

The Anatomy of the Global Saving Glut

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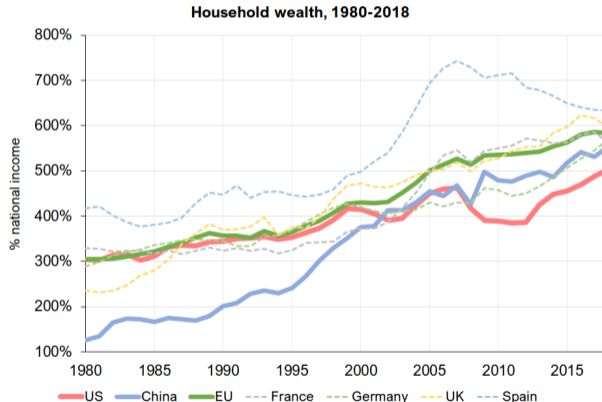
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EEA 2023 Congress

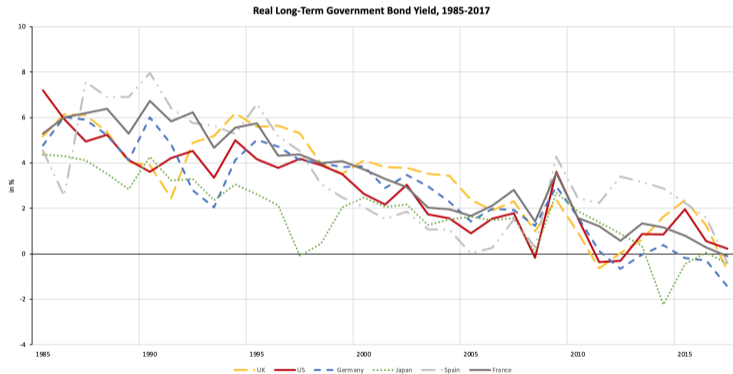
August 30, 2023

The global wealth boom



Source: Own computations from national balance sheets. China from Piketty et al. (2019).

The global decline in real interest rates



Source: Own computations from the Jordà-Schularick-Taylor Macroeconomy Database.

This paper

Household-level micro perspective on the sources of the “**saving glut**” in global capital markets since the 1980s: who saved more? how? why?

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- **Individual asset classes:** housing, equity, and fixed-income assets

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- **Across the household wealth distribution:** top-10, 50-90, bottom-50

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- **Savings flows vs. capital gains:** disentangle sources of wealth growth
- **Individual asset classes:** housing, equity, and fixed-income assets
- **Across the household wealth distribution:** top-10, 50-90, bottom-50
- **For the major G3-economies:** US, Europe (DE, FR, GB, ES) and China

Where this fits in

International finance: Bernanke, 2005; Caballero, Farhi, Gourinchas, AER 2008; Chen, Karabarbounis and Neiman, 2017 JME, Gourinchas and Rey 2019; Mian, Sufi, Straub, 2021.

- Outward shift in global saving supply schedule and effect on equilibrium interest rates and returns.

Household finance: Bach, Calvet, Sodini AER 2020; Fagereng, Guiso, Malacrino, Pistaferri, ECMA 2020; Kuhn, Schularick, Steins, JPE 2020.

- Portfolio heterogeneity, asset prices and consequences for wealth dynamics.

Wealth distribution: Piketty and Zucman, QJE 2014; Saez & Zucman, QJE 2016; Benhabib and Bisin, JEL 2018; Garbinti, Goupille and Piketty, JEEA 2020; Albers, Bartels and Schularick, 2022.

- Long-run dynamics and drivers of wealth and its distribution.

Data

1 Data on aggregate wealth and saving:

- Official balance sheets, financial accounts and capital accounts (China from Piketty et al., 2019; else [NEW](#)).
- Construct asset-specific saving and capital gains ([NEW](#)).

2 Household distributional series:

- USA: Saez & Zucman (2016), Piketty et al. (2018)
- China: updated survey data: CHIP and CFPS ([NEW](#))
- France: Garbinti, Goupille & Piketty (2020)
- UK: estate tax and survey data ([NEW](#))
- Germany: 1993-2018 from Albers, Bartels & Schularick (2021); 1983-1993 ([NEW](#))
- Spain: Martínez-Toledano (2020)

1. Intro
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2. Data
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3. Saving vs. capital gains
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4. Post-1980 saving trends
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5. Corporate-rich saving glut
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Saving flows vs. capital gains

Saving vs capital gains: methodology

- **Step 1: aggregate:** asset-specific (A) growth decomposition into capital gains (q) and saving (S):

$$A_{t+1} = (1 + q_{t+1,A})A_t + S_{t+1,A}$$

JST capital gains

- **Step 2: distribution:** Extend to specific wealth groups ('synthetic saving method'; Saez and Zucman, 2016; Mian et al. 2021):

$$A_{t+1}^i = (1 + q_{t+1,A})A_t^i + S_{t+1,A}^i$$

SZ-2016 & MSS-2021

heterog. cap. gains

Data: A and S from national accounts; A^i from distributional data.

Global wealth boom, 1980-2018: savings vs. capital gains

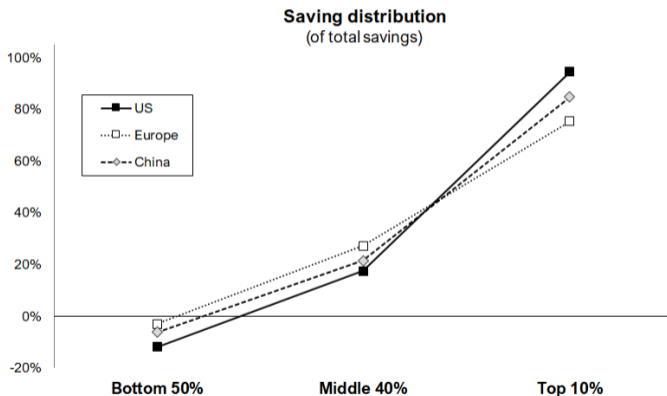
Table: **Decomposition of aggregate household wealth accumulation in the U.S. (1980-2018), Europe (1980-2018) and China (1995-2018)**

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
	Annual wealth growth	% due to saving	Net housing	Net fixed-income assets	Equity and business	% due to cap. gains	Net housing	Net fixed-income assets	Equity and business
U.S.	4.0%	55%	-6%	42%	19%	45%	28%	-10%	27%
Europe	3.9%	59%	-4%	43%	20%	41%	52%	-12%	1%
China	12.5%	48%	4%	28%	16%	52%	44%	-8%	16%

⇒ Saving: 50-60% of the wealth boom; cap gains: 40-50%.

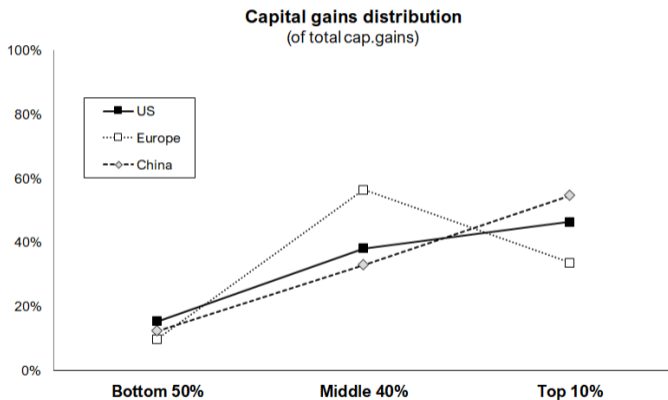
⇒ Saving: mostly in financial assets; cap gains: mainly housing.

Saving distribution: 1980-2018



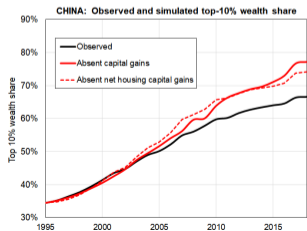
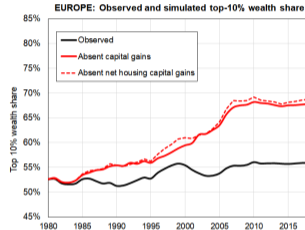
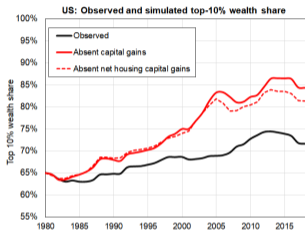
Note: Europe is the weighted average of FR, DE, UK, ES. Results for China refer to the 1995-2018 period.

Capital gains distribution: 1980-2018



Note: Europe is the weighted average of FR, DE, UK, ES. Results for China refer to the 1995-2018 period.

Distributional impact: unequalizing saving, equalizing capital gains



Note: Europe = weighted average of France, Germany, Spain and the UK

1. Intro
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2. Data
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3. Saving vs. capital gains
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4. Post-1980 saving trends
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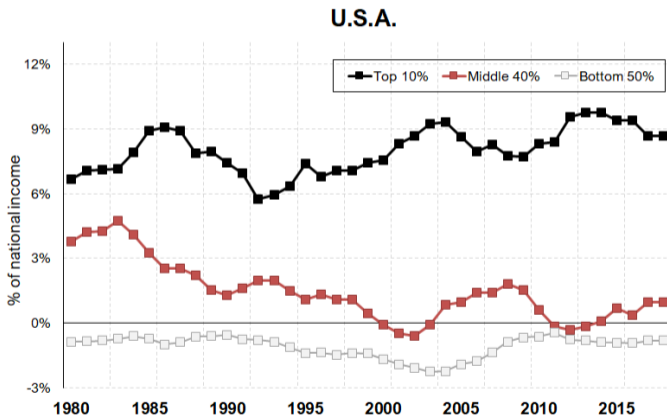
5. Corporate-rich saving glut
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Global saving flows post- 1980

The dynamics of saving since 1980

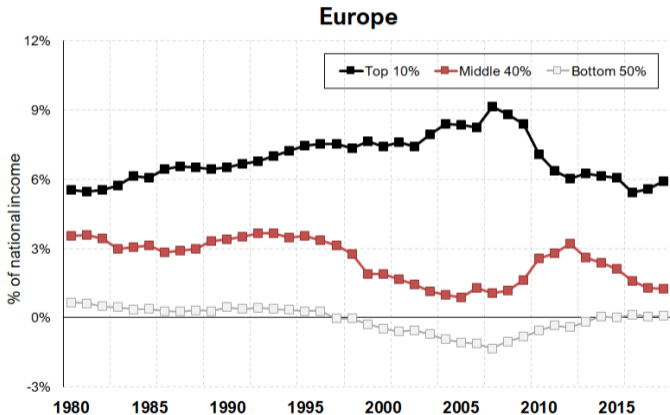
- Track changes in the global savings supply since the 1980s: across economies, across the distribution and across asset classes.
- New savings flows have increasingly been concentrated at the top: “a global saving glut of the rich”
- The bottom-90% of the population have reduced active saving out of income or dis-saved outright across the major economies
- Confirmed by alternative estimation methods, i.e. income less consumption approach ▶ income-consumption

Saving distribution: US



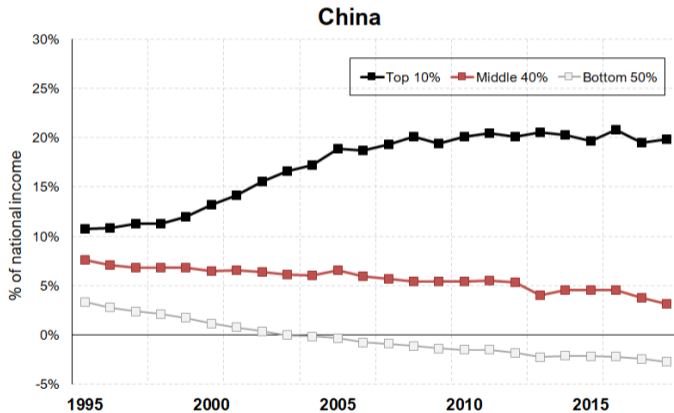
Note: 5-year moving averages.

Saving distribution: Europe



Note: 5-year moving averages. Europe is the combination of FR, DE, UK, ES.

Saving distribution: China



Note: 5-year moving averages.

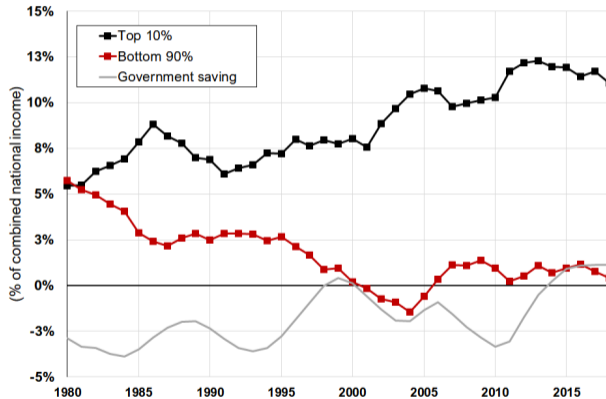
Saving distribution: G3

- Treat G3 as one economy ($G3 \approx 50\%$ world GDP ▶ world saving ▶ G3 GDP ▶ CAs)
- G3 national saving: sum of the national saving of each region i :

$$S_{G3}^N = \sum_i S_i^N = \sum_i S_i^{Top10} + \sum_i S_i^{Bot90} + \sum_i S_i^{G'}$$

- G3 top 10 = US top 10 + China top 10 + EU top 10

The global saving glut of the rich: **the G3**



Note: G3 = China, US, and 4 European countries: UK, FR, DE, and ES. Results use 5-year moving averages.

1. Intro
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2. Data
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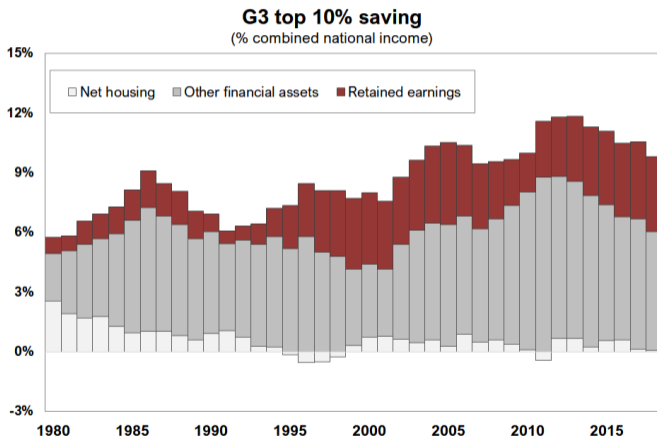
3. Saving vs. capital gains
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4. Post-1980 saving trends
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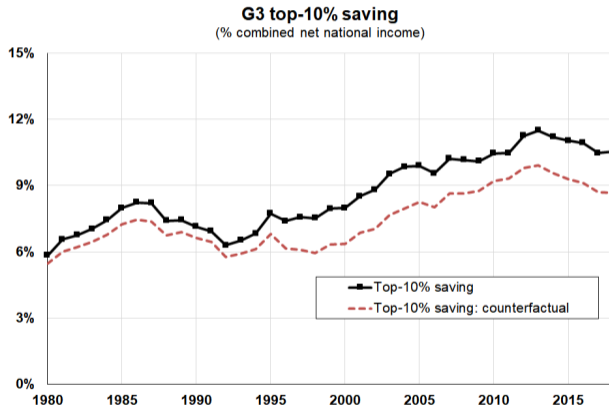
The “global corporate saving glut” and the “saving glut of the rich”

Global top-10 saving: by asset type



Note: G3 = China, US, and 4 European countries: UK, France, Germany, and Spain.

Counterfactual: role of different MPS



Note: G3 = China, US, and 4 European countries: UK, France, Germany, and Spain.

- Counterfactual: retained earnings saved at MPS of dividends (0.5 vs. 0.95)

Conclusions

- **Global wealth boom:** savings flows and capital gains equally important but with a distributional twist
- **Global saving flows** increasingly concentrated at the top, while capital gains were an equalizing force.
- The “**global saving glut of the rich**” is the flip side of the “**global corporate saving glut**” (cf. Chen, Karabarbounis, Neiman 2017 & Mian, Straub, Sufi 2021)

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2. Data
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3. Saving vs. capital gains
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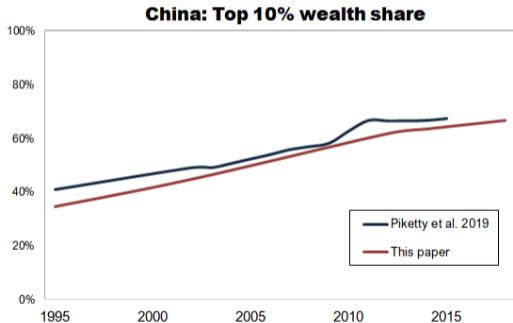
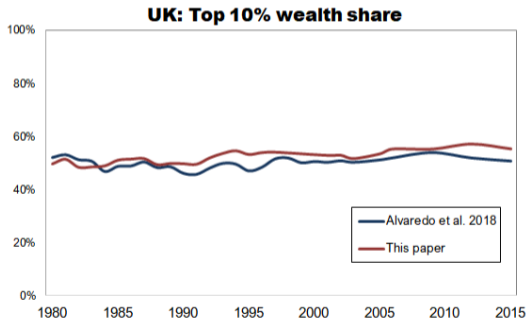
4. Post-1980 saving trends
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5. Corporate-rich saving glut
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THANK YOU!

Appendix

Wealth inequality estimates: UK and China



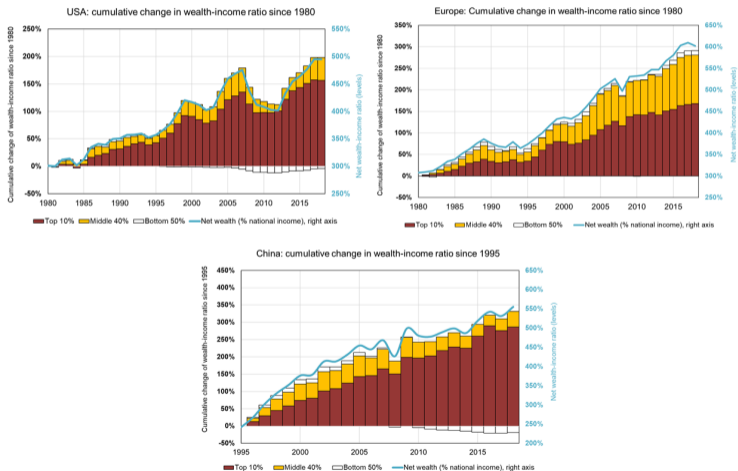
Anatomy of the rise in W/Y ratios

- We start by tracking the W/Y change across the wealth distribution.
- Follow the convention and look at three broad wealth groups: top-10%, 50-90%, bottom-50%.
- Group stability in the wealth distribution reasonably high (cf. Kuhn, Schularick, Steins JPE 2020)

Wealth boom post-1980

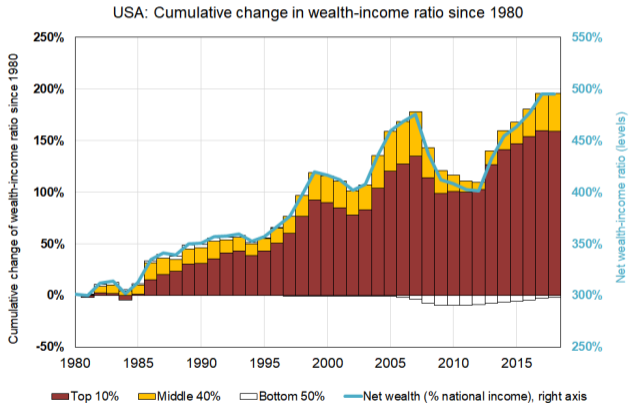
- Top-10% and 50-90% account for the entire increase in W/Y ratio: wealth of bottom 50% stagnated (or fell).
- Not much attention so far: standard inequality measures (Gini, top shares) do not capture polarization between upper and lower half.
- Consequence: P75/25 ratios increased strongly in all countries.

Change in W/Y ratios across the distribution, 1980-2020

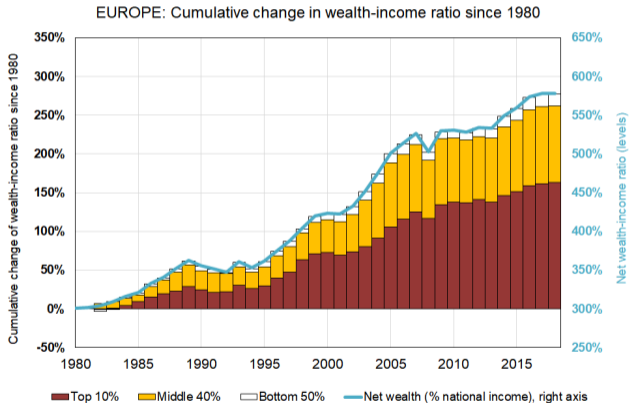


Note: Europe is the weighted average of FR, DE, UK, ES.

US: Change in W/Y ratios across the distribution, 1980-2018

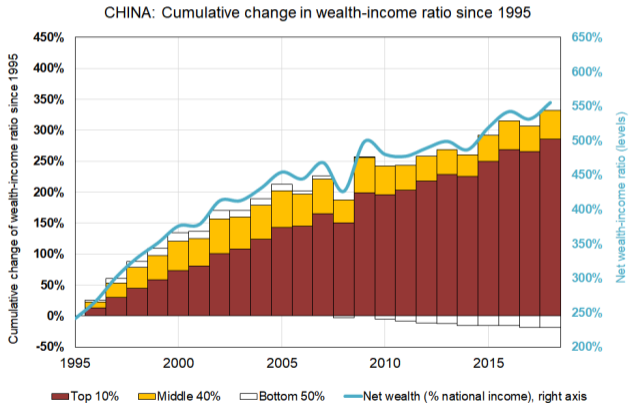


Europe: Change in W/Y ratios across the distribution, 1980-2018

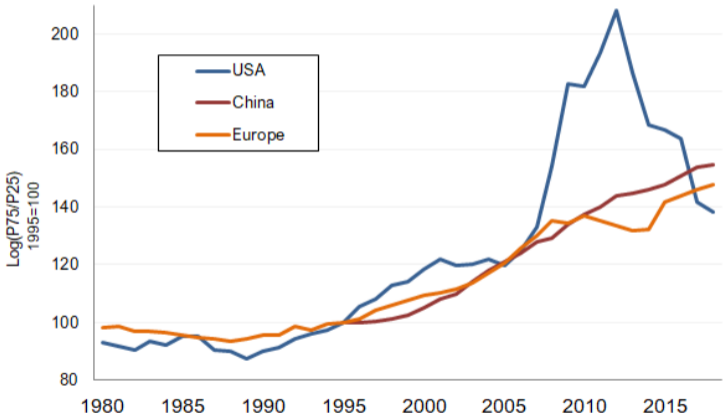


Note: Europe is the weighted average of FR, DE, UK, ES.

China: Change in W/Y ratios across the distribution, 1980-2018

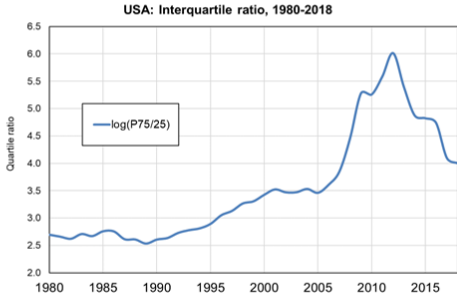
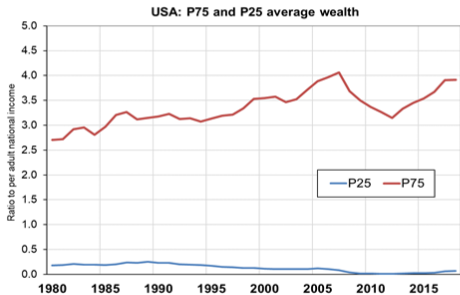


Wealth of 75/25 percentiles, 1995=100



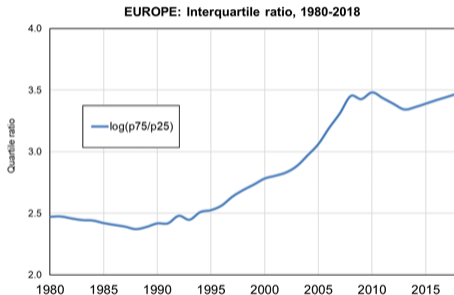
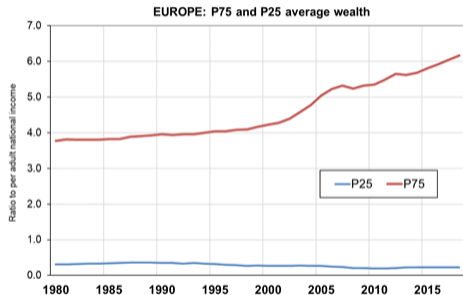
Note: Europe is the weighted average of France and Germany.

Percentiles P75 & P25: US



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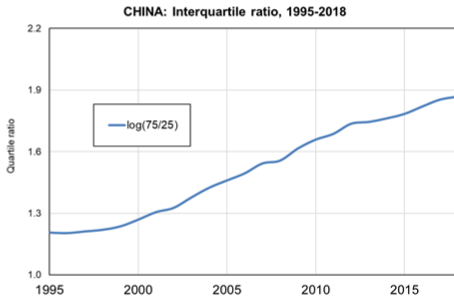
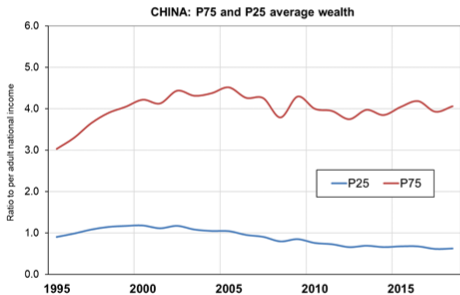
Percentiles P75 & P25: Europe



Note: Europe is the average of France and Germany

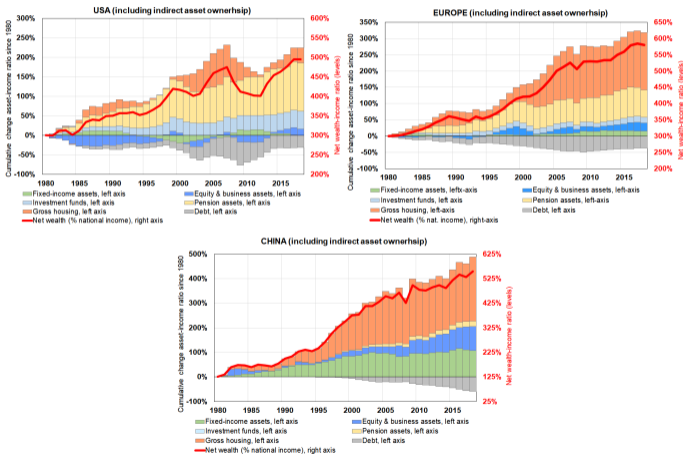
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Percentiles P75 & P25: China



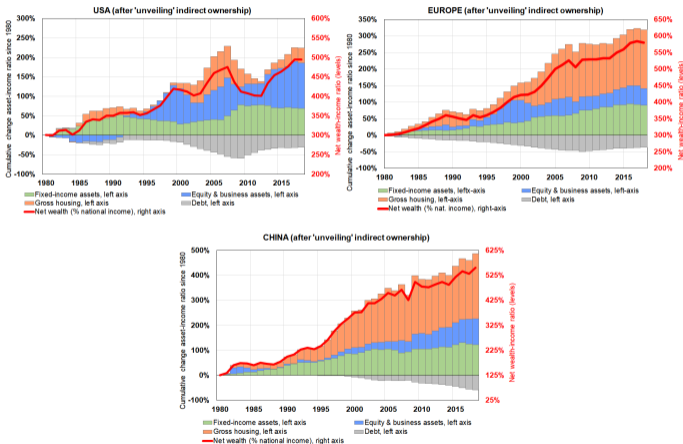
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Increase in W/Y ratios since 1980 by asset class before unveiling



Note: Europe is the weighted average of FR, DE, UK, ES.

Increase in W/Y ratios since 1980 by asset class after unveiling

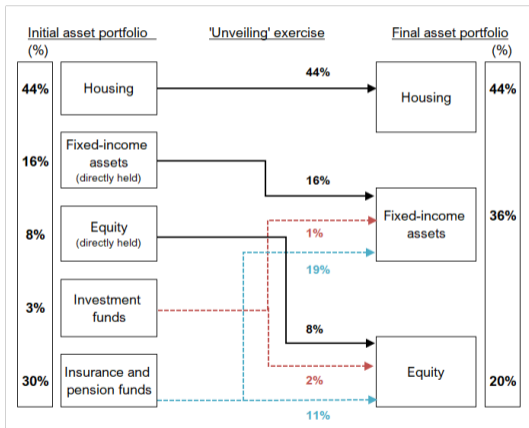


Note: Europe is the weighted average of FR, DE, UK, ES.

Unveiling household portfolios

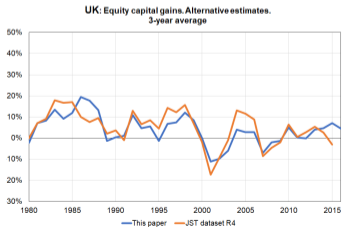
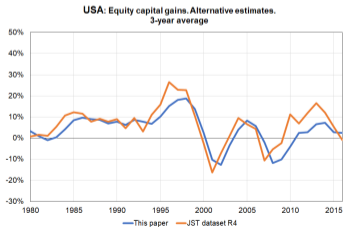
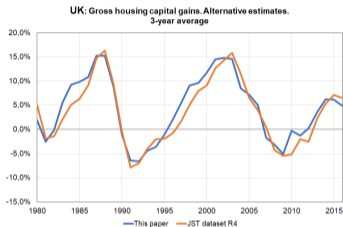
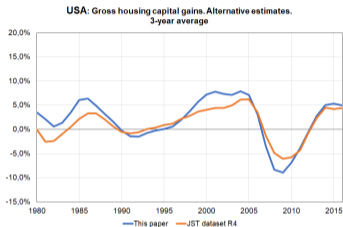
- Why? Growing share of equity and fixed-income assets held indirectly through: (i) investment funds; (ii) pension funds.
- We 'unveil' the indirect portfolio and saving of HHs looking at the portfolio and investment of IFs and PFs.
- Portfolio of households into ultimate ownership of three assets: housing, fixed-income assets and business equity.

Unveiled household portfolio: UK (2018)

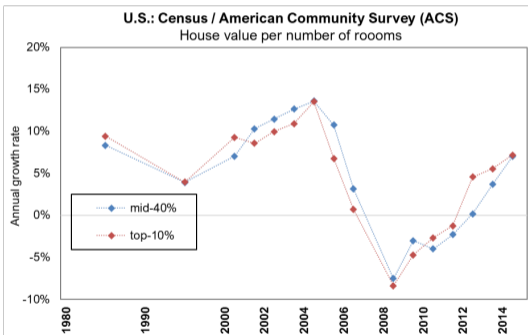
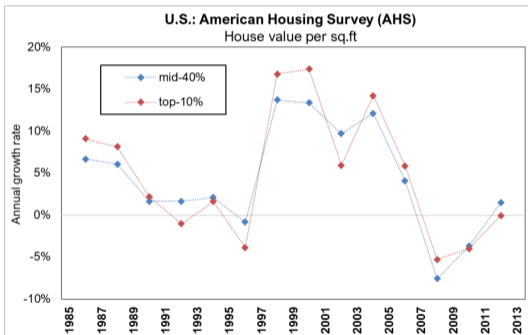


Interpretation: In 2018, 20% of HH portfolio is in equity, 8% directly held.

Method comparison of capital gains in JST

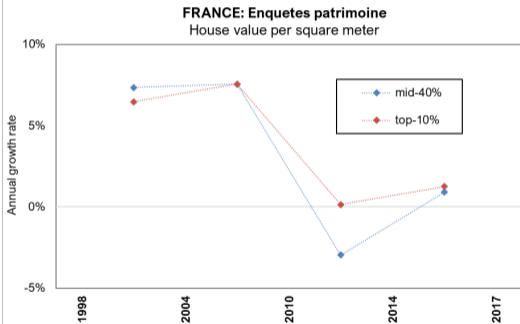
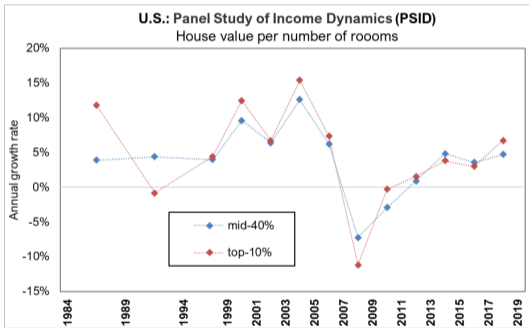


US: heterogeneous housing capital gains



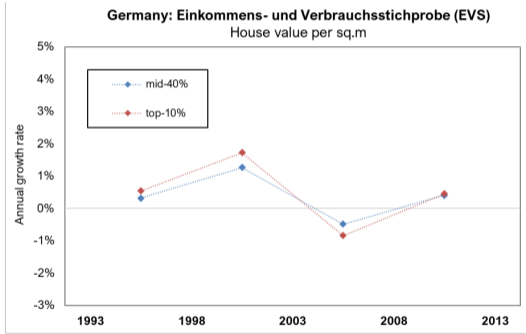
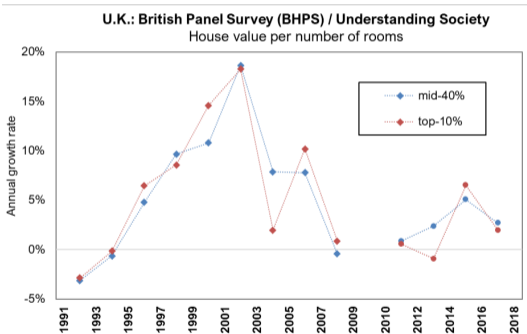
◀ Go Back

US & FR: heterogeneous housing capital gains



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UK & DE: heterogeneous housing capital gains



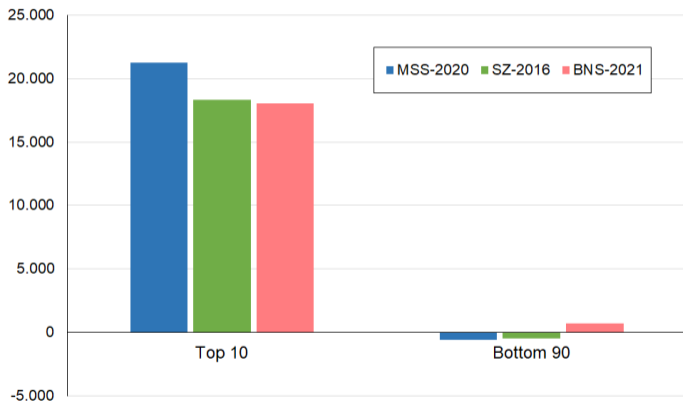
◀ Go Back

Intra-group stability: US and China

	Bottom 50%	Middle 40%	Top 10%
U.S. (1998-2010)	0.838	0.797	0.727
China (2012-2018)	0.755	0.638	0.617

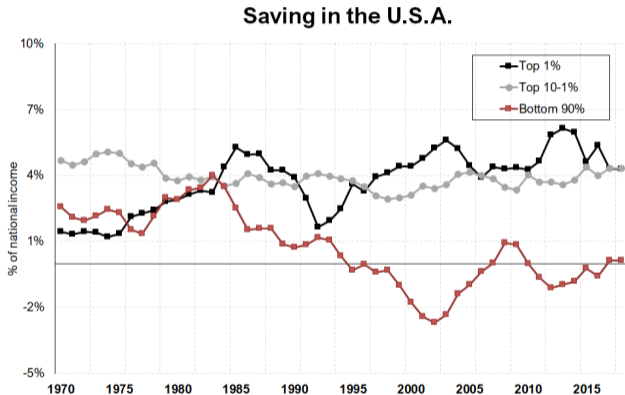
Note: This table shows the average 2-year intra-group persistence for three wealth groups (expressed as a share of households who remain in the wealth group between two survey dates). Estimates for the U.S. from [Kuhn et al. 2020](#) (Tab. C.2) based on the Panel Study of Income Dynamics (PSID); China: own estimate from the China Family Panel Studies (CFPS).

Synthetic savings for the U.S., 1980-2012



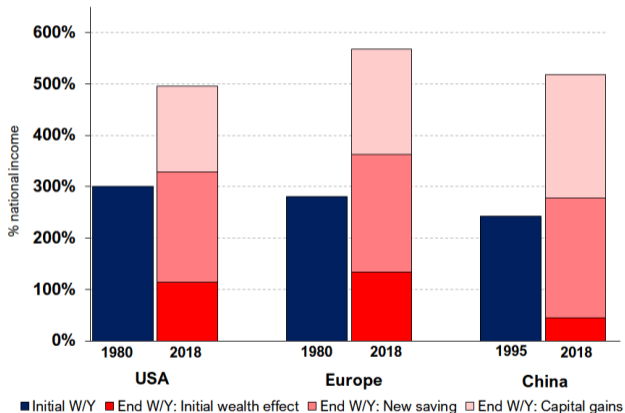
Note: Total accumulated saving, in trillions of USD.

US top-10: top-1 vs. next-9



Note: 5-year moving averages.

Accumulation of private wealth since 1980: saving vs. cap gains



Note: Europe is the weighted average of FR, DE, UK, ES.

Saving and capital gains by asset class and across the distribution

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	Wealth increase due to saving	Net housing	Net fixed-income	Equity and business	Wealth increase due to cap. gains	Net housing	Net fixed-income	Equity and business
U.S.	55%	-6%	42%	19%	45%	28%	-10%	27%
Top 10%	72%	3%	48%	21%	28%	14%	-12%	26%
Middle 40%	37%	-16%	41%	13%	63%	49%	-13%	27%
Europe	59%	-4%	43%	20%	41%	52%	-12%	1%
Top 10%	77%	3%	41%	32%	23%	35%	-9%	-2%
Middle 40%	36%	-11%	39%	8%	64%	69%	-7%	2%
China	48%	4%	28%	16%	52%	44%	-8%	16%
Top 10%	57%	2%	32%	23%	43%	36%	-9%	16%
Middle 40%	38%	12%	29%	-2%	62%	53%	-7%	15%

Note: Europe is the weighted average of FR, DE, UK, ES.

Distributional impact, 1980-2018

- Quantify contribution of saving and capital gains for wealth inequality.
- Start from law of motion of share of wealth owned by a group i in total household wealth:

$$sh_{W,t+1}^i = \frac{W_{t+1}^i}{W_{t+1}} = \frac{W_t^i(1 + q_{t+1}^i) + S_{t+1}^i}{W_t(1 + q_{t+1}) + S_{t+1}}$$

- Dynamics of the wealth share of group i as a function of differential saving ($\frac{S_{t+1}^i}{S_{t+1}}$) and relative capital gains ($\frac{1+q_{t+1}^i}{1+q_{t+1}}$)

Simulation exercise

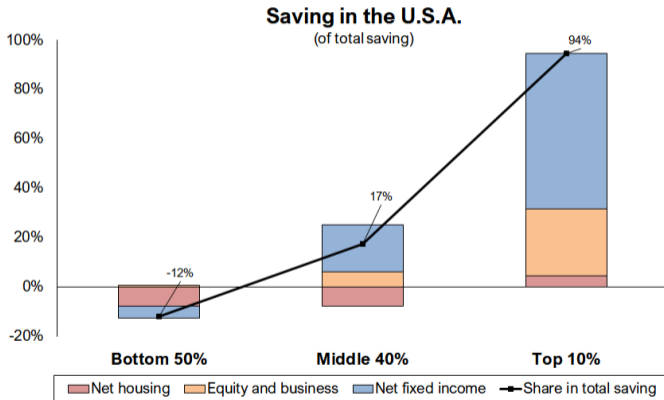
$$sh_{W,t+1}^i = \frac{1 + q_{t+1}^i}{1 + q_{t+1}} \frac{sh_{W,t}^i + sh_{S,t+1}^i \frac{S_{t+1}}{W_t}}{1 + \frac{S_{t+1}}{W_t}}$$

Two steps:

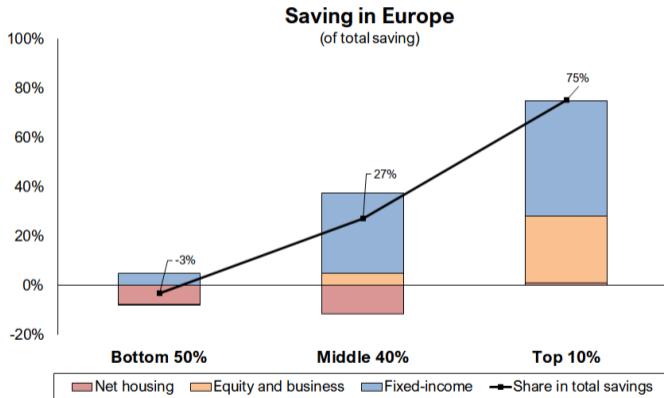
- 1 simulate the development of the wealth shares based on saving alone (KGs=0) – relative saving and aggregate wealth formation
- 2 allow for the differential price effect (allocate estimated real capital gains to the simulated distribution based on saving)

Go back

Saving by asset class and wealth group: US

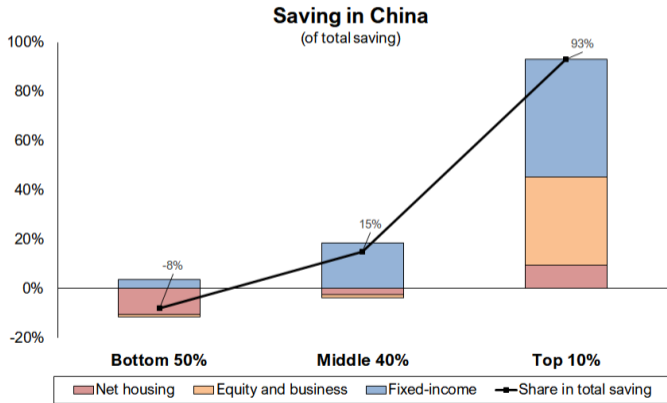


Saving by asset class and wealth group: Europe

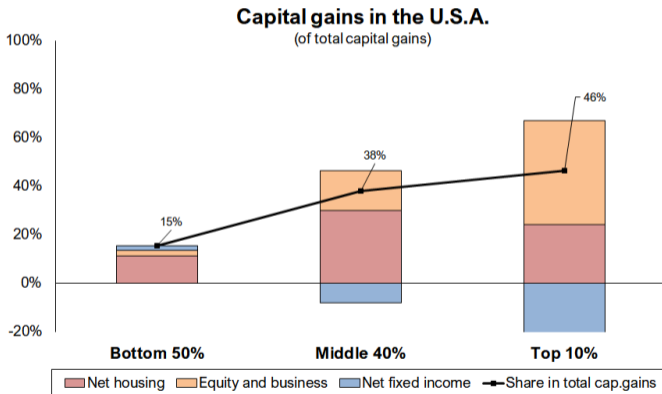


Note: Europe is the weighted average of FR, DE, UK, ES.

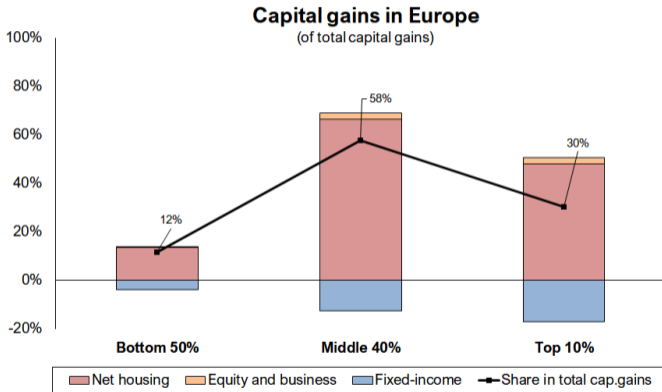
Saving by asset class and wealth group: China



Capital gains by asset class and wealth group: US

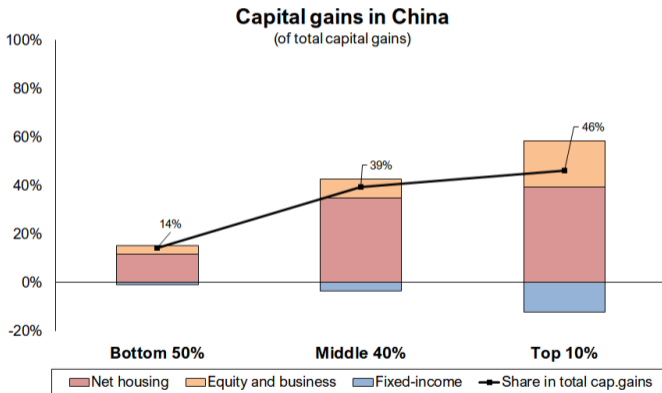


Capital gains by asset class and wealth group: Europe



Note: Europe is the weighted average of FR, DE, UK, ES.

Capital gains by asset class and wealth group: China

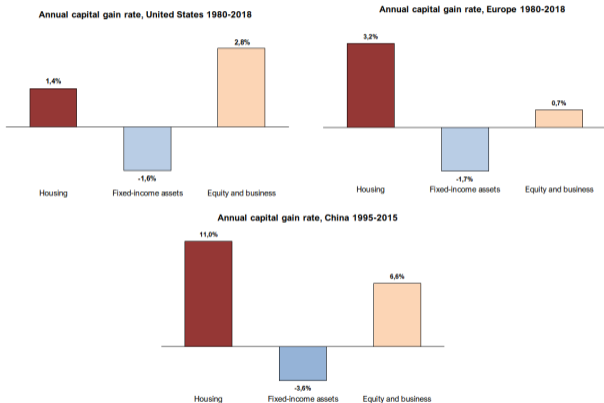


Portfolio composition by wealth group



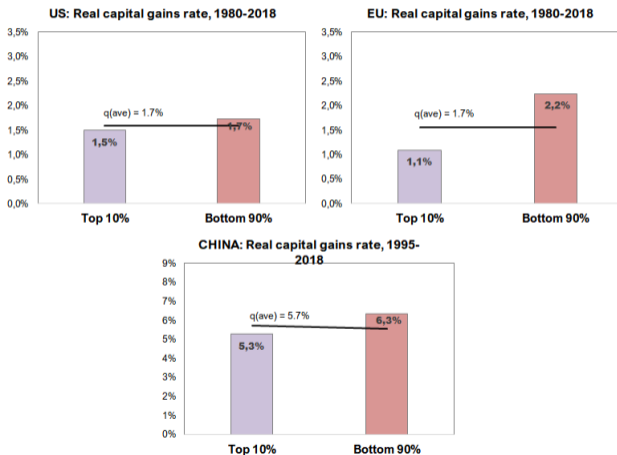
Note: Europe is the weighted average of FR, DE, UK, ES.

Capital gains by asset class: 1980-2018 annual average



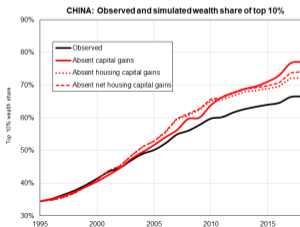
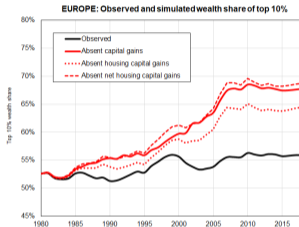
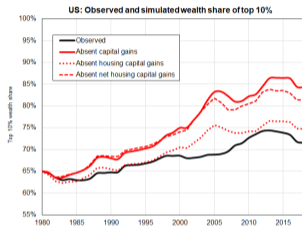
Note: Europe is the weighted average of FR, DE, UK, ES.

Capital gains by wealth group: 1980-2018 annual average



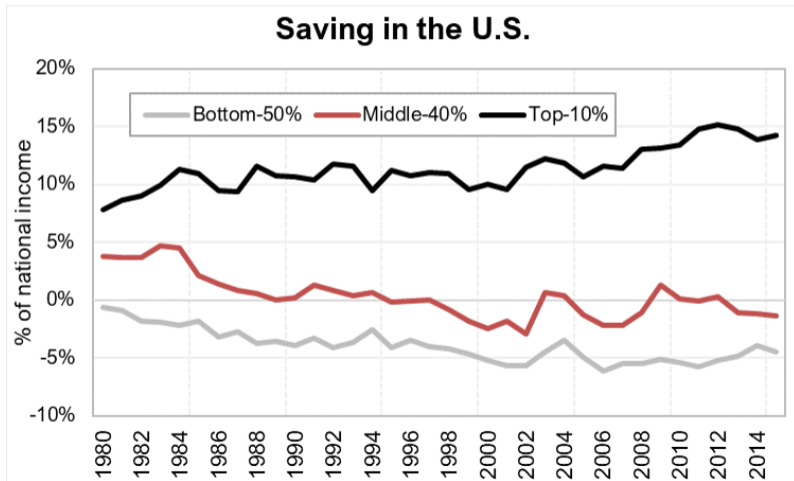
Note: EU is the weighted average of FR, DE, UK, ES.

top-10% wealth shares: simulations



Note: Europe is the weighted average of FR, DE, UK, ES.

US saving distribution: income-minus-consumption method



Income minus consumption method

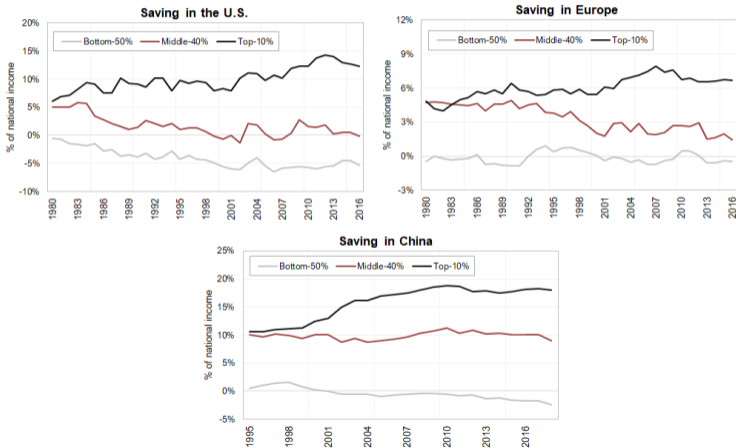
Estimate saving across the income distribution as in Mian, Straub and Sufi (2021):

- 1 Income shares, $IncSh_t^i$, from the Distributional National Accounts (DINA)
- 2 Estimate consumption shares, $ConSh_t^i$, across the income distribution from consumption surveys
 - CEX and PSID in the U.S., CHIP in China, EVS in Germany, BDF in France, FEX/LCFS in the U.K.
- 3 Apply these to the national accounts totals for income ($IncSh_t^i$) and consumption ($Cons_{NA,t}$)

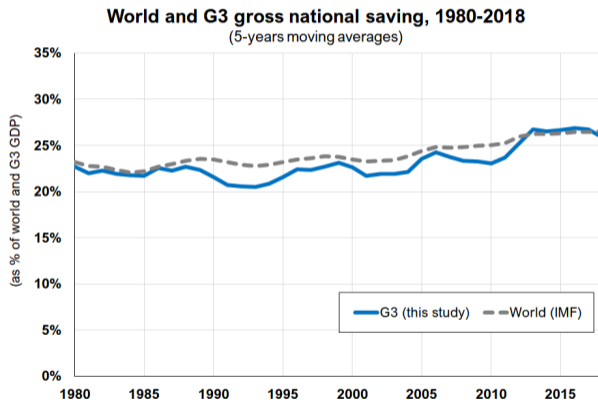
4 Estimate saving across the distribution: $S_{h,t}^i = \frac{IncSh_t^i \times Inc_{NA,t} - ConSh_t^i \times Cons_{NA,t}}{NatInc_{NA,t}}$

Results corroborate rising dispersion of saving worldwide obtained with synthetic savings method. [Go back](#)

Income minus consumption method



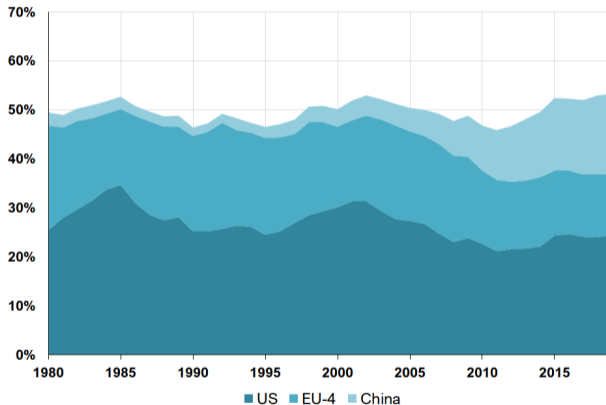
G3 and world gross saving



Note: G3 = China, US, and 4 European countries: UK, FR, DE, and ES. Results use 5-year moving averages.

go back

Share G3 in world GDP, 1980-2019

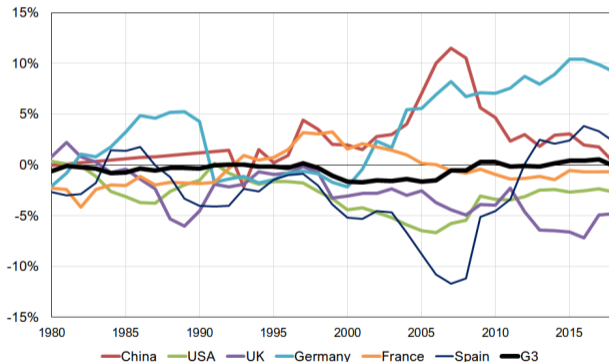


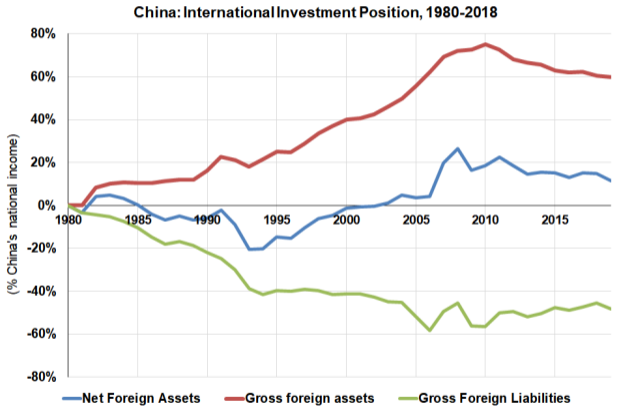
Source: IMF WEO. Note: EU-4 is the weighted average of FR, DE, UK, ES.

Go back

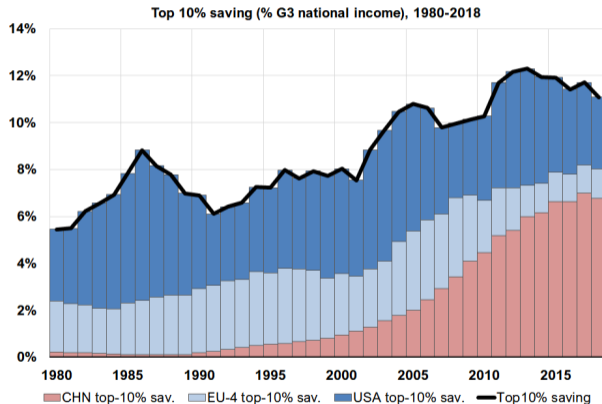
Current accounts, 1980-2019

Foreign saving: G3 bloc and individual countries
(% of G3 and individual countries net national income)



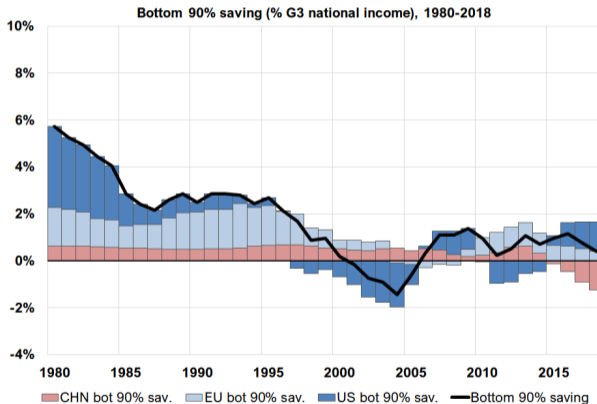


G3 top-10 saving: regional decomposition



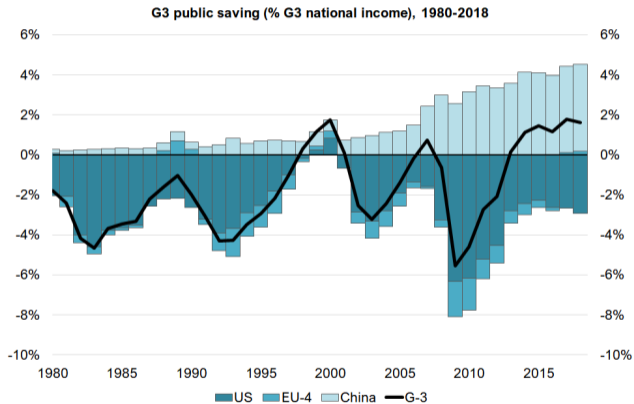
Note: EU-4 is the weighted average of FR, DE, UK, ES. Data are 5-year moving averages.

G3 bottom-90 saving: regional decomposition



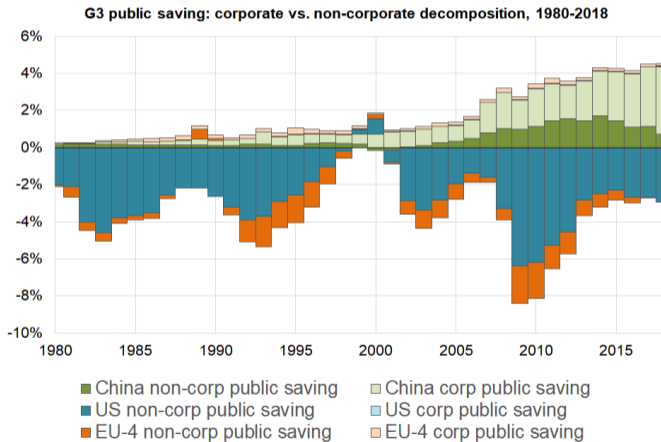
Note: EU-4 is the weighted average of FR, DE, UK, ES. Data are 5-year moving averages.

G3 public saving: regional decomposition



Note: EU-4 is the weighted average of FR, DE, UK, ES.

G3 public saving: role of corp saving



Note: EU-4 is the weighted average of FR, DE, UK, ES.

The corporate saving glut of the rich

- **Top-10 saving increase from corporate saving:** “global saving glut of the rich” and “corporate saving glut” two sides of the same coin
- **Rise in global corporate profits meets shift in corporate financial policy** (Chen et al. 2017; De Loecker et al. 2020; Barkai 2020; Stansbury and Summers, 2020)
- **Less dividend pay-outs and accumulation of cash holdings by companies**
 - Dividend stickiness: Brav et al. 2005; Fama and French 2001.
 - Tax incentives: Stiglitz 1973, Saez/Zucman 2019.
 - Precautionary and other financial incentives for higher cash balances: Bates et al. 2009; Begenau and Palazzo 2021; Falato et al. 2016; Graham and Leary 2018.

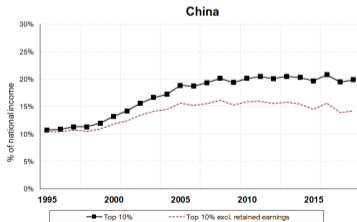
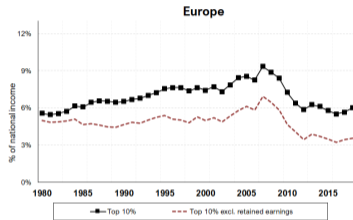
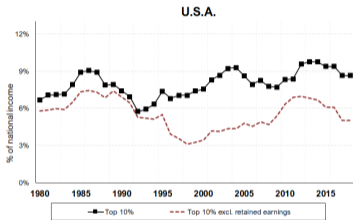
The effect of retained earnings on aggregate savings

- Modigliani-Miller (1961) dividend irrelevance theorem: investors are indifferent between dividend pay-outs and capital gains.
- Investors might even prefer (untaxed) unrealized capital gains over dividends.
- For the household consumption/saving decision the distinction between capital gains and dividends makes a big difference.
- **Consumption out of capital gains is empirically v small (0.05), consumption out of dividends is much bigger (0.5)**, see f.i. Di Maggio et al. (2020)

The effect of retained earnings on aggregate savings

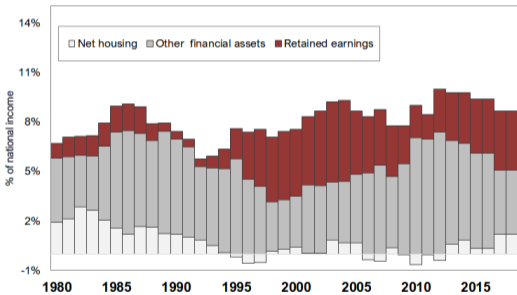
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- **Consumption out of capital gains is empirically v small (0.05), consumption out of dividends is much bigger (0.5)**, see f.i. Di Maggio et al. (2020)
- **Shift in corporate financial policy leads to aggregate savings increase for ultimate owners: rich households.**

Top-10 saving decomposition: the role of retained earnings

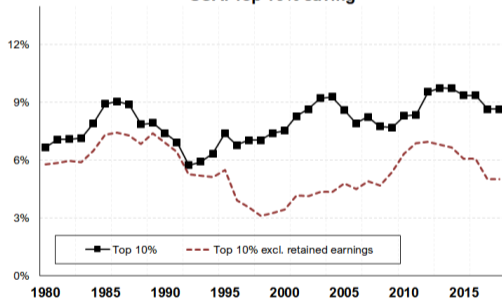


US top-10 saving: role of retained earnings

USA: Top 10% saving



USA: Top 10% saving

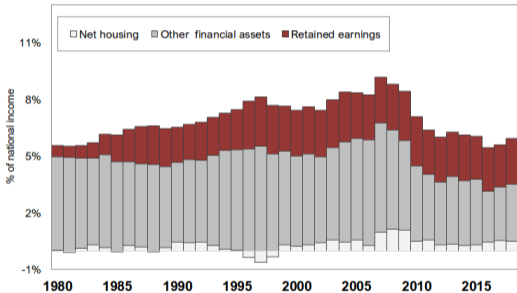


Note: 5-year moving averages.

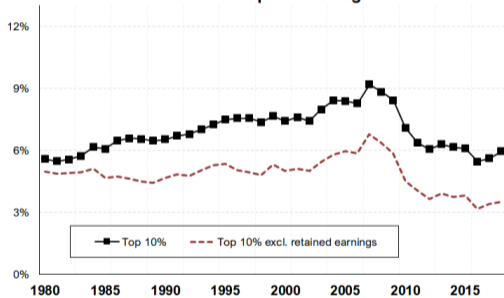
Go back

EU-4 top-10 saving: role of retained earnings

EUROPE: Top 10% saving



EUROPE: Top 10% saving



Note: 5-year moving averages.

Go back

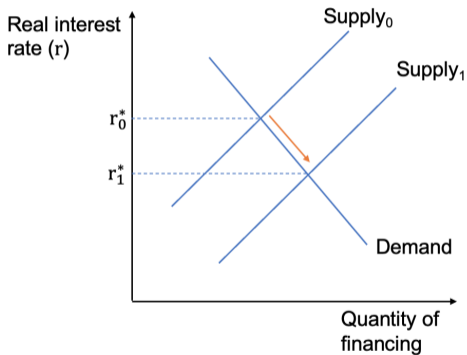
China top-10 saving: role of retained earnings



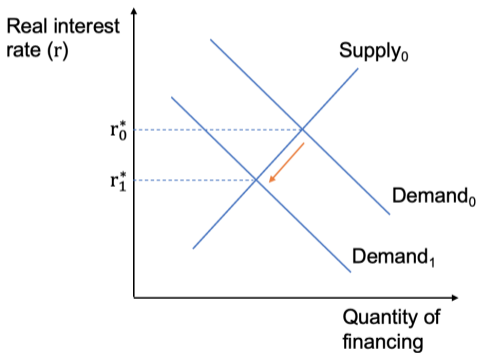
Note: 5-year moving averages.

Go back

(a) Savings supply in glut



(b) Investment demand in shortfall



Methodology: saving vs. capital gains

- Decompose aggregate wealth growth into savings and capital gains (Piketty and Zucman, 2014), by asset type (Artola Blanco et al., 2021):

$$A_{t+1} = (1 + q_{t+1,A})A_t + S_{t+1,A}$$

JST Method comparison with the JST Macroeconomy Database

- This framework is then extended to specific wealth groups (Saez and Zucman, 2016; Mian et al, 2021):

$$A_{t+1}^i = (1 + q_{t+1,A})A_t^i + S_{t+1,A}^i$$

New database on unveiled households' saving and balance sheets

Country	[1] Aggregate balance sheets	[2] Aggregate saving and capital gains	[3] Distributional balance sheets	[4] Distributional saving and capital gains
U.S.	1950-2018	1950-2018	1950-2018	1950-2018
China	1995-2018	1990-2018	1995-2018	1995-2018
Germany	1950-2018	1950-2018	1983-2018	1983-2018
France	1970-2018	1970-2018	1970-2014	1970-2014
U.K.	1967-2018	1967-2018	1980-2015	1980-2015
Spain	1980-2018	1980-2018	1984-2015	1984-2015

The distribution of the global wealth boom: 1980-2018

	[1] Wealth- income ratio b-o-p	[2] Wealth- income ratio e-o-p	[3] Share in total wealth growth	[4] Wealth share b-o-p	[5] Wealth share e-o-p
USA	301%	495%	100%	100%	100%
Top 10%	196%	354%	74%	65%	72%
Middle 40%	102%	140%	26%	34%	28%
Bottom 50%	3%	1%	0%	1.0%	0.2%
Europe	301%	578%	100%	100%	100%
Top 10%	160%	323%	57%	53%	56%
Middle 40%	124%	223%	38%	42%	39%
Bottom 50%	16%	31%	5%	5.4%	5.5%
China	242%	555%	100%	100%	100%
Top 10%	84%	370%	69%	34%	66%
Middle 40%	114%	160%	28%	48%	29%
Bottom 50%	44%	25%	4%	18%	4.5%