Rising longevity and US wealth inequality

some empirical evidence

Krzysztof Makarski [FAME|GRAPE & Warsaw School of Economics]
Joanna Tyrowicz [FAME|GRAPE, University of Warsaw & IZA]
Marcin Lewandowski [FAME|GRAPE & University of Warsaw]

Income and Wealth inequality: Drivers and consequences
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GRAPE
Group for Research in Applied Economics

Motivation

Rising longevity and wealth inequality in the US

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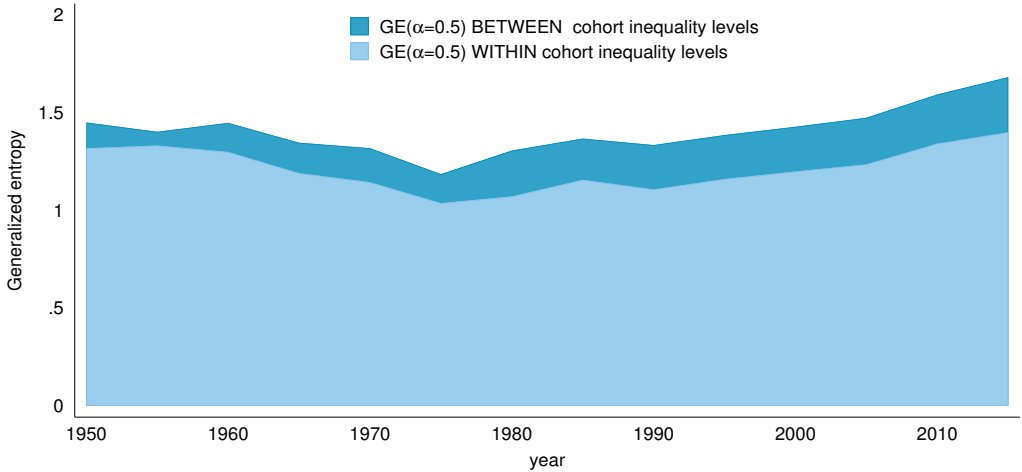
Question: does longevity matter quantitatively for wealth inequality?
→ We study wealth inequality patterns across birth cohorts (SCF data)

Two dimensions of inequality: same year of birth (=cohort) vs same year



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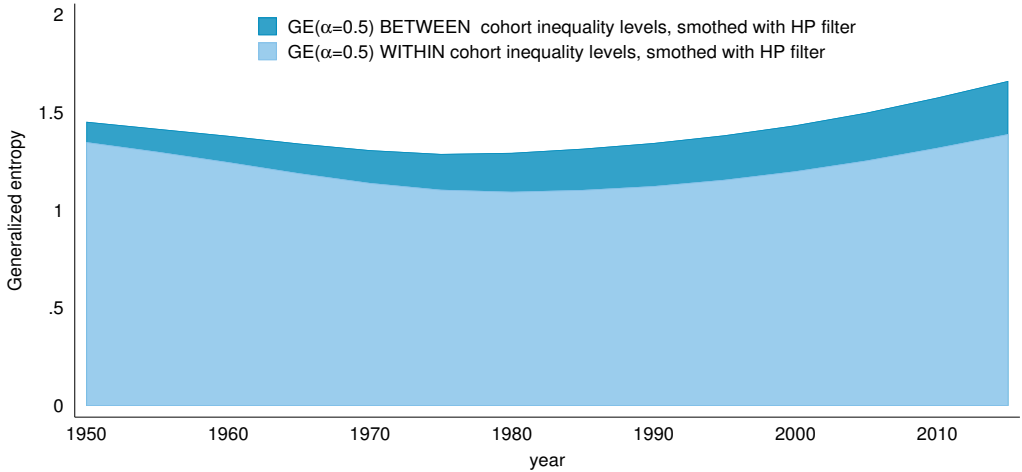

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- Contribution of between-cohort inequality to overall rise in wealth inequality is significant!

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  - Longer-lived birth cohorts contribute the most to inequality

Data & methods

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Demographic characteristics match Current Population Survey and U.S. Census data

Methods – what we do

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2. **LE65 vs** $GE_{between}$ – Connect changes in between cohort inequality to changes in longevity
3. **RIF Regression** – We identify which cohorts contribute the most to wealth inequality

Methods – Generalized entropy:

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$$Generalized\ Entropy = GE_{between} + GE_{within} \tag{2}$$

$$\Delta GE = \Delta GE_{between} + \Delta GE_{within} \tag{3}$$

Methods – Generalized entropy

$$GE(\alpha) = \frac{1}{N\alpha(\alpha-1)} \sum_{i=1}^{N} \left[\left(\frac{a_i}{\bar{y}} \right)^{\alpha} - 1 \right], \tag{4}$$

- a_i - assets of individual i
- $\bar{y}$ - arithmetic mean of assets
- N - population size

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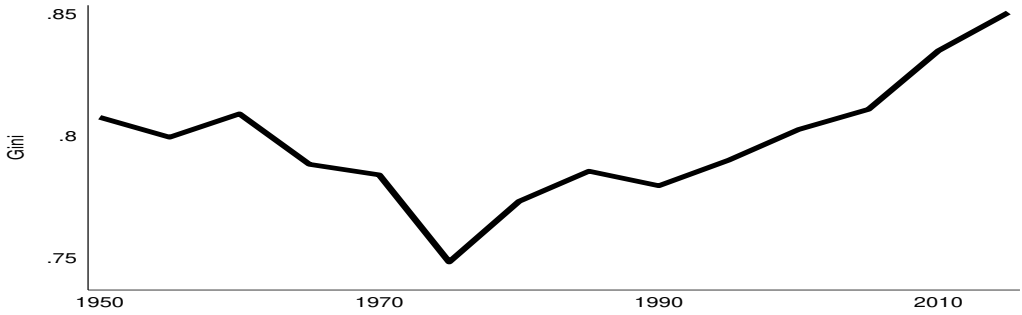
Alpha comparison



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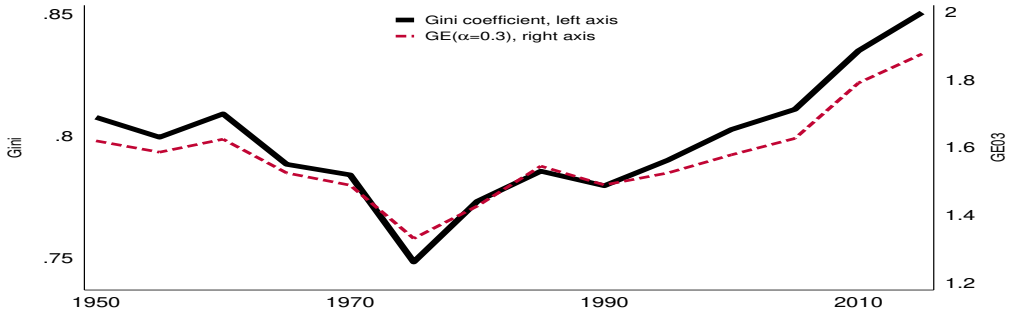

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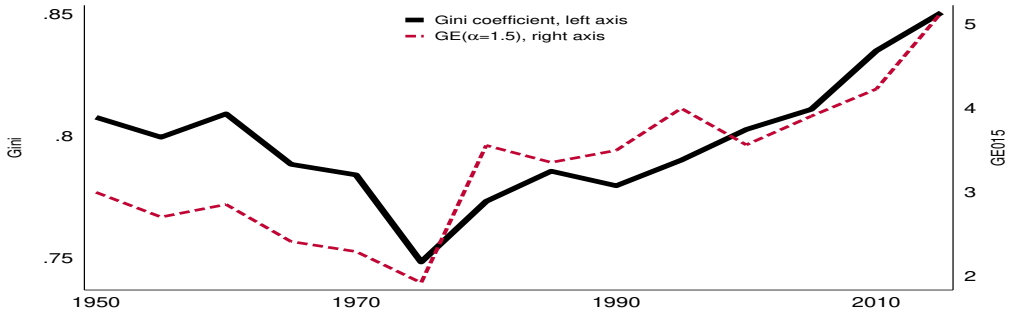

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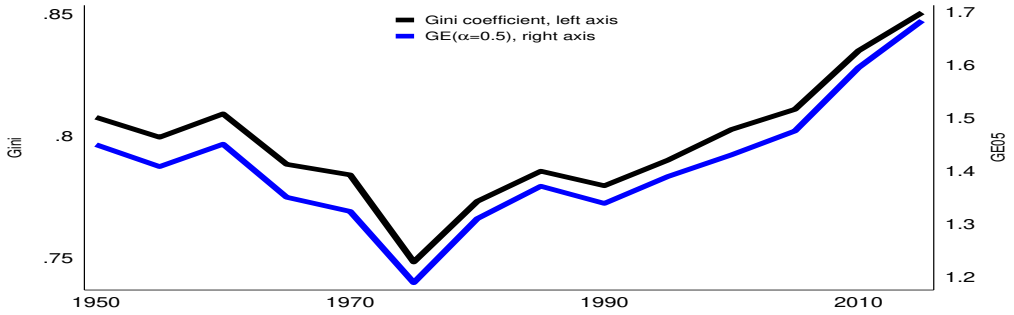

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- $\bar{y}_c$ - arithmetic mean of assets of cohort c
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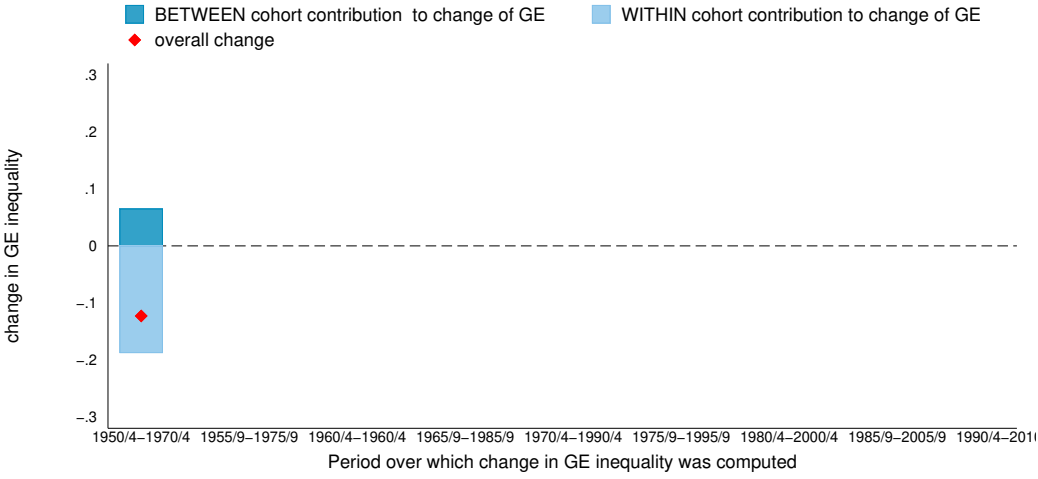
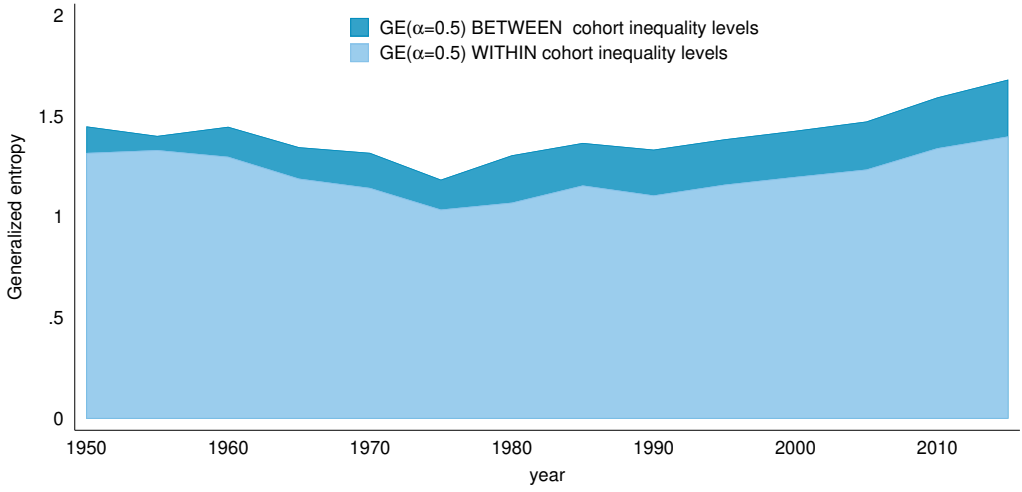
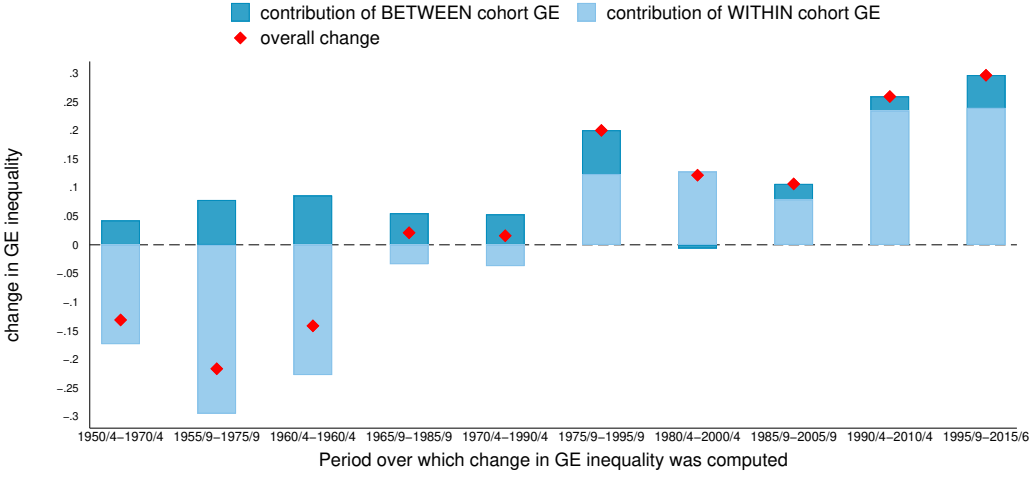
Results


BETWEEN cohort contribution to change of GE
WITHIN cohort contribution to change of GE
overall change
change in GE inequality
.3
.2
.1
0
−.1
−.2
−.3
1950/4–1970/4
1955/9–1975/9
1960/4–1960/4
1965/9–1985/9
1970/4–1990/4
1975/9–1995/9
1980/4–2000/4
1985/9–2005/9
1990/4–201
Period over which change in GE inequality was computed


GE(α=0.5) BETWEEN cohort inequality levels
GE(α=0.5) WITHIN cohort inequality levels
Generalized entropy
2
1.5
1
.5
0
1950
1960
1970
1980
1990
2000
2010
year


contribution of BETWEEN cohort GE
contribution of WITHIN cohort GE
overall change
change in GE inequality
.3
.25
.2
.15
.1
.05
0
−.05
−.1
−.15
−.2
−.25
−.3
1950/4–1970/4
1955/9–1975/9
1960/4–1960/4
1965/9–1985/9
1970/4–1990/4
1975/9–1995/9
1980/4–2000/4
1985/9–2005/9
1990/4–2010/4
1995/9–2015/6
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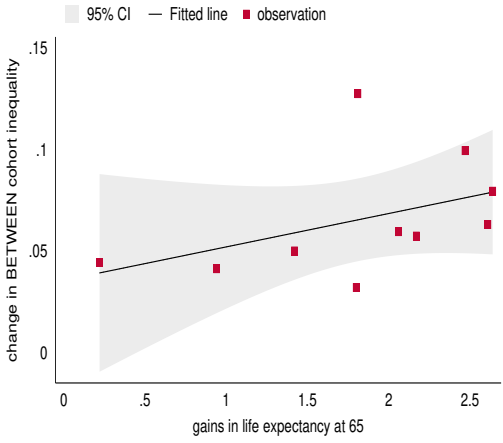
Between cohorts inequality vs LE65 changes



Note: Population structure fixed at 1950 level

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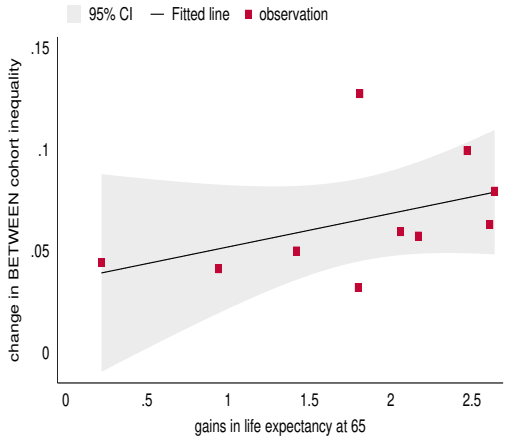
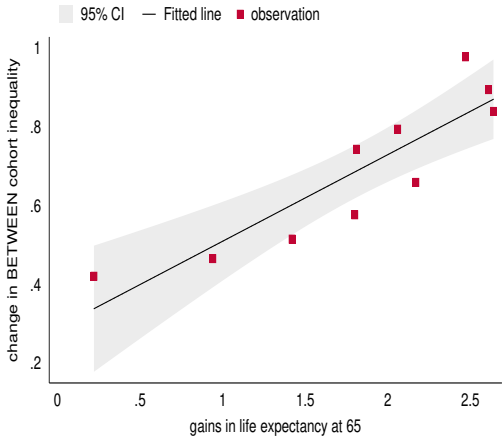
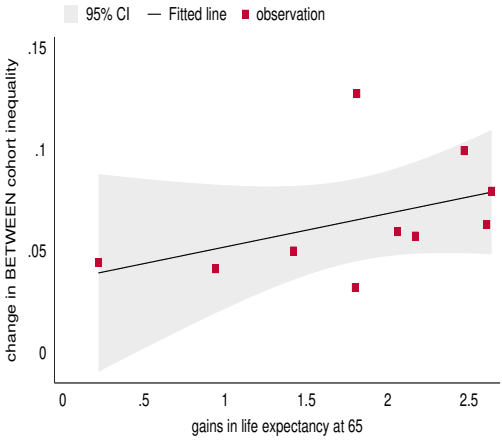


Note: Population structure fixed at 1950 level



Note: Population structure fixed at 1950 level; between cohort inequality smoothed

Between cohorts inequality vs LE65 changes



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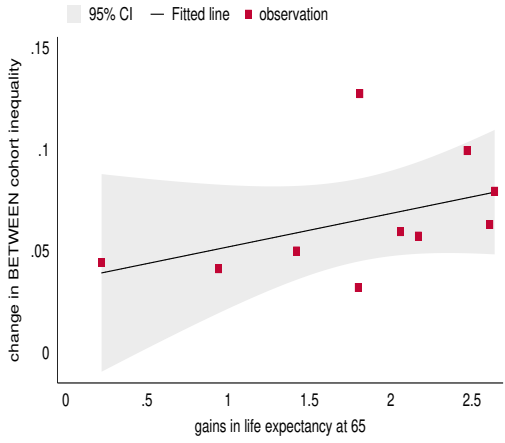
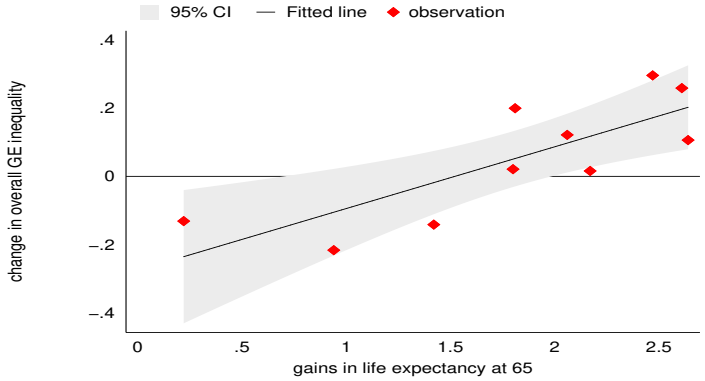


Note: Population structure fixed at 1950 level

Note: Population structure as in the data

Total inequality vs LE65 changes



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- Recentered Influence Functions (Firpo et al. (2009) & Rios-Avila (2020))

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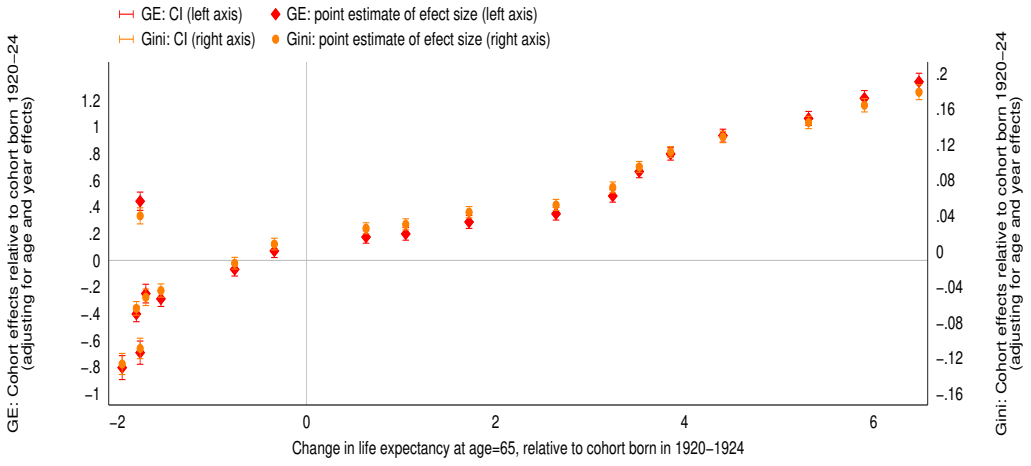
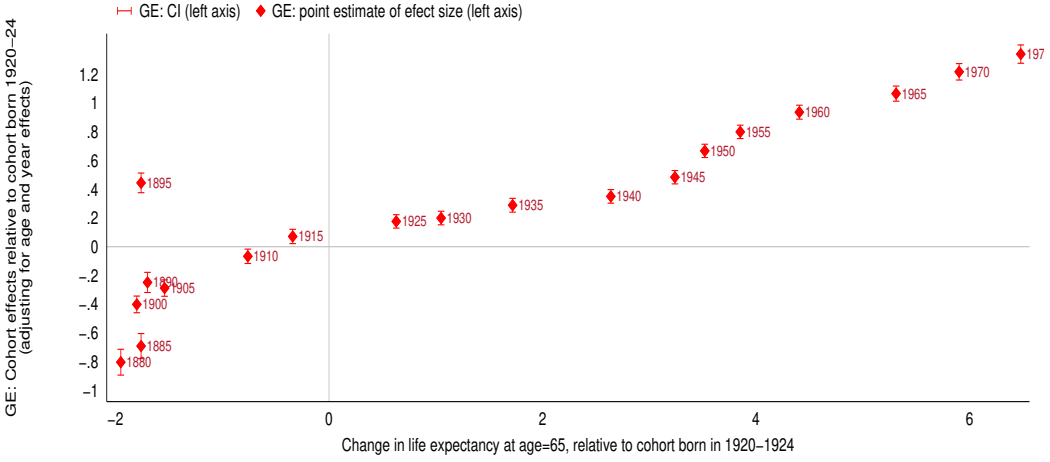
β_c – unconditional partial effect of cohort on distributional statistics (GE/GINI)

Evolution of β_c across cohorts




GE: CI (left axis)
GE: point estimate of efect size (left axis)
GE: Cohort effects relative to cohort born 1920–24
(adjusting for age and year effects)
1.2
1
.8
.6
.4
.2
0
–.2
–.4
–.6
–.8
–1
–2
0
2
4
6
Change in life expectancy at age=65, relative to cohort born in 1920–1924
1895
1915
1910
1890
1905
1900
1885
1880
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
197

Relevance

Demography and life-cycle matters

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  e.g., Hubmer et al. (2021), Fagereng et al. (2019)

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- Possible policy misspecification

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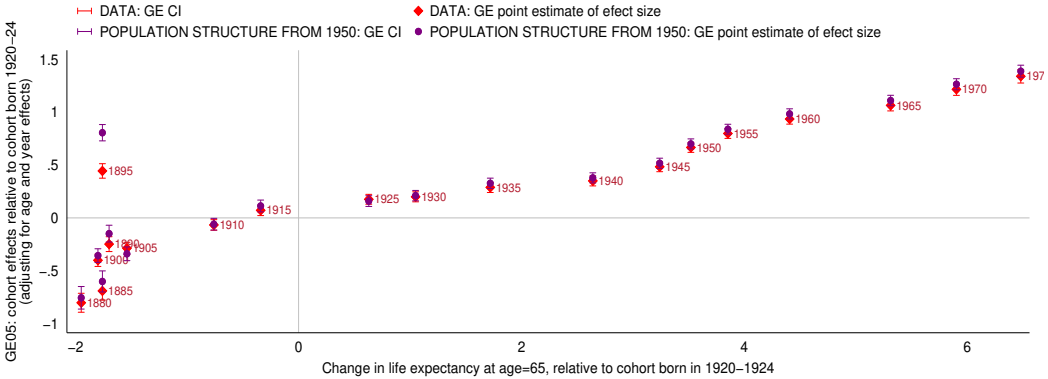
- We link this contribution to increases in LE65
- Cohorts with ↑ LE65 contribute ↑ to overall increases of wealth inequality

Questions or suggestions?
Thank you!

w: grape.org.pl
t: grape_org
f: grape.org
e: m.lewandowski@grape.org.pl

Appendix

Ratio comparison



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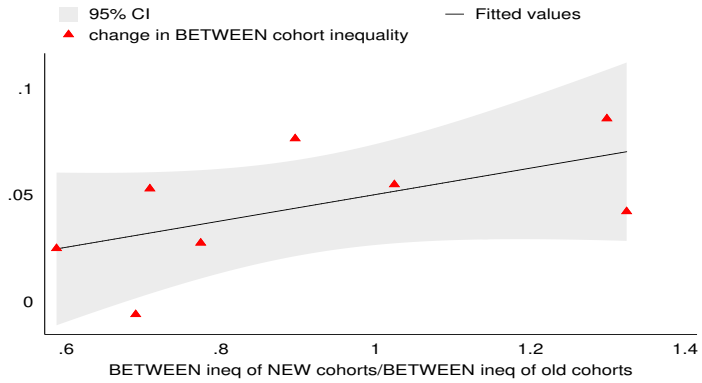
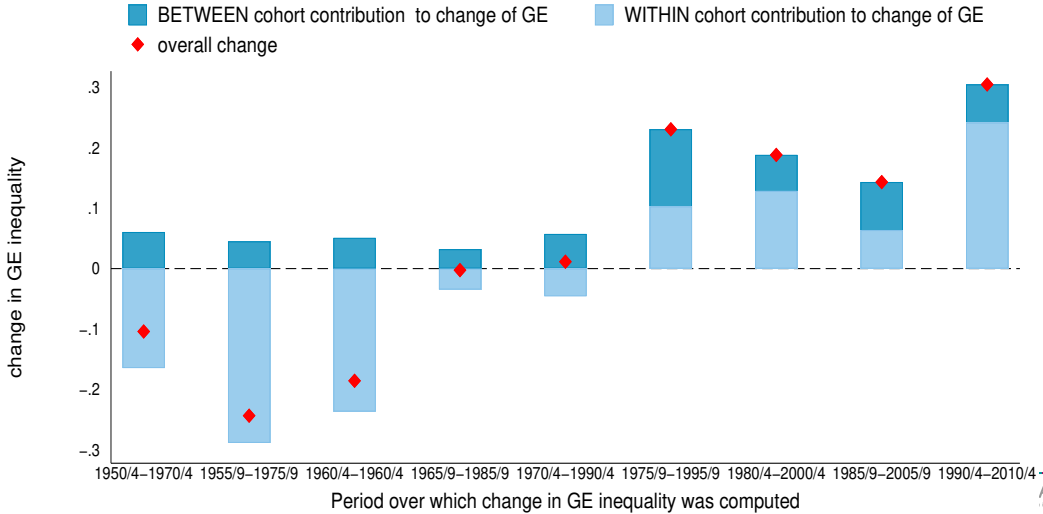




Note: Population structure frozen at 1950

GE within

$$GE_{within}(\alpha) = \sum_{c=1}^{C} \left(\frac{N_c}{N} \right)^{1-\alpha} s_c^{\alpha} GE_c(\alpha) \tag{9}$$

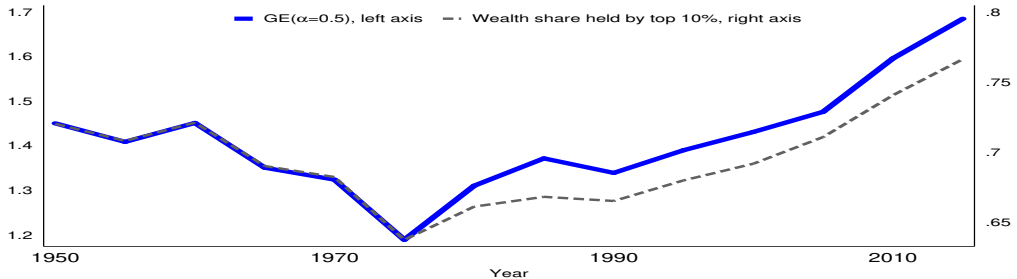
Intuition

age/year	y_1950	y_1955	y_1960	y_1965	y_1970	y_1975	y_1980	y_1985	y_1990	y_1995	y_2000	y_2005	y_2010
20	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990
25	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985
30	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980
35	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975
40	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970
45	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965
50	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960
55	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955
60	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950
65	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945
70	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940
75	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935
80	1870	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930
85	1865	1870	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925
90	1860	1865	1870	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920

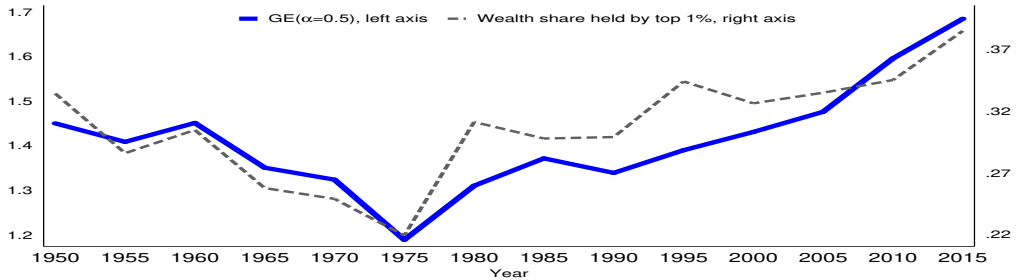
Intuition

age/year	y_1950	y_1955	y_1960	y_1965	y_1970	y_1975	y_1980	y_1985	y_1990	y_1995	y_2000	y_2005	y_2010
20	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990
25	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985
30	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980
35	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975
40	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970
45	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965
50	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960
55	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950	1955
60	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945	1950
65	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940	1945
70	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935	1940
75	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930	1935
80	1870	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925	1930
85	1865	1870	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920	1925
90	1860	1865	1870	1875	1880	1885	1890	1895	1900	1905	1910	1915	1920

Intuition


GE(α=0.5), left axis
Wealth share held by top 10%, right axis
1.7
1.6
1.5
1.4
1.3
1.2
.8
.75
.7
.65
1950
1970
1990
2010
Year

Intuition


GE(α=0.5), left axis
Wealth share held by top 1%, right axis
1.7
1.6
1.5
1.4
1.3
1.2
.37
.32
.27
.22
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Year

Intuition

Age:	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Period 7	Period 8
20	**Cohort 7**	Cohort 8	Cohort 9	Cohort 10	Cohort 11	Cohort 12	Cohort 13	Cohort 14
30	Cohort 6	**Cohort 7**	Cohort 8	Cohort 9	Cohort 10	Cohort 11	Cohort 12	Cohort 13
40	Cohort 5	Cohort 6	**Cohort 7**	Cohort 8	Cohort 9	Cohort 10	Cohort 11	Cohort 12
50	Cohort 4	Cohort 5	Cohort 6	**Cohort 7**	Cohort 8	Cohort 9	Cohort 10	Cohort 11
60	Cohort 3	Cohort 4	Cohort 5	Cohort 6	**Cohort 7**	Cohort 8	Cohort 9	Cohort 10
70	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 6	**Cohort 7**	Cohort 8	Cohort 9
80	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 6	**Cohort 7**	Cohort 8

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