Global Income Dynamics: Sweden

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Introduction

- Understanding Income inequality and Income Dynamics is key to numerous fields in Economics
 - ▶ It affects our design of taxation and welfare programs
 - ▶ It underlies our understanding of poverty and its persistence
 - It helps understand how careers are shaped
 - ▶ It underlies our understanding of risk.

Introduction

- Sweden is particularly interesting to study and understand because of the institutional framework that is designed to mitigate risk.
- Sweden also has collective wage setting institutions that directly affect earnings levels and growth
- So how does all this translate to distribution of earnings and the surrounding dynamics? How do the basic conclusions compare to those of other countries?

Introduction - Specific Quastions

- Sweden has low but increasing overall income inequality, but less is known about earnings dynamics for individual workers and patterns of earnings volatility for the overall economy
- How much volatility in earnings do individuals face over the business cycle and over their careers?
- How unequal is the earnings distribution among entering cohorts and how likely is it for individuals to move up or down the earnings distribution?
- Do these patterns differ by gender?
- Have policy reforms, other shocks or secular trends contributed to changes in earnings dynamics over the last decades?

Related Literature

- Large literature on overall income inequality
 - e.g., LU 2019, Nordic Economic Policy Review 2018, OECD 2017
- Smaller literature on earnings inequality
 - e.g., Hammar and Waldenström 2017, Badel et al. 2017, Skans et al. 2007
- Smaller literature on earnings dynamics
 - e.g., Friedrich et al. 2019, Carlsson et al. 2016, Lamadon 2016, Busch et al. 2018, Guvenen et al. 2014, 2018, 2019

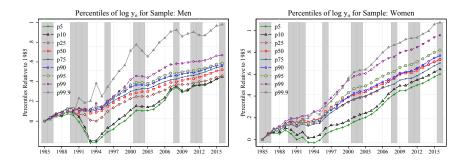
Data

- Use data from LOUISE 1985–2016, individuals aged 25–55
- Main variable of interest: Annual individual labor earnings (incl. self-emp)
- ullet Minimum earnings threshold determined by minimum wages for the retail sector: > 1.5 monthly earnings in a year
- Deflated by the CPI, base year 2018
- Heterogeneity by gender
- Family links to analyze household earnings dynamics
- Immigrants defined by region of birth
- Public/private sector defined by main employment (largest earnings) in ANST
- Recession years marked by grey shaded areas in the figures (FRED OECD)

Earnings Measures

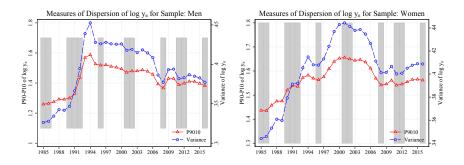
- Raw log earnings in real terms
- Residualized log earnings: regressed against a full set of age dummies, separately by gender and year
- Permanent earnings: average earnings over the previous three years, including zeros or earnings below threshold, regressed against a full set of age dummies, separately by gender and year

Log Earnings Percentiles, Base Year 1985



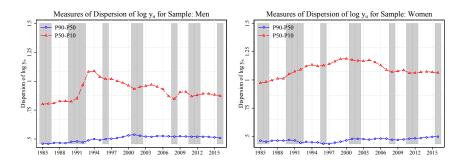
- Low earnings inequality in 1980's, increased sharply in the 90's recession
- Large gains across the distribution for men and women over 15–20 years, only the very top stands out with much larger real gains

Log Earnings Gap



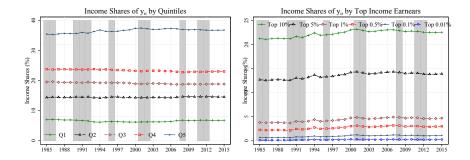
- Increase in inequality from 90's recession continues for longer among women
- Inequality decreased for men since 1994 and for women since 2000

Log Earnings Gap



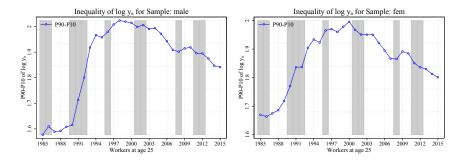
- Entire decline in inequality is driven by convergence in bottom part of the distribution (50-10 gap) while 90-50 gap slightly increased
- Longer increase in inequality for women driven by the bottom

Income shares



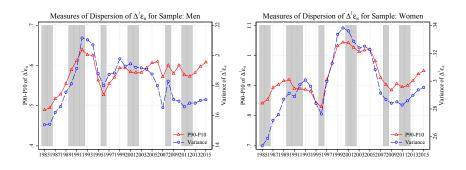
• Stable patterns in concentration over time, slow decline Q1-Q4, slight increase for top quintile

Dispersion in Initial Conditions for Workers at Age 25



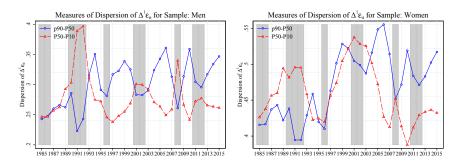
 Steep increase in dispersion at age 25 in the 1990s, but then decreasing for both men and women since 2000

1-Year Earnings Growth Dispersion: 90-10 Gap



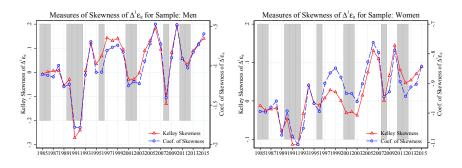
- Note the large difference in dispersion for men and women; suggests mobility between part-time and full-time work is first order important for women
- Why so large increase in late 1990's for women? Will investigate further

1-Year Earnings Growth Dispersion: 90-50 and 50-10 Gap



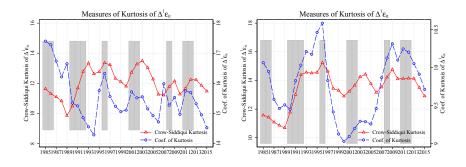
- 90-50 gap is procyclical, while 50-10 gap is highest in recessions
- Level increase in dispersion over time permanent for the 90-50 gap, but has decreased again to 1985 levels for 50-10 gap

Skewness of 1-Year Earnings Growth



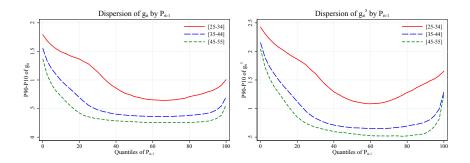
- Coef. of skewness: Positively or negatively skewed earnings distribution?
- Skewness is procyclical for both measures longer left tail and shorter right tail of earnings distribution in recessions than in booms
- Upward trends for men and women good news! Even more pronounced for 5-year wage growth

Kurtosis of 1-Year Earnings Growth



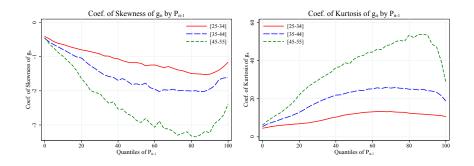
- Coefficient of kurtosis: "Tailedness" of the earnings distribution, measures extreme values in either tail and high concentration at the center
- Kurtosis is countercyclical suggests more stagnation during recessions, interacts with negative skewness to increase idiosyncratic risk in recessions
- 1996–2005 period for women also visible in the higher-order moments

1-Year and 5-Year Earnings Growth Dispersion by Permanent Income and Age



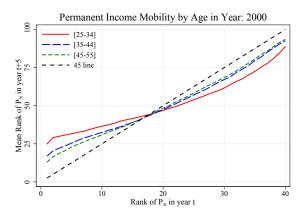
- Higher dispersion for younger workers and lower permanent income percentiles (U-shape with increase for top quintile)
- Similar pattern for 1-year and 5-year growth

Skewness and Kurtosis of 1-Year Earnings Growth by Permanent Income and Age



- More negatively skewed for higher income percentiles and older workers
- The higher the earnings, the more room to fall and less room to move up
- Increasing kurtosis by income percentiles and age (decrease in top tail), more stagnation and large outliers in the negative tail (Kelley)

Permanent Income Mobility



- Upward mobility from the bottom, more so for the young
- Downward mobility from the top also more so for the young
- Relates to heterogeneity of wage growth moments more happening for the young, especially low earners
- Consistent with social mobility literature, will do more GIDD: Sweden

Conclusion from Common Part

- Decreasing earnings inequality over 15–20 years, driven by convergence in the bottom
- No trend in volatility of 1-y earnings growth, gradual decline in 5-y volatility
- Skewness is procyclical but shows an upward trend more earnings growth, less earnings losses
- Kurtosis is countercyclical but shows no trend more stagnation in recessions
- Higher mobility for younger people
- Special era for women 1996-2007 with peak 2001:
 - ▶ Increased dispersion of log earnings and earnings growth, driven by bottom
 - More left skewed earnings distribution
 - Lower kurtosis. less tail events

- Education plays a potentially important role in understanding inequality
- The various education groups have been affected differently by skill-biased technical change
- The educational composition of the workforce has changed

Figure: Share of College-Educated Individuals

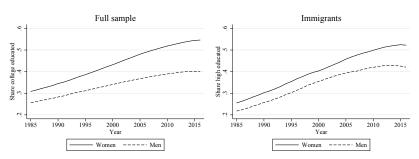


Figure: Level and Trend in Earnings Inequality by Education

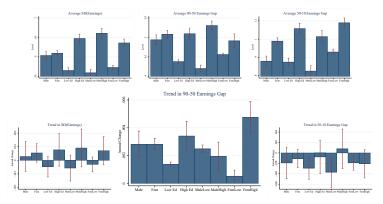


Figure: Level, Cyclicality, and Trend in Earnings Growth by Education

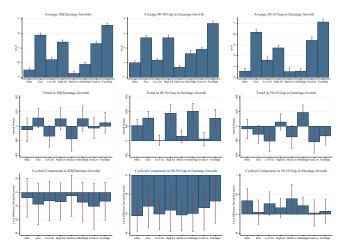
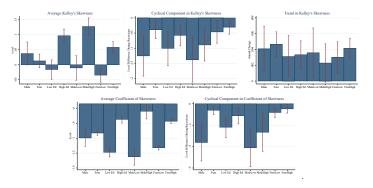
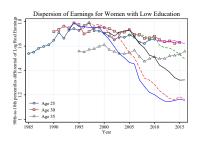
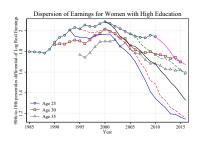


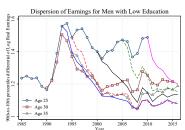
Figure: Level, Cyclicality, and Trend in Skewness of Earnings Growth by Education

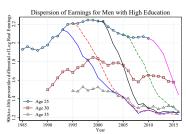


The Role of Education - Lifecycle Dispersion of Earnings



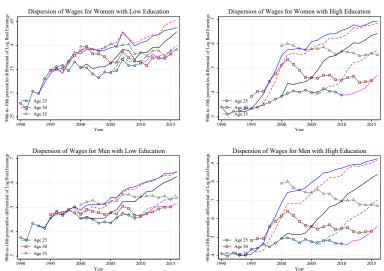






The Role of Education - Lifecycle Dispersion of Wages

• solid lines keep cohort constant



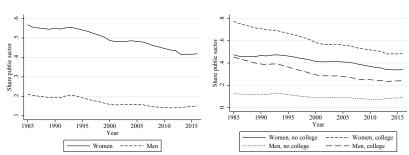
Some remarks

- Looking at differences by education is of first order importance
- This likely relates to the different roles of education in the production process
- Distinction between wages and earnings provides a very different picture on lifecycle dispersion.

Public Sector

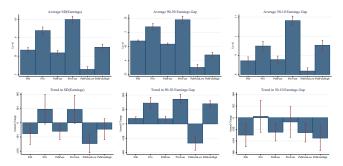
- The proportion working in the public sector has declined steadily. 0.2cm
- This is important, particularly for women, because the pay structure in the public sector is very different

Figure: Public Sector Employment



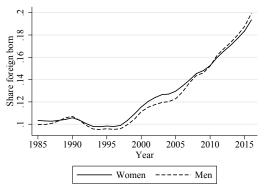
Public Sector

Figure: Level and Trend in Earnings Inequality: Public and Private Sector



Immigration

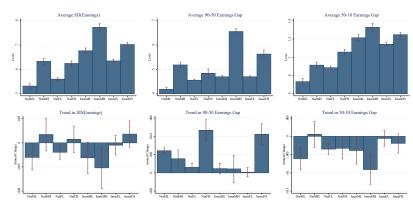
• Immigration is sufficiently large to have an impact on the earnings distribution



• Rapidly increasing share foreign born - doubled since mid 1990's

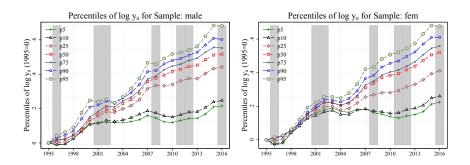
Immigration

Figure: Level and Trend in Earnings Inequality: Native and Foreign-Born Workers



Log Earnings Gap

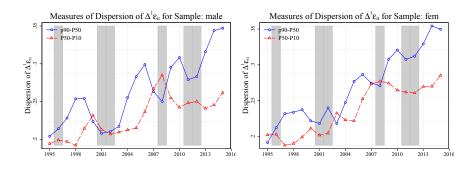
Individual Disposable Income



- Government can provide insurance through tax and transfer systems
- Large increase in inequality for disposable income as documented in literature
- Tax and transfer system exacerbates inequality over time, also at ind. level

1-Year Wage Growth Dispersion: 90-50 and 50-10 Gap

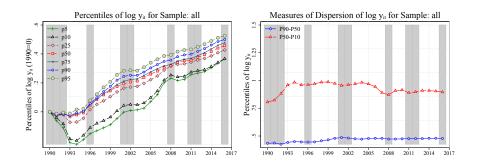
Individual Disposable Income



- Volatility increases over time in both parts of the distribution
- Stable in lower part since 2008

Log Earnings Gap

Households, Average Income



- Individuals can insure each other within the household
- Similar pattern of inequality but lower level

Conclusion from Country-Specific Part

- Sample composition not driving the results
- Similar time patterns but more volatile earnings among foreign-born workers, and share foreign-born increased rapidly
- Special patterns for females more visible in public sector
- Increased inequality in disposable income
- Individuals may insure against risk within the household