Long-run trends of
Income and Wealth Inequality
in the United States

Moritz Kuhn

University of Bonn

September 21, 2022
Today’s class

• Inequality is one of the defining topics of the 21st century

• Do we have to re-think macroeconomic dynamics and policies in unequal societies?

• Today’s class presents facts on long-run trends of inequality in the United States

• Presentation builds on joint work with Alina Bartscher, Ellora Derenoncourt, Chi Hyun Kim, Víctor Ríos-Rull, Moritz Schularick, and Ulrike Steins
Overview

- Part I: Long-run trends of income and wealth inequality
- Part II: Differential trends by educational attainment
- Part III: Debt accumulation and asset prices
- Part IV: The long-run trend of racial inequality
- Part V: The current state of inequality
Part I

Wealth and Income Inequality in America
1949 - 2016

joint work with

Moritz Schularick and Ulrike I. Steins
Motivation

- Wealth and income inequality are at historical highs
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- Causes and consequences of high and rising inequality are one of the defining topics of our times
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- Existing evidence about the “top” of the income or wealth distribution
- Missing evidence about joint evolution of the income and wealth distribution
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• Causes and consequences of high and rising inequality are one of the defining topics of our times

• Existing evidence about the “top” of the income or wealth distribution

• Missing evidence about joint evolution of the income and wealth distribution

• Joint dynamics key to understand drivers of wealth inequality
Contribution

- Newly compiled micro data on financial situation of U.S. households for period from 1949 to 2016
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  Survey of Consumer Finances 1949-2016 (SCF+)

- Explore joint trends of income and wealth inequality for seven decades
- Document systematic portfolio differences and asset price elasticities along the wealth distribution
- Highlight importance of asset price dynamics for observed wealth inequality trends
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Survey of Consumer Finances 1949 - 2016

- Survey of Consumer Finances (SCF) most widely used data for distribution of income and wealth

Modern SCF data exist since 1983

Historical survey data exists for 1949 to 1977

Link and harmonize historical and modern SCFs

SCF+ provides household microdata on income, wealth, portfolio composition, and demographics
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Results

- SCF+ suitable for macro research: micro data match macro trends from NIPA and FFA
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• Joint analysis of income and wealth inequality uncovers differential time trends

1. From 1971 to 2007 much stronger rise in income inequality
2. After 2007 unprecedented rise in wealth inequality

• Systematic portfolio differences and asset price changes account for diverging trends

• Wealth dynamics constitute a race between the stock and the housing market
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Historical SCF data

- Historical SCF files so far not systematically coded

Details of income, assets, and debt

Impute missing variables over time

Re-weight for representativeness

Re-weight for non-response at the top
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- Major harmonization exercise: extract detailed data on income, assets, and debt
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Variables

1. **Income**: wages and salaries, professional practice and self employment, rental income, interest, dividends, business and farm income, transfer payments
Variables

1. Income

2. Assets: liquid assets (CDs, checking, saving, call/money market accounts), housing and other real estate, bonds, stocks, mutual funds, corporate and non-corporate equity, retirement accounts
Variables

1. **Income**

2. **Assets**

3. **Debt**: housing debt, car loans, education loans, and loans for consumer durables, credit card debt, and other non-housing debt
Variables

1. Income
2. Assets
3. Debt
4. **Wealth**: consolidated household balance sheet
Micro data and macro trends: Income

- Micro data matches macroeconomic income trends from NIPA
Micro data and macro trends: Wealth

• Micro data matches macroeconomic wealth trends from Flow of Funds
• Income concentration at the top matches results from tax data
Wealth concentration at the top matches results from capitalizing income tax data
## Changes in income and wealth inequality

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<thead>
<tr>
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<th>Income</th>
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<tr>
<td>bottom 50%</td>
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<td>50-90%</td>
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- Wealth inequality hardly changed between 1971 and 2007
- Wealth inequality increases strongly after 2007
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Joint evolution of income and wealth distribution

- Sort households along the wealth distribution

Income growth

Wealth growth

Incomes strongly diverge between 1971 and 2007
Wealth levels move in lockstep before 2007 and strongly diverge after 2007
Joint evolution of income and wealth distribution

- Sort households along the wealth distribution

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Joint evolution of income and wealth distribution

- Sort households along the wealth distribution

- Incomes strongly diverge between 1971 and 2007

- Wealth levels move in lockstep before 2007 and strongly diverge after 2007
How can we explain diverging trends of income and wealth inequality?
Wealth dynamics

• Dynamics of wealth of group $i$ between $t$ and $t + 1$

\[ W_{t+1}^i = W_t^i (1 + r_t^i + q_t^i) + Y_{L,t}^i - C_t^i \]

$W_t^i$: wealth

$r_t^i$: capital income

$q_t^i$: capital gains
Wealth dynamics

- Dynamics of wealth of group \( i \) between \( t \) and \( t + 1 \)

\[
W^i_{t+1} = W^i_t (1 + r^i_t + q^i_t) + Y^i_{L,t} - C^i_t
\]

- \( W^i_t \): wealth
- \( r^i_t \): capital income
- \( q^i_t \): capital gains

\[
q^i_t = \sum_{j=1}^{J} \left( \frac{p_{j,t+1}}{p_{j,t}} - 1 \right) \frac{A^i_j, t}{W^i_t} = \sum_{j=1}^{J} \left( \frac{p_{j,t+1}}{p_{j,t}} - 1 \right) \alpha^i_j, t
\]

- Capital gains combination of portfolio allocation \( \alpha^i_j, t \) and asset price changes \( \frac{p_{j,t+1}}{p_{j,t}} \) across asset classes \( j = 1, \ldots, J \)
Wealth dynamics

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$W_t^i$: wealth
$r_t^i$: capital income
$q_t^i$: capital gains
$Y_{L,t}^i$: labor income
$C_t^i$: consumption
Wealth dynamics

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$$W_{t+1}^i = W_t^i (1 + r_t^i + q_t^i) + Y_{L,t}^i - C_t^i$$

• Savings of group $i$

$$S_t^i = r_t^i W_t^i + Y_{L,t}^i - C_t^i = Y_t^i - C_t^i$$
Wealth dynamics

• Dynamics of wealth of group $i$ between $t$ and $t + 1$

$$W^i_{t+1} = W^i_t (1 + r^i_t + q^i_t) + Y^i_{L,t} - C^i_t$$

• Saving rate $s^i_t = \frac{S^i_t}{Y^i_t}$

$$W^i_{t+1} = W^i_t (1 + q^i_t) + s^i_t Y^i_t$$
Wealth dynamics

- Dynamics of wealth of group $i$ between $t$ and $t+1$
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- Saving rate $s_t^i = \frac{S_t^i}{Y_t^i}$

- Wealth growth rate
  \[ \frac{W_{t+1}^i}{W_t^i} = 1 + q_t^i + s_t^i \frac{Y_t^i}{W_t^i} = 1 + q_t^i + \sigma_t^i \]
Wealth dynamics

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• Define wealth share $\omega^i_t = \frac{W^i_t}{W_t}$
Wealth dynamics

• Dynamics of wealth of group $i$ between $t$ and $t+1$

$$W_{t+1}^i = W_t^i (1 + r_t^i + q_t^i) + Y_{L,t}^i - C_t^i$$

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$$\frac{W_{t+1}^i}{W_t^i} = 1 + q_t^i + s_t^i \frac{Y_t^i}{W_t^i} = 1 + q_t^i + \sigma_t^i$$

• Define wealth share $\omega_t^i = \frac{W_t^i}{W_t}$

• Growth rate of wealth share

$$\frac{\omega_{t+1}^i}{\omega_t^i} = \frac{1 + q_t^i + \sigma_t^i}{1 + q_t + \sigma_t}$$
Wealth inequality dynamics

• Change in wealth share of group $i$ depends on difference to growth in the macroeconomy

$$\frac{\omega_{i,t+1}}{\omega_{i,t}} = \frac{1 + q^i_t + \sigma^i_t}{1 + q_t + \sigma_t}$$
Wealth inequality dynamics

- Change in wealth share of group $i$ depends on difference to growth in the macroeconomy
  \[
  \frac{\omega_{t+1}^i}{\omega_t^i} = \frac{1 + q_t^i + \sigma_t^i}{1 + q_t + \sigma_t}
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- Savings component $\sigma_t^i$ transmits income inequality to wealth inequality
Wealth inequality dynamics

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- High wealth-to-income ratios mute savings flow differences for changes in wealth stocks $\sigma_t^i = s_t^i \frac{Y_t^i}{W_t^i}$
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• Asset price component $q_t^i$ multiplies stock of wealth
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- Asset price changes and portfolio heterogeneity can induce large changes of wealth shares in the short run
• Little wealth but large gross positions

• Housing most important asset with high leverage
Portfolio heterogeneity: 50% - 90%

- Housing most important asset class
- Housing held with large leverage
- Small housing position and little leverage
- Large equity share in portfolio
• Middle class exposure to house prices at least 3 times larger than of top 10%
- Middle class exposure to house prices at least 3 times larger than of top 10%

- Increasing house prices good for middle class, increasing stock prices favor top 10%
Race between housing and stock market

- Regression of growth rate of top 10% wealth share on house and stock market price growth

\[
\Delta \log(\omega_{t+1}^{top10}) = \beta_0 + \beta_h \Delta \log(p^h_{t+1}) + \beta_s \Delta \log(p^s_{t+1}) + \varepsilon_t
\]
Race between housing and stock market

- Regression of growth rate of top 10% wealth share on house and stock market price growth

\[ \Delta \log(\omega_{\text{top}10}^{t+1}) = \beta_0 + \beta_h \Delta \log(p_h^{t+1}) + \beta_s \Delta \log(p_s^{t+1}) + \varepsilon_t \]

- Economically significant “race” coefficients \( \beta_h \) and \( \beta_s \)

| \( \beta_h \) | -0.104 | -0.116 | -0.138* | -0.157** |
| \( \beta_s \) | 0.043* | 0.044* | 0.052** | 0.043* |
| \( \theta_{\text{top}10} \) | no | yes | no | yes |
| \( \frac{Y}{W} \) | no | no | yes | yes |
| N | 19 | 19 | 19 | 19 |
| \( R^2 \) | 0.162 | 0.246 | 0.352 | 0.468 |
Asset price elasticities

- Estimated coefficients correspond to average top 10% wealth share elasticity

1. House prices increased 40% between 1998 and 2007
   - 40% house price increase ⇒ top 10% wealth share 5pp down

2. Stock prices increased 130% between 2008 and 2016
   - 130% stock price increase ⇒ top 10% wealth share 5pp up
Asset price elasticities

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- Changes in wealth shares large given observed asset prices

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Wealth gains from asset prices

- Wealth growth from asset prices between 56% and 95%
- Rising wealth-to-income ratios muted rising income inequality
- Financial crisis induced large losses among bottom 90%
- Wealth inequality strongly increased after 2007
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- Wealth concentration increased almost 5 times more with constant house prices
Wealth inequality and asset prices

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## Wealth inequality and asset prices

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- Wealth concentration increased almost 5 times more with constant house prices
- Wealth concentration declined at constant stock prices
- House price growth slowed down wealth concentration by 26%
Conclusions

• New micro data on the long-run evolution of U.S. households’ financial situation
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• Differential time paths of rising income and wealth inequality
Conclusions

- New micro data on the long-run evolution of U.S. households’ financial situation
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- Systematic portfolio differences and asset price dynamics account for differential trends
Conclusions

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• Differential time paths of rising income and wealth inequality

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• Wealth dynamics constitute a race between the stock and housing market
A glance at Europe

- *Household Finance and Consumption Survey (HFCS)*
A glance at Europe

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- European equivalent to U.S. Survey of Consumer Finances
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- European equivalent to U.S. Survey of Consumer Finances
- Harmonized data for 15 European countries
- Earliest data available for 2011 with 3 waves in total
- Different sampling strategies across countries
- Focus on 2014 data for today
Wealth inequality

- Large differences in top 10% wealth shares across countries

- Slightly above 30% in Slovakia, up to 60% in Germany (U.S. 2013: 75%)
Portfolio composition

- Bottom 90% strongly exposed to housing market large asset share and high leverage
- Top 10% exposed to equity markets
Distribution of asset holdings

- Large share of housing assets held by bottom 90% (U.S. 50%)
Distribution of asset holdings

- Large share of housing assets held by bottom 90% (U.S. 50%)
- Equity is the asset of the top 10% (U.S. >90%)
Housing exposure

• Sort households along the wealth distribution in each country
Housing exposure

- Sort households along the wealth distribution in each country
- Bottom 90% higher housing exposure (U.S. (50%-90%): 0.8)
Housing exposure

- Sort households along the wealth distribution in each country
- Bottom 90% higher housing exposure (U.S. (50%-90%): 0.8)
- Netherlands: 1% increase of house prices wealth +8% for bottom 50% (U.S. +1.5% - 3.5%)
Summarizing the glance at Europe

- High levels of wealth concentration across Europe
Summarizing the glance at Europe

- High levels of wealth concentration across Europe
- Systematic portfolio differences along the wealth distribution
Summarizing the glance at Europe

- High levels of wealth concentration across Europe
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- Housing is the asset of the bottom 90%
Summarizing the glance at Europe

- High levels of wealth concentration across Europe
- Systematic portfolio differences along the wealth distribution
- Housing is the asset of the bottom 90%
- Large house price exposure of bottom 90%
Part II

The College Wealth Divide: Education and Inequality in America
1956 - 2016

joint work with

Alina Bartscher and Moritz Schularick
Motivation

- Wealth and income inequality are at historical highs

- Rising college wage premium driver of rising income inequality

- Education turned into a key stratifying dimension in U.S. society

- Data limitations impede studying long-run wealth differences
Motivation

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Motivation

- Wealth and income inequality are at historical highs
- Rising *college wage premium* driver of rising income inequality
- Education turned into a key stratifying dimension in U.S. society
- Data limitations impede studying long-run wealth differences across education groups
Results

- Newly compiled SCF+ micro data match macro trends from NIPA and FFA
- Diverging income trends in line with previous research
- Strongly increasing wealth divide between college and non-college households
- Share of college-educated households relatively constant across wealth groups
- Rising stock prices appear as driver of college wealth divide
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Income divide

- No real income growth for non-college households since 1971
Income divide

- No real income growth for non-college households since 1971
- 50% increase of income divide between college and non-college households
Wealth divide

- Meager wealth growth of non-college households since 1971
Wealth divide

- Meager wealth growth of non-college households since 1971
- Tripling of wealth for college households
College households in the wealth distribution

- College households across wealth groups

[Bar chart showing the distribution of college and non-college households along the wealth distribution roughly stable from 1950 to 2016.]
College households in the wealth distribution

- College households across wealth groups

- Distribution of college and non-college households along the wealth distribution roughly stable
College households in the wealth distribution

- Non-college households across wealth groups

- Distribution of college and non-college households along the wealth distribution roughly stable
Wealth growth accounting

- Regress wealth growth on income growth

\[
\frac{W_i^t}{W_j^{1971}} = \alpha \frac{Y_i^t}{Y_j^{1971}} + \beta \times \text{age}_t^i + \gamma_t \left( \text{year} \times \text{college}_t^i \right) + \varepsilon_{i,t}
\]

with \( j \) for college and non-college
Wealth growth accounting

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\]

with \( j \) for college and non-college

- Increasing residual “college effect” \( \gamma_t \) over time
Stock prices and wealth divide

- Stock market growth strongly correlates with estimated “college effect” $\gamma_t$
Stock market and wealth dynamics

- Regress “college effect” on stock price growth $P_t$

\[
\gamma_t = \alpha + \phi \left( \frac{P_t}{P_{1970}} \right) + \hat{\gamma}_t
\]
Stock market and wealth dynamics

- Regress “college effect” on stock price growth $P_t$

$$\gamma_t = \alpha + \phi \left( \frac{P_t}{P_{1970}} \right) + \hat{\gamma}_t$$

- Residual “college effect” $\hat{\gamma}_t$ shows no time trend
Conclusions

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• Differential wealth growth of college and non-college households
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• Large part of wealth growth of college households not due to income growth
Conclusions

- New micro data on the long-run evolution of U.S. households’ financial situation
- Differential wealth growth of college and non-college households
- Large part of wealth growth of college households not due to income growth
- Evidence points towards large capital gains from stock market for college households
Part III

Inequality and Household Debt in America
1950 - 2019

joint work with

Alina Bartscher, Moritz Schularick, and Ulrike Steins
Motivation

• Household debt in the United States increased fourfold relative to income since 1950
Motivation

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- Traditional focus when studying macroeconomic dynamics was on net worth and its distribution.
Motivation

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• Traditional focus when studying macroeconomic dynamics was on net worth and its distribution

• Recent work points to household portfolios and debt as determinant for
  1. depth of recessions
  2. consumption growth
  3. effectiveness of stabilization policy
  4. changes in wealth inequality

• Data limitations impaired analysis of changes in this distribution over time
Motivation

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• Key for the macroeconomic dynamics is the joint distribution of income, debt, and assets
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Contribution

- Document the joint distribution of income, debt, and assets over seven decades
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- Provide a comprehensive picture of the evolution of household debt in the United States
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• Document the joint distribution of income, debt, and assets over seven decades

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• Document the important role of home equity extraction for U.S. debt boom
Contribution

- Document the joint distribution of income, debt, and assets over seven decades
- Provide a comprehensive picture of the evolution of household debt in the United States
- Document the important role of home equity extraction for U.S. debt boom
- Highlight connection between capital gains and increasing household debt
Results

- Largest contribution to debt increase from middle class (50%-90% of the income distribution)
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- Divergence of income growth and debt growth starting in the 1970s
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• Despite strongly rising debt of middle-class, middle-class wealth was also rising
  1. Rising house prices and capital gains made households richer
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  1. Rising house prices and capital gains made households richer
  2. Equity extraction accounts for 50% of the debt boom since 1970s

• Balance sheet expansion supports important role of portfolio composition for macroeconomic dynamics
Macro trends from micro data

- Aggregated micro data match macro growth trends
- Micro data informative about underlying distributional dynamics
Macro trends from micro data

- Aggregated micro data match macro growth trends
- Micro data informative about underlying distributional dynamics
• Distribution of debt stable over time

- Middle class households owe 50% of American debt
- Top 10% owe about one-third of household debt
Distribution of debt

- Distribution of debt stable over time
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Distribution of debt

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Contribution to debt increase since 1950

- Large middle-class debt share implies large contribution to aggregate debt growth

- Middle class accounts for more than half of the debt increase since 1950
Divergence of debt and income growth

- Strong divergence of debt and income growth since 1971

**Bottom 50% (1971=1)**

**Middle class (1971=1)**
Divergence of debt and income growth

- Divergence across all demographic groups

**Education**

**Age**

**Marital status**

**Race**
Large wealth gains for the middle class

- Stagnating middle-class incomes contemporaneous to large capital gains in housing market
Large wealth gains for the middle class

• Stagnating middle-class incomes contemporaneous to large capital gains in housing market

• Housing-to-income ratios increased by almost 200pp since 1971
Wealth richer middle class despite higher debt

- Rising debt levels counterbalanced rising asset values
- American middle class was never wealthier than at peak of the debt boom
Equity extraction as reaction to house price boom

- Increasing house prices lead to large capital gains
Equity extraction as reaction to house price boom

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- Increasing mortgage debt allows households to extract such equity gains
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Equity extraction as reaction to house price boom

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Equity extraction as reaction to house price boom

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• Increasing mortgage debt allows households to extract such equity gains

• Complement SCF+ data with data from *Panel Study of Income Dynamics* (PSID)

• PSID data provide annual house values and mortgage debt

• Panel structure allows estimation of equity extraction by income groups
PSID analysis

• Identify four household groups in PSID data
PSID analysis

• Identify four household groups in PSID data

1. **Extractors** (Bhutta and Keys (2016)) are households who
   
   (a) did not purchase a new home

   (b) increased nominal mortgage balance by more than 5%
PSID analysis

• Identify four household groups in PSID data

1. **Extractors**

2. **Upgraders** are households who
   
   (a) were homeowners before
   
   (b) bought a new house
   
   (c) either explicitly state upgrading as a reason to move or moved to a home with more rooms
PSID analysis

• Identify four household groups in PSID data

1. Extractors

2. Upgraders

3. Downgraders are households equivalent to upgraders (downgrading as reason or fewer rooms)
PSID analysis

• Identify four household groups in PSID data

  1. Extractors
  2. Upgraders
  3. Downgraders
  4. New owners are households who
     (a) bought a house
     (b) were no homeowners in the previous two surveys
Contributions to the debt increase

- Decomposition captures 90% of the debt increase since 1977
- Equity extraction alone accounts $\approx 50\%$ of debt increase
- Upgraders account for another 35% of the debt increase
- All income groups extracted substantial home equity
- Stronger increase of income share among bottom 90%
- Up to 7% equity extraction relative to annual income
Conclusions

• Strong divergence of income and debt growth since 1970s

• Middle class main driver of the debt boom since 1950

• Equity extraction accounts for 50% of debt increase since 1970s

• Rising debt as result of asset-based borrowing against rising house prices
Part IV
The racial wealth gap, 1860-2020

joint work with

Ellora Derenoncourt, Chi Hyun Kim, and Moritz Schularick
Motivation

- The largest racial economic gap continues to be wealth
  - White to Black wealth ratio in 2019 is 6:1
  - Compared to income ratio of 1.5:1
- Wealth gap remarkably stable over the late 20th century
- We know little of its evolution prior to modern wealth data

[Du Bois (1901); Spriggs (1984); Margo (1984); Margo & Collins (2011)]
Contribution

- Compile first long-run series on the racial wealth gap from Civil War to the present
  - Fill in $\approx 100$ missing years of data, 1880s-1980s
- Rationalize shape of wealth convergence with a stylized model
- Explain mechanisms behind times of convergence/divergence
- Shed light on future of gap and policy implications
Definitions and data sources

- Wealth gap: white-to-Black per capita wealth ratio
- White wealth = total wealth - Black wealth
- Primary data sources:
  - US Census, 1860 & 1870: **gross wealth**
  - Census “Wealth, debt, & taxation report”: **taxable wealth**
  - Southern state tax records, 1860s-1910s: **taxable wealth**
  - Monroe Nathan Work, 1920-1940: **aggregate Black wealth**
  - SCF+ (Kuhn et al., 2020), 1949-present: **networth/wealth**
White-Black per capita wealth ratio, 1860-2020  Authors' series log
White-Black wealth ratio, 1860-2020

Incorporates enslaved population with zero assumed wealth in 1860.
Census measure of per capita Black wealth.
White-Black wealth ratio, 1860-2020

Authors’ series

1870 wealth ratio from Census and national wealth from 1922 Census report. Robust to sensitivity analyses addressing censoring from below.
White-Black wealth ratio, 1860-2020

Authors’ series

White-Black wealth ratio, 1860-2020

SCF+: 1950-2020,
wealth = marketable assets - debt
Key takeaways from the long-run series

• Rapid convergence after Emancipation
  • In 1860, White to Black wealth ratio is 56 to 1
  • By 1920, White to Black wealth ratio is $\approx 10$ to 1

• Convergence slows dramatically by mid 20th century
  • White to Black wealth ratio in 1950s is 7 to 1
  • White to Black wealth ratio in 2019 is 6 to 1

• Overall series exhibits a “hockey-stick” shape
The trajectory of the racial wealth gap

- Wealth accumulation model:

\[ W_{t+1} = (1 + q) \cdot (W_t + sY_t) \]

\[ Y_t = (1 + g) \cdot Y_{t-1} \]

with \( q \) capital gains, \( s \) saving rate, and \( g \) income growth

- Growth rate of the racial wealth gap (\( WR = \frac{W^w}{W^b} \)):

\[
\log \left( \frac{WR_{t+1}}{WR_t} \right) \approx \left( q^w - q^b \right) + \left[ s^w \frac{Y^w_t}{W^w_t} - s^b \frac{Y^b_t}{W^b_t} \right]
\]

Differences in capital gains

Differences in saving
Counterfactual experiment: equal wealth accumulation

How would the racial wealth gap have evolved, if Black and white Americans had equal wealth accumulating conditions?

- Evolution of the racial wealth gap assuming $q^w = q^b$, $s^w = s^b$
  \[
  \log \left( \frac{WR_{t+1}}{WR_t} \right) = s \cdot \left( \frac{Y^w_t}{W_t^w} - \frac{Y^b_t}{W_t^b} \right).
  \]

- $q = 1\%$, $s = 5\%$ (Saez and Zucman, 2016)

- Plug in empirical income growth $g^b = 2.3\%$ and $g^w = 2\%$

- Start from wealth and income gap in 1870 of 23 (wealth) and 3.6 (income)
The legacy of slavery

- Wealth gap today still the result of very unequal starting conditions in 1870
Empirical convergence slower compared to simulation

- Different wealth accumulation conditions rationalize historical time series ($s^w = 5\%$ vs. $s^b = 3.9\%$ and $q^w = 1\%$ vs. $q^b = 0.8\%$)
Periods of slower vs. faster convergence

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<th>Data</th>
<th>Simulation (equal qs)</th>
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<td>1930-1960</td>
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<td>1960-1980</td>
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<td>1980-2020</td>
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Stalled convergences post-1980

- Log wealth gap highlights stop of wealth convergence $\approx 1980$
Heterogeneous capital gains due to portfolio composition

Black and white Americans have different portfolio structure

- Black: Housing main asset (60%), very low equity holdings
- White portfolio is more diversified (housing 40%, equity 20%)
- Equity market boom post-1980 led to $q^b << q^w$

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<td>$q^w - q^b$</td>
<td>0.38 p.p.</td>
<td>0.76 p.p.</td>
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Reduced role for savings, increased role for capital gains

Portfolio differences in combination with asset price dynamics led to increasing racial wealth gap over last 40 years.
Conclusions

• New estimates of white-to-Black wealth ratio for the US, 1860-2020
  • Hockey-stick shape of convergence
  • Legacy of slavery: full convergence is a distant scenario
  • Portfolio differences and asset price dynamics reversed closing of the wealth gap
• Reparations effective in closing racial wealth gap quickly
• Policies targeting wealth accumulation conditions necessary to stabilize racial wealth gap
Part V

2013 Update on the U.S. Earnings, Income, and Wealth Distributional Facts: A View from Macroeconomics

joint work with

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Motivation

• Debate on policy responses to income and wealth inequality
• Provide a description of inequality in the United States
• Earnings, income, and wealth data from the Survey of Consumer Finances
• Focus on 2013 contrast to trends over past 25 years
A quick reminder: U.S. inequality in 2013

- Wealth most unequally distributed
- Distributions highly right-skewed
- Earnings, income, and wealth concentration “at the top”

<table>
<thead>
<tr>
<th></th>
<th>Earnings</th>
<th>Income</th>
<th>Wealth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient of variation</td>
<td>3.69</td>
<td>4.19</td>
<td>6.81</td>
</tr>
<tr>
<td>Variance of logs</td>
<td>1.50</td>
<td>0.99</td>
<td>4.80</td>
</tr>
<tr>
<td>Gini indexes</td>
<td>0.67</td>
<td>0.58</td>
<td>0.85</td>
</tr>
<tr>
<td>Location of mean</td>
<td>70</td>
<td>74</td>
<td>83</td>
</tr>
<tr>
<td>99-50 ratio</td>
<td>17.46</td>
<td>14.78</td>
<td>96.81</td>
</tr>
<tr>
<td>90-50 ratio</td>
<td>4.15</td>
<td>3.33</td>
<td>11.56</td>
</tr>
<tr>
<td>Mean-to-median ratio</td>
<td>1.96</td>
<td>1.85</td>
<td>6.49</td>
</tr>
<tr>
<td>50-30 ratio</td>
<td>3.21</td>
<td>1.64</td>
<td>5.50</td>
</tr>
</tbody>
</table>
How do we measure inequality?

- Debate about rising inequality about top 1% (or smaller group)
- One point on Lorenz curve uninformative about bottom 99%
- Gini coefficient describes inequality with focus on the middle
- Coefficient of variation describes inequality with focus on tails

Top 10%
Top 1%
Lower Gini
Lower CV
Identical "at the top"
Income inequality trends 1989 - 2013

- Gini coefficient of income increased (0.55 → 0.58)

⇒ Disappearance of the middle class

Figure: Lorenz curves of income
Income inequality trends 1989 - 2013

- Gini coefficient of income increased (0.55 ↗ 0.58)
  ⇒ Disappearance of the middle class

- Coefficient of variation of income decreased (4.61 ↘ 4.19)
  ⇒ Catching-up of the poor
Sources of inequality

- Policy implications of rising inequality widely discussed
Sources of inequality

• Policy implications of rising inequality widely discussed

• Sources of inequality key information for policy recommendation
Sources of inequality

- Policy implications of rising inequality widely discussed
- Sources of inequality key information for policy recommendation
- SCF data has information about who the wealthy are
Who are the wealthiest (top 1 % of wealth)?

- They are older
  
  80 % are over 50 years (50 % in population)

- They are better educated

- They are entrepreneurial

  60 % are self-employed (10 % in population)

- Taxing wealth? Tax on the older, better educated, and entrepreneurial
Who are the wealthiest (top 1 % of wealth)?

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Sources of Wealth Inequality, 2013

<table>
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<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid assets</td>
<td>0.06</td>
<td>0.87</td>
<td>0.89</td>
<td>0.77</td>
<td>0.06</td>
</tr>
<tr>
<td>Mutual funds</td>
<td>0.07</td>
<td>0.98</td>
<td>0.95</td>
<td>0.94</td>
<td>0.08</td>
</tr>
<tr>
<td>Stocks</td>
<td>0.07</td>
<td>0.98</td>
<td>0.95</td>
<td>0.93</td>
<td>0.08</td>
</tr>
<tr>
<td>Bonds</td>
<td>0.02</td>
<td>1.00</td>
<td>0.97</td>
<td>0.97</td>
<td>0.02</td>
</tr>
<tr>
<td>Ret. accts.</td>
<td>0.19</td>
<td>0.87</td>
<td>0.90</td>
<td>0.78</td>
<td>0.17</td>
</tr>
<tr>
<td>Houses</td>
<td>0.32</td>
<td>0.68</td>
<td>0.83</td>
<td>0.56</td>
<td>0.21</td>
</tr>
<tr>
<td>Vehicles</td>
<td>0.04</td>
<td>0.54</td>
<td>0.57</td>
<td>0.31</td>
<td>0.01</td>
</tr>
<tr>
<td>Business</td>
<td>0.21</td>
<td>0.99</td>
<td>0.96</td>
<td>0.95</td>
<td>0.23</td>
</tr>
<tr>
<td>Mtge + HELOCs</td>
<td>-0.13</td>
<td>-0.77</td>
<td>-0.43</td>
<td>0.33</td>
<td>-0.05</td>
</tr>
<tr>
<td>Installment loans</td>
<td>-0.02</td>
<td>-0.80</td>
<td>0.27</td>
<td>-0.22</td>
<td>0.01</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.0</td>
<td>0.85</td>
<td>1.0</td>
<td>0.85</td>
<td>0.85</td>
</tr>
</tbody>
</table>

$S_k$: wealth share

$R_k$: correlation between component and wealth

$G_k$: Gini of wealth component

$I_k = R_k \times G_k \times S_k$: contribution to Gini
Wealth inequality

- Over 70% of assets are business equity, houses, and retirement accounts
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• Three asset classes account for 70% of inequality (Gini coefficient)
Wealth inequality

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- Three asset classes account for 70% of inequality (Gini coefficient).
- Stocks, bonds, and mutual funds account for less than 20% of inequality.
Conclusions

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   • Disappearance of the middle class, catch up of the bottom
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4. Household portfolios differ along the wealth distribution  
   - The poor are sensitive to house prices, the rich to equity prices
Take a look yourself

- All results can be founded and downloaded at

https://sites.google.com/site/kuhnecon/home/us-inequality
Summary

• Income and Wealth Inequality are at historical highs
• Wealth inequality and portfolio differences are tightly linked
• Portfolio differences by wealth, income, education, age, and race
• Asset prices important driver of wealth inequality
• Future work needs to understand better portfolio allocation, asset prices, and their interaction
• For questions, please send an email to mokuhn@uni-bonn.de