$



(B) $\text{Var}(\text{establishment effect})$



(C) $\text{Cov}(\text{estab effect, person effect})$



(D) Percentiles (15-50-85) of log wage dist.