Labor and Capital in American Businesses

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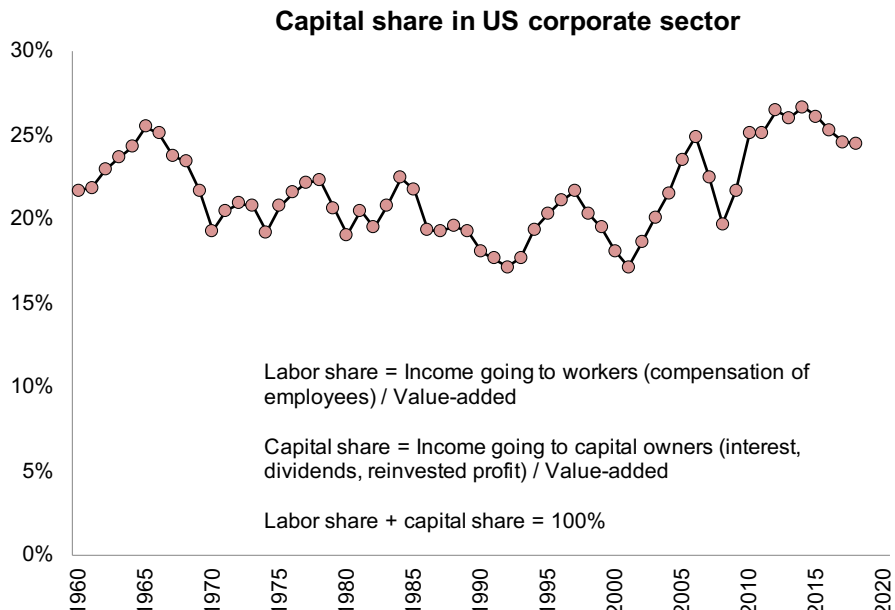
Introduction

How large is capital income in the US and how fast has it grown over the last decades?

Important question for analyzing:

- ▷ Consequences of globalization & technological change
- ▷ Sources of rising top-end inequality (rising wage inequality vs. capital concentration)
- ▷ Tax policy (taxing wealth vs. labor)

Macro data suggest a large increase in the corporate capital share



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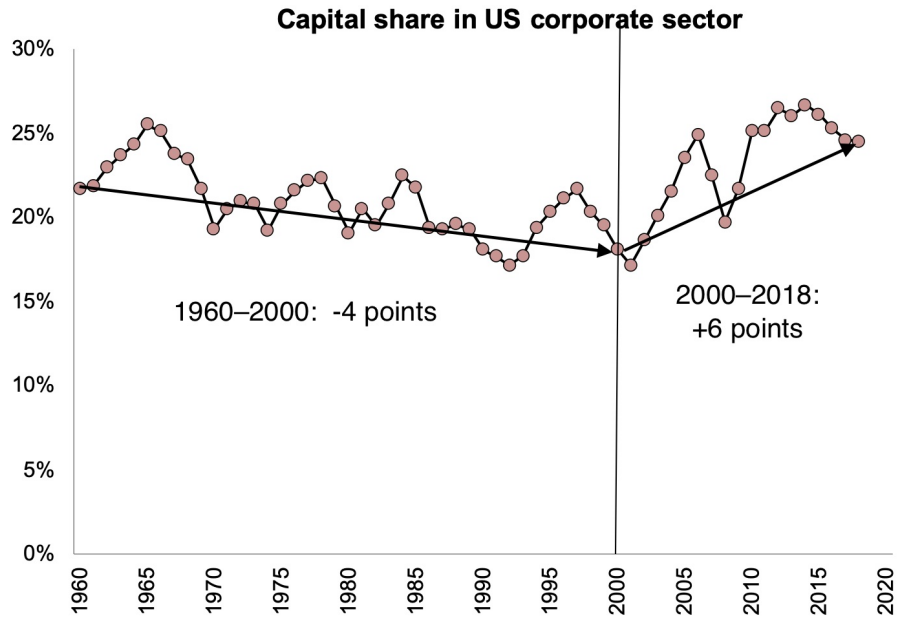


Controversy over the extent of the rise of the capital share

Measurement challenges:

- ▷ A growing number of businesses are organized as partnerships & S-corporations...
- ▷ ... where labor/capital frontier is fuzzy and can be manipulated for tax reasons
- ▷ Smith, Yagan, Zidar, Zwick (2019): 3/4 of partnerships & S-corp profits are in fact labor income $\rightarrow$ very low capital share in these businesses ($\approx 10\%$)

$\rightarrow$ **Is the rise of the capital share an illusion?**

This paper:
New series of US capital and labor shares

Comprehensive approach:

- ▷ Cover **all types of businesses** → controls for changes in business organization
- ▷ Cover **all forms of income** → allows to estimate contribution of K to US income growth, by percentile

Address all potential sources of bias:

- ▷ New data & method to neutralize tax-induced shifting
- ▷ Address other identified challenges: housing (Rognlie, 2015; Cette et al., 2019), depreciation (Bridgman, 2014), self-employment (Piton and Gutiérrez, 2020), international profit shifting (Tørsløv et al., 2020)

Main contributions

New data:

- ▷ Systematic exploitation of IRS business income statements & balance sheets, 1993–2017
- ▷ Tabulations by business type, sector, and size; future extensions with micro data

New methodology:

- ▷ Estimate factor shares in big private firms by using return to capital observed in similar listed firms
- ▷ Estimate factor shares in firms with suspected shifting using similar firms where there is no shifting incentive

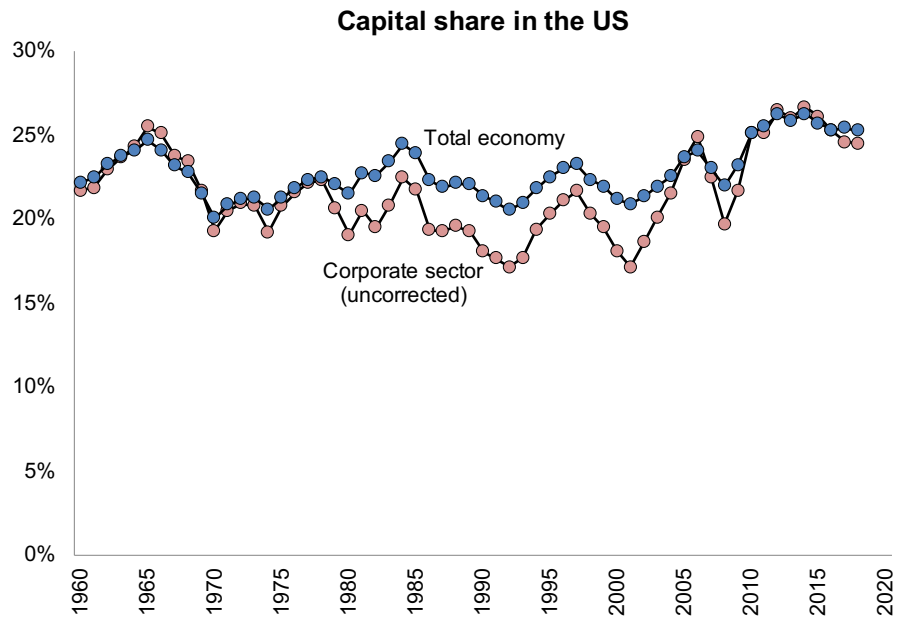
Example of data used: income of S-corporations in a few manuf. sectors

Item	Fabricated metal product manufacturing	Machinery manufacturing	Computer and electronic product manufacturing	Electrical equipment, appliance, and component manufacturing	Transportation equipment manufacturing
	(26)	(27)	(28)	(29)	(30)
Income from trade or business:					
Total receipts	**127,650,372**	**55,415,227**	**33,274,247**	**32,169,146**	**46,104,576**
Business receipts	126,442,911	54,949,893	32,942,279	31,897,817	45,541,489
Net gain, noncapital assets	212,101	122,724	73,377	25,944	19,579
Tax-exempt interest	8,636	10,177	3,061	2,812	8,507
Other receipts	986,724	332,433	255,531	242,572	535,001
Total deductions	**117,247,441**	**51,295,587**	**30,408,462**	**29,343,302**	**42,242,581**
Cost of goods sold	83,804,525	34,169,961	19,267,614	20,175,036	32,088,031
Compensation of officers	3,798,835	1,624,172	1,047,302	906,528	982,880
Salaries and wages	9,174,536	5,933,807	4,282,624	3,398,297	3,097,666
Repairs and maintenance	649,231	239,359	144,049	89,218	192,302
Bad debts	d	78,153	54,819	d	25,388
Rents paid	2,493,851	906,538	758,535	376,102	591,499
Taxes and licenses	2,691,844	1,164,041	743,300	571,810	794,524
Interest paid	622,175	278,929	167,584	176,742	255,862
Amortization	149,725	74,991	d	d	58,061
Depreciation	2,551,125	1,140,565	394,966	512,017	751,693
Depletion	d	0	0	0	d
Advertising	503,668	472,102	234,391	262,503	205,853
Pension, profit-sharing, etc., plans	815,786	394,405	251,908	226,018	285,796
Employee benefit programs	2,462,133	1,053,491	592,843	605,842	687,828
Net loss, noncapital assets	26,772	6,135	d	3,916	d
Other deductions	7,350,990	3,758,937	2,393,375	1,959,030	2,220,329
Total receipts less total deductions	10,402,931	4,119,639	2,865,785	2,825,844	3,861,995
Net income (less deficit) from a trade or business	**10,394,295**	**4,109,463**	**2,862,724**	**2,823,032**	**3,853,488**

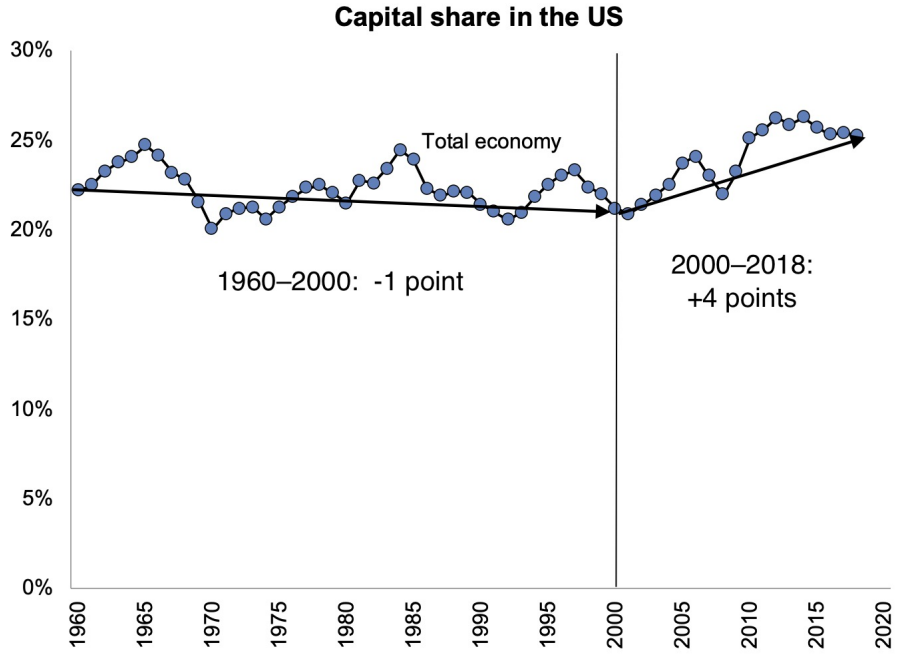
Contrary to persons, US businesses must report wealth in addition to income

Item	Fabricated metal product manufacturing	Machinery manufacturing	Computer and electronic product manufacturing	Electrical equipment, appliance, and component manufacturing	Transportation equipment manufacturing
	(26)	(27)	(28)	(29)	(30)
Number of returns	**30,371**	**12,327**	**4,428**	**3,648**	**5,792**
Total assets	**73,656,672**	**38,421,126**	**21,604,190**	**22,694,884**	**25,189,156**
Cash	12,294,358	6,838,560	4,327,698	3,110,837	3,037,303
Trade notes and accounts receivable	16,270,751	7,288,440	4,954,339	4,313,864	4,842,209
Less: Allowance for bad debts	197,344	142,976	98,862	57,163	49,569
Inventories	14,944,607	9,437,737	4,778,700	4,413,682	6,641,134
U.S. government obligations	d	0	0	d	0
Tax-exempt securities	* 174,626	d	d	d	0
Other current assets	2,748,603	2,059,228	945,454	604,505	951,546
Loans to shareholders	d	255,055	108,892	238,349	d
Mortgage and real estate loans	* 56,733	0	* 6,386	d	d
Other investments	5,988,387	3,340,920	2,424,662	3,844,377	2,341,217
Depreciable assets	66,880,826	23,218,082	9,342,054	9,378,568	15,410,745
Less: Accumulated depreciation	49,655,876	16,281,256	6,879,818	5,973,386	9,843,985
Depletable assets	0	d	0	d	0
Less: Accumulated depletion	0	d	0	d	0
Land	970,719	360,091	d	d	307,064
Intangible assets (amortizable)	1,956,668	1,456,525	1,477,297	952,320	720,452
Less: Accumulated amortization	865,452	639,279	713,235	d	316,808
Other assets	1,041,048	1,185,101	655,725	1,813,635	674,433
Total liabilities	**73,656,672**	**38,421,126**	**21,604,190**	**22,694,884**	**25,189,156**
Accounts payable	6,623,062	3,331,393	2,351,221	2,450,409	2,790,782
Mortgages, notes, bonds payable in less than 1 year	4,063,219	2,102,877	972,003	703,784	1,687,487
Other current liabilities	6,762,399	4,608,147	2,507,864	1,867,726	2,670,361
Loans from shareholders	3,773,369	1,424,264	1,640,190	936,882	1,955,955
Mortgages, notes, bonds payable in 1 year or more	10,267,473	4,291,324	1,633,236	3,346,718	4,179,264
Other liabilities	2,044,416	2,066,553	589,325	1,627,114	790,550
Net worth, total	40,122,734	20,596,568	11,910,350	11,762,251	11,114,757
Capital stock	1,120,699	586,156	296,889	451,152	308,368
Additional paid-in capital	3,708,495	2,636,404	2,020,539	605,871	1,986,766
Retained earnings, unappropriated	39,509,477	18,175,436	10,620,291	11,438,837	9,477,418
Less: Cost of treasury stock	4,215,938	801,428	1,027,368	733,609	657,795

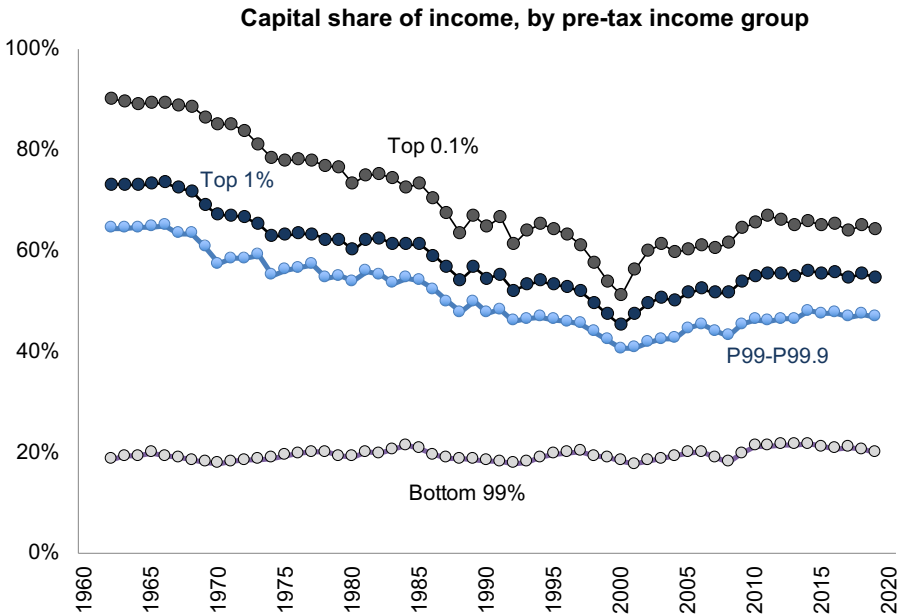
Results: we confirm rising capital share, although rise more muted



The capital share of US national income has increased by 4 points since 2000



A growing fraction of income derives from capital at the top since 2000



Over 2000–2018, more than half of US macro income growth came from capital

Comparison of real growth rates: labor vs capital income					
	[1]	[2]	[3]	[4]	[5]
	National income per adult	Labor income per adult	Capital income per adult	Share of aggregate per-adult income growth attributed to income from…	
				Labor	Capital
1980-2018	**1.4%**	1.3%	1.8%	69%	31%
1980-1990	**1.6%**	1.6%	1.6%	79%	21%
1990-2000	**2.3%**	2.3%	2.2%	80%	20%
2000-2018	**0.8%**	0.5%	1.8%	48%	52%

Reconciliation with Smith, Yagan, Zidar & Zwick (2019)

We find capital share of S-corp. & partnership profit around 50% vs. 25% in Smith et al. (2019)

- ▷ Our results are consistent with low capital share in small pass-through businesses (doctors, dentists, etc.)
- ▷ But we find high capital share in big partnerships and S-corporations, which are few in number but large in $
- ▷ Ex: Bloomberg L.P.: capital share of profit likely close to 100% (vs. 25% in Smith et al., 2019)
- ▷ Smith et al. main results are people-weighted (dentist weighs as much as Bloomberg), while we care about $

Conceptual Framework and Macro Trends

What is capital income?

Capital income is income earned from owning assets, independently of any current labor input

- ▷ Dividends and reinvested profit of listed companies, housing rents, interest, royalties, etc.
- ▷ Can be higher or lower than marginal product of capital (due to monopoly positions, risk, unions, etc.)
- ▷ In this paper we care about who receives income, not who creates income

Capital income is different from inherited wealth:

- ▷ Jeff Bezos, Warren Buffett earn capital income, but their wealth is mostly self-made, not inherited

Sources of capital income: Decomposition by production sector

National income Y (net of depreciation) is generated by corporations, non-corporate businesses (partnerships, sole proprietorships), housing sector, government, non-profits, foreign sector (cross-border assets and workers)

$$Y = Y_c + Y_{ncb} + Y_h + Y_g + Y_n + Y_f$$

In each of these sectors, fraction α of income goes to capital (owners) and $1 - \alpha$ goes to labor (workers)

$\rightarrow$ National income $Y = Y_K + Y_L$ with $Y_K = \sum_s \alpha_s Y_s$

Standard computation of capital income

- Corporations: Y_c = wages + profit = $Y_{cL} + Y_{cK}$ with 100% of Y_{cK} being capital income
- Non-corporate businesses:
  - Do not separate working owners' income into wages vs. profit: $Y_{ncb} = Y_{ncb,L} + Y_{ncb,mix}$
  - Need assumptions on capital/labor split of $Y_{ncb,mix}$
- Housing: $\alpha = 100\%$
- Government and non profits: $\alpha = 0\%$
- Foreign sector: α close to 100% (foreign dividends, reinvested earnings, etc.)

Key measurement issues in US context: 1. Income shifting in corporations

Some corporate profit is labor income & vice-versa

- ▷ Doctors, dentists & other self-employed frequently operate as corporations (S-corporations)
- ▷ Must pay themselves "reasonable compensation" but incentives to classify income as profit $\rightarrow Y_{cK}$ includes a labor component
- ▷ Same problem in some other countries where self-employed incorporate (Piton and Gutiérrez, 2020)
- ▷ Opposite incentives in private C-corporations (until 2018) $\rightarrow Y_{cL}$ includes a capital component

Key measurement issues in US context: 2. Large non-corporate businesses

Many large businesses operate as partnerships:

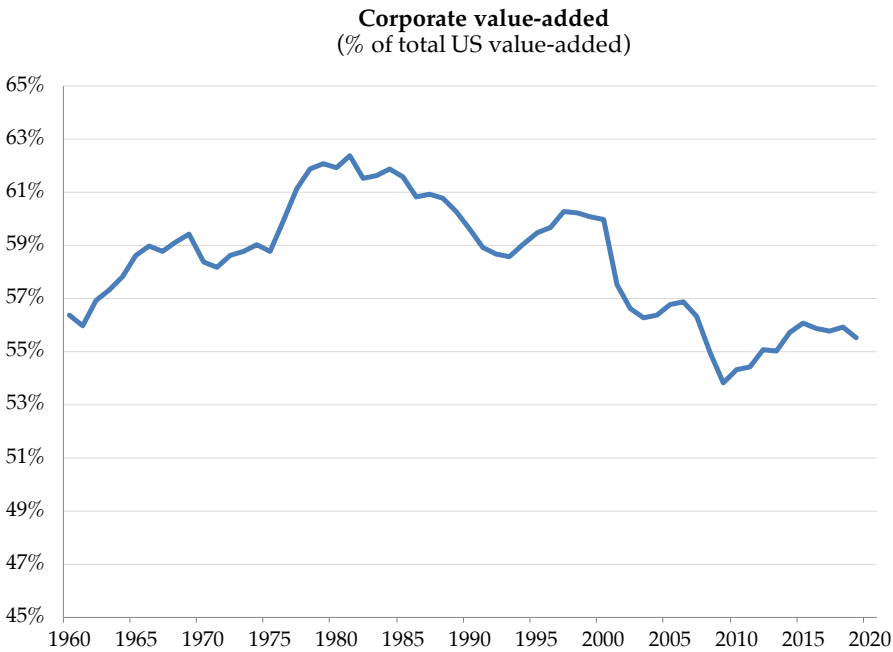
- ▷ Real estate (Trump), pipeline (Energy Transfer), pharma (Purdue), private equity and hedge funds...
- ▷ Partnership status popular following 1986 tax reform, corporate status popular again since 2018 (21% rate)

Consequences:

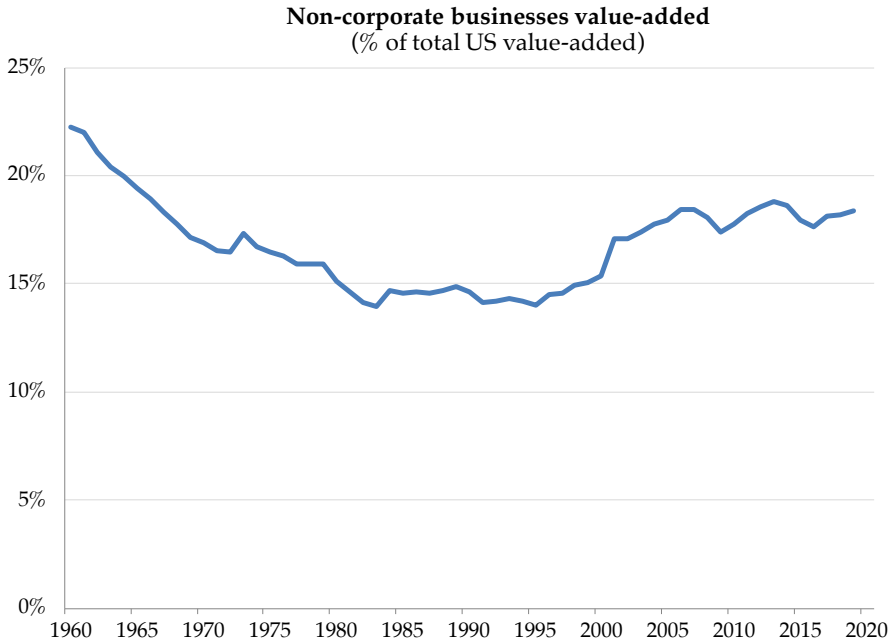
- ▷ Possible bias in corporate capital share due to sorting
- ▷ Huge heterogeneity among non-corporate businesses

$\rightarrow$ **Capital share of mixed income Y_{mix} ranges from 0% (paid speech) to 100% (listed partnerships)**

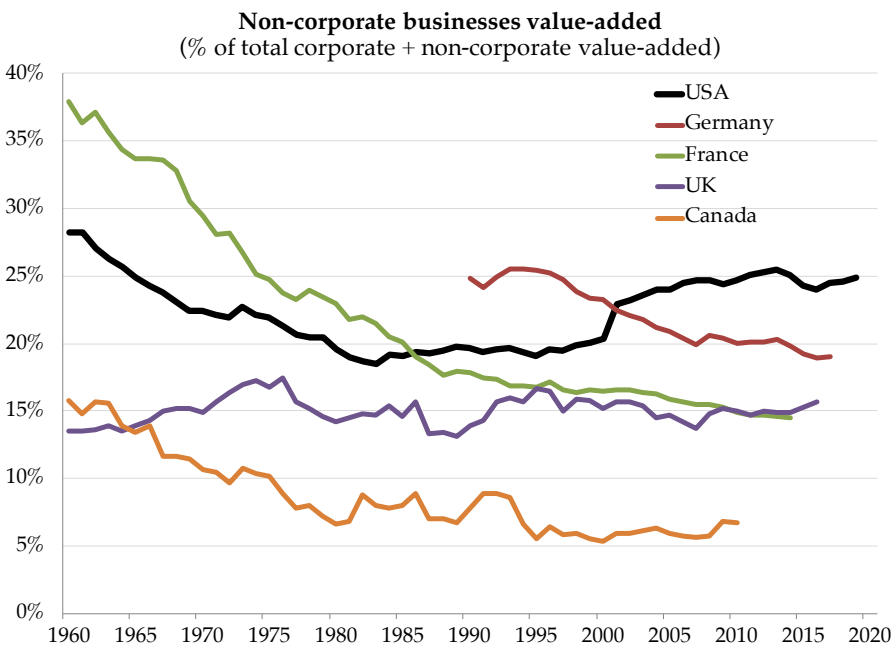
Despite the ↑ of S-corporations, a ↓ share of US output comes from corporations



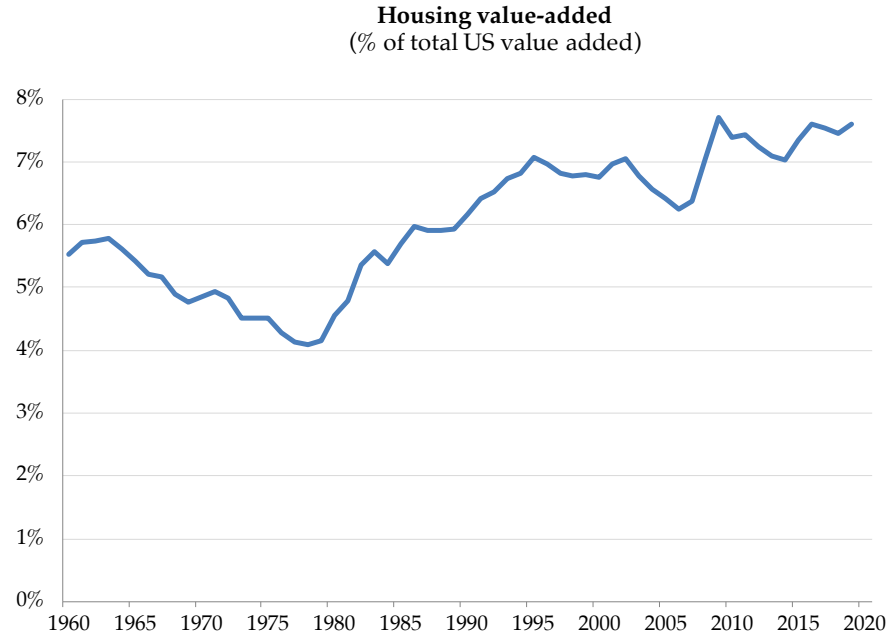
A growing fraction of US output is generated by non-corporate businesses



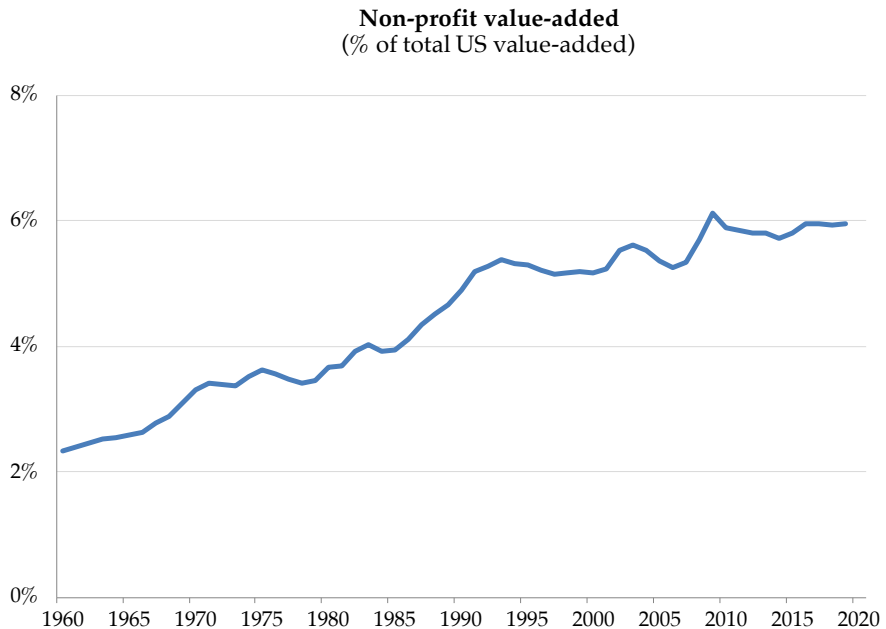
The rise of non-corporate businesses is a US phenomenon



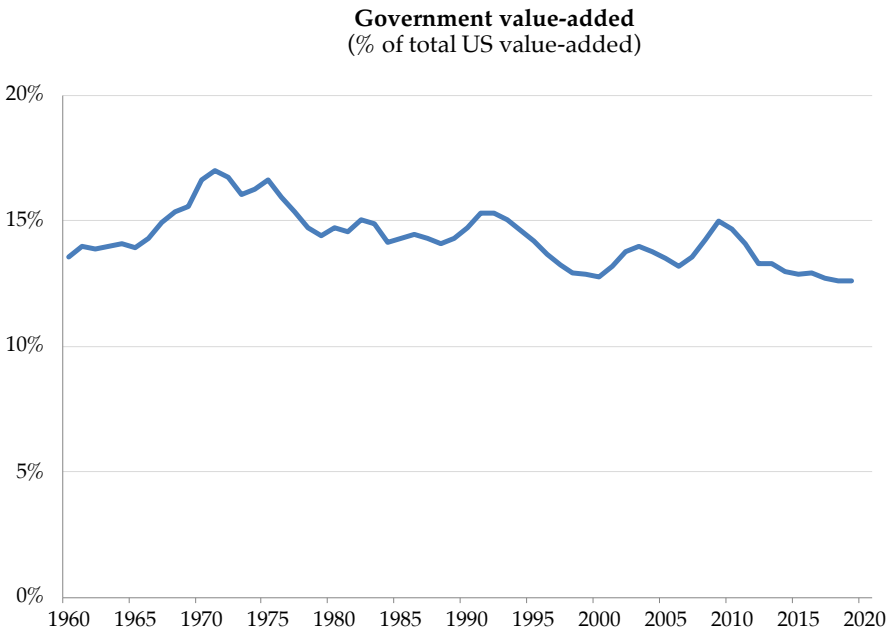
Housing sector output has been multiplied by 2 since 1980



The rise of non-profits



The decline of government output



Methodology

Methodology to estimate the capital share in businesses

Listed firms: clean Y_K vs. Y_L frontier

When frontier between labor and capital is fuzzy ($Y = Y_L + Y_{mix}$), three methods to estimate factor shares:

1. **Assign a return to capital** of the business, using return observed for similar listed firms
2. **Match business to similar businesses** that have no tax incentive to shift income
3. Impute a wage to working owners using observed compensation of salaried executives in similar firms

$\rightarrow$ Today show results on 1. and 2. Future work on 3.

Method 1: How we impute a return to the capital of private businesses

Estimate return to capital of listed corporations by 3-digits NAICS (Compustat)

Apply this return to S-corp. & partnerships capital (IRS)

- ▷ Harmonize measure of capital stock
- ▷ Remove influence of largest listed firms with few counterparts among private firms
- ▷ Deal with private firms with no counterpart among listed firms (e.g., doctors' practices, law firms)

Harmonized measures of capital stock

Benchmark measure: market value of equity

- ▷ Listed firms: observed
- ▷ Private firms: apply market/book ratio of listed firms in same 3-digits sector & 25% valuation discount
- ▷ Methodology followed by Federal Reserve to estimate market value of S-corporation equity

For robustness consider other measures of capital stock: total assets, book equity, plant property and equipment

Dealing with selection into being listed

Largest firms more likely to be listed:

- ▷ Benchmark: winsorize Compustat at 5% (remove influence of $\approx$ Fortune 500 companies)
- ▷ Robustness: trim 5% listed firms with highest income & 5% with highest loss; trim top 10% by sales

Generally meaningful sectoral overlap between listed firms and private businesses

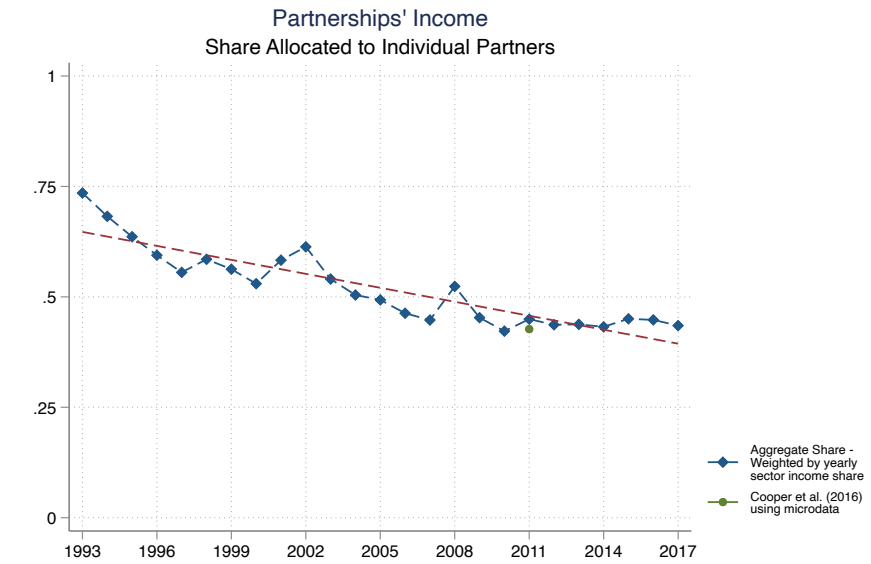
- ▷ Home Depot v. Menards (Yagan 2015)
- ▷ When no/little overlap (law firms, doctors, dentists): assume 25% of Y_{mix} is capital (Smith et al., 2019)

Dealing with double-counting in partnership tax returns

Computing the capital stock and profit of partnerships raises specific challenges:

- ▷ Income and assets are double-counted in partnership tax returns due to partnership chains
- ▷ Partnerships can also be owned by corporations
- ▷ We address this by allocating partnership wealth & income to individual partners, using tabulated IRS data on distributions by type of partner $\times$ sector
- ▷ Results consistent with Cooper et al. (2016) which used micro-data for 2011

A declining fraction of partnership income is earned by individuals



Method 2: Assigning to private businesses the capital share of similar businesses

Match private firms to firms where one can observe true capital share $\hat{\alpha}$ then compute α_{mix} such that $\frac{\alpha_{mix} Y_{mix}}{Y} = \hat{\alpha}$

- ▷ Match S-corporations and partnerships to C-corporations of same asset size
- ▷ Assumption: within asset bin, same factor shares for C-corp. vs. S-/partnerships (eg, same $Y = F(K, L)$)

Potential improvements:

- ▷ Exclude private C-corporations (where α may be downward biased)
- ▷ Use micro-data to control for sector differences

Results

Capital share of private business income

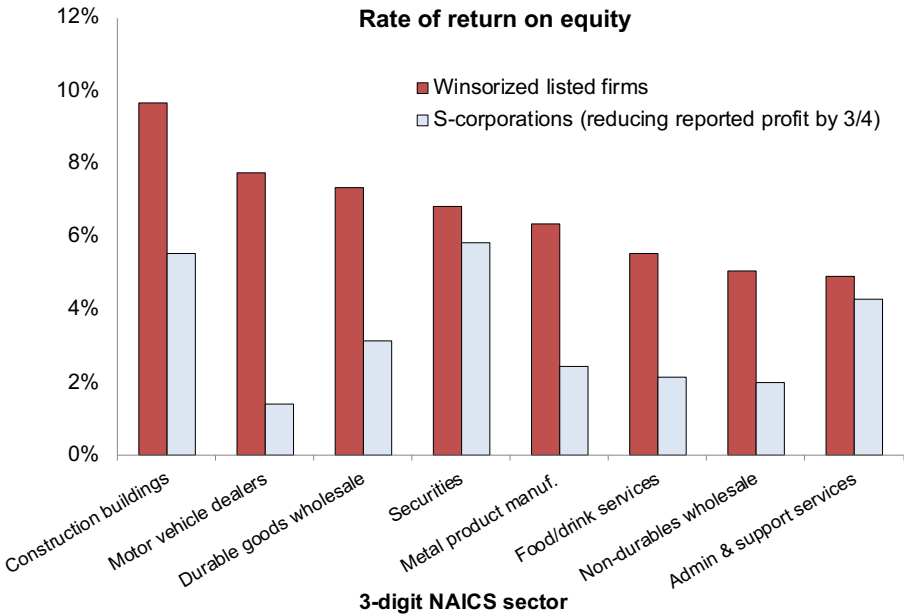
Overall level and trend:

- ▷ Around 50% of S-corporation profit and partnership income is capital income in mid-2010s
- ▷ Evidence that a rising share of partnership income is capital since 2010

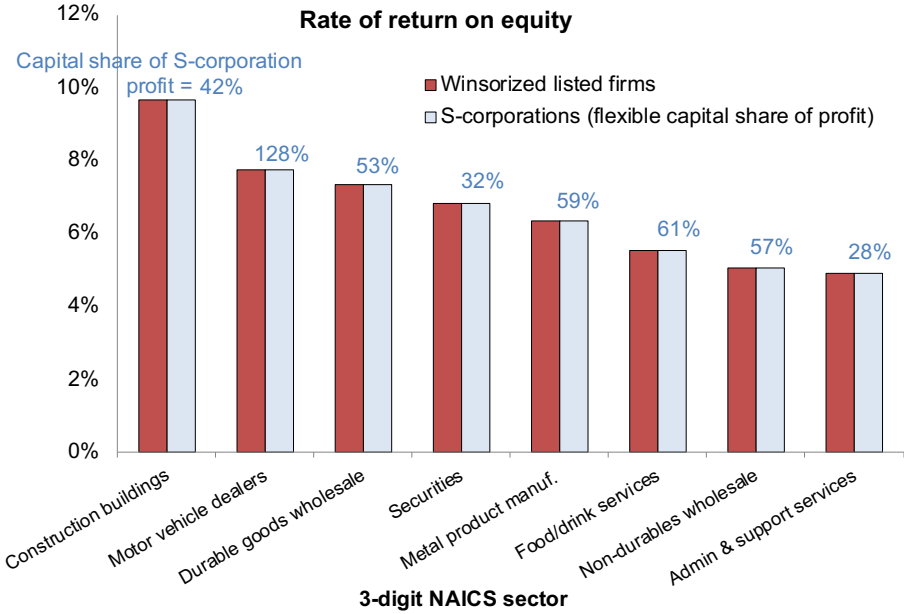
Heterogeneity among private firms:

- ▷ Dentists vs. multinationals have widely different K shares $\rightarrow$ uniform heuristics (say $\alpha = 30\%$) misleading
- ▷ High capital share in private businesses (owned by the rich) $\rightarrow$ high wealth and capital income at the top

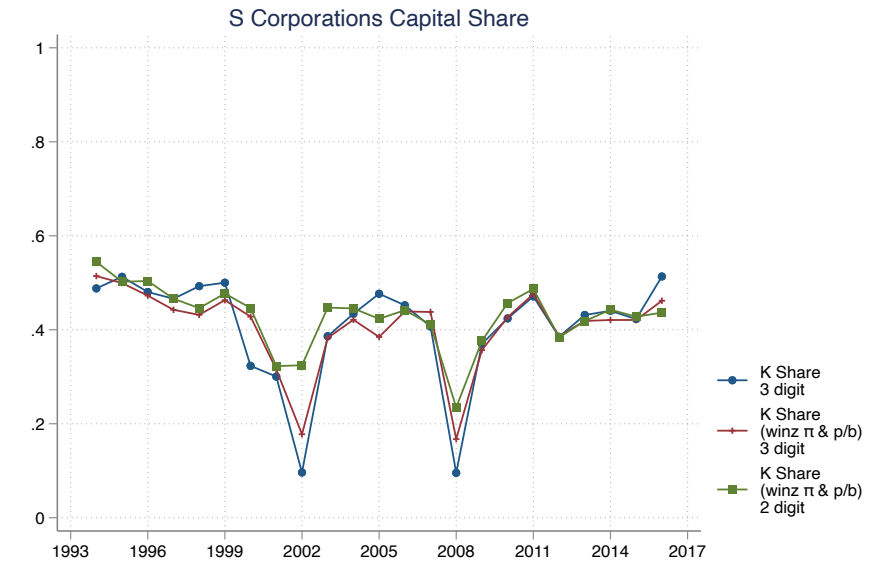
Method 1: Return on equity in the top sectors by S-corporation profit



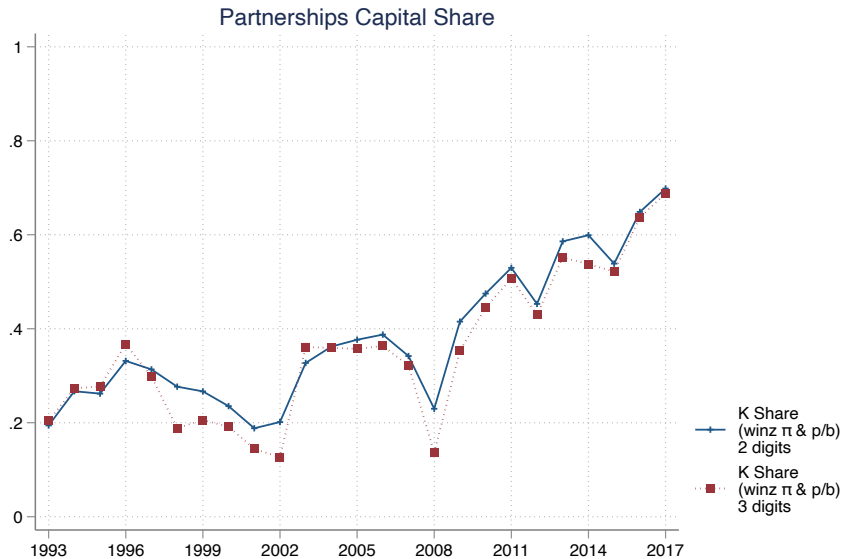
Applying the return to equity of listed firms to S-corporation equity



Assigning to S-corp. the return of listed firms suggests half of profit is K income



A rising fraction of partnership mixed income seems to be capital income



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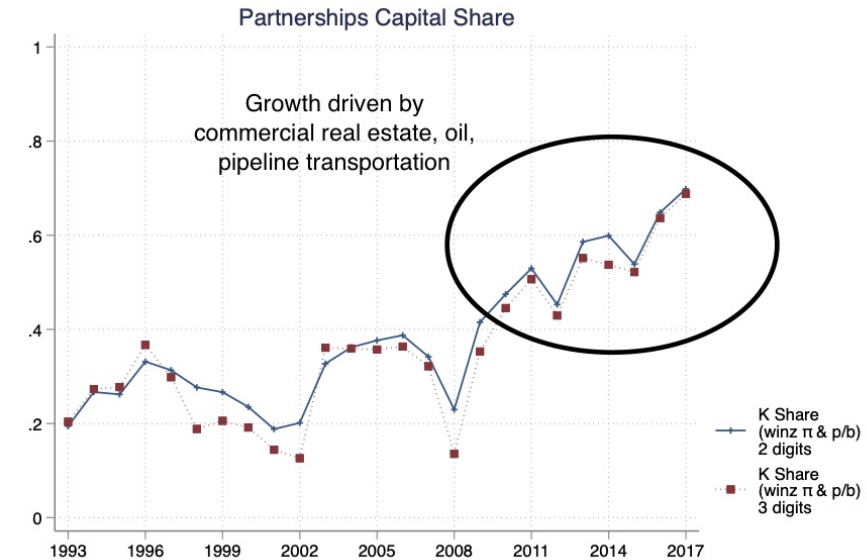
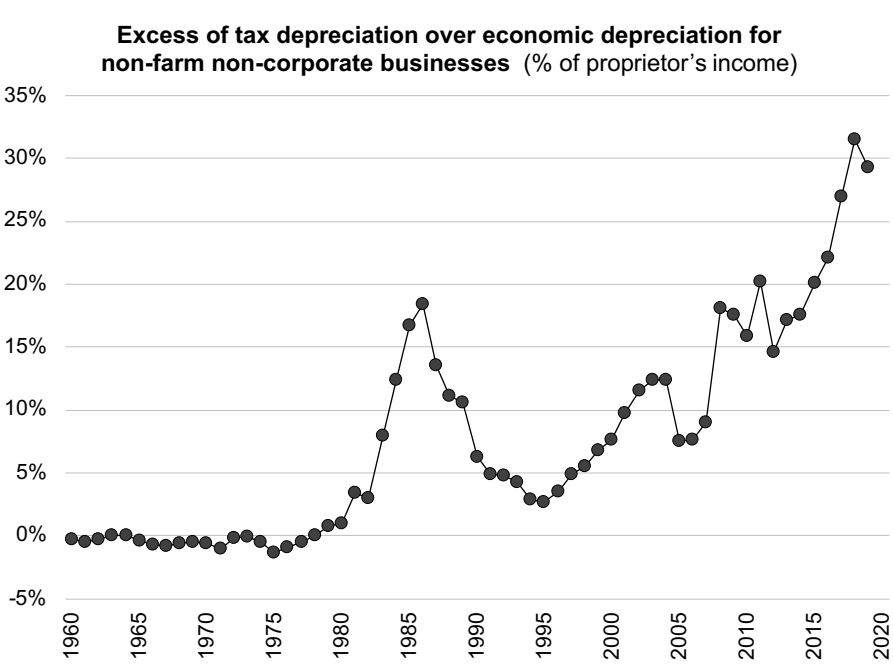
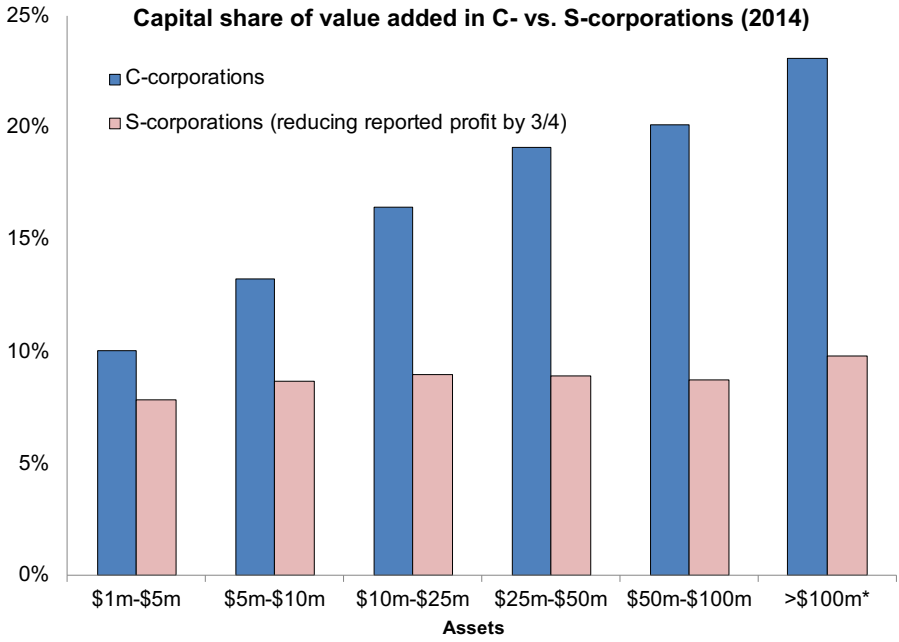


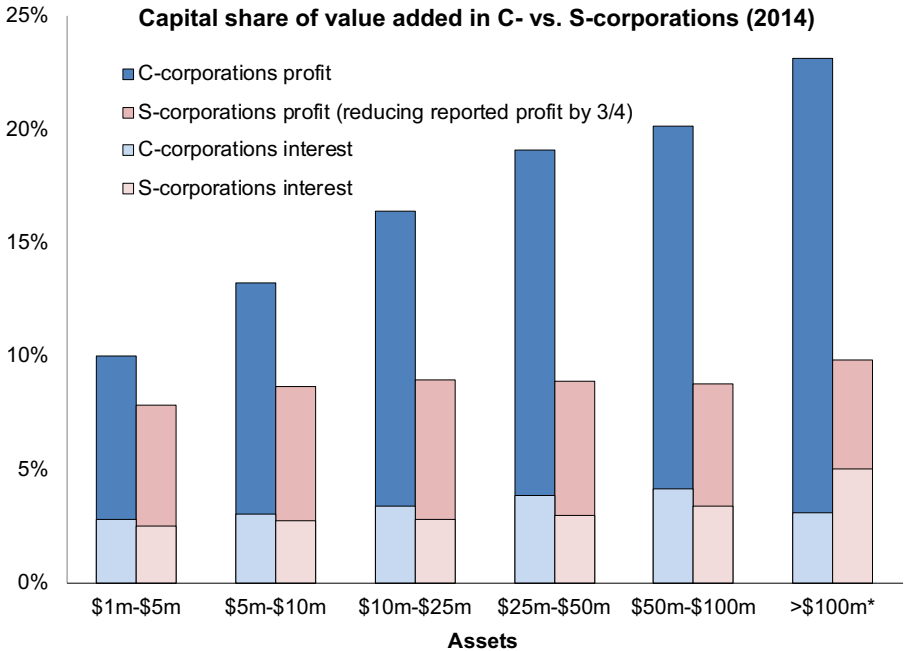
A rising fraction of partnership income is exempt from the income tax



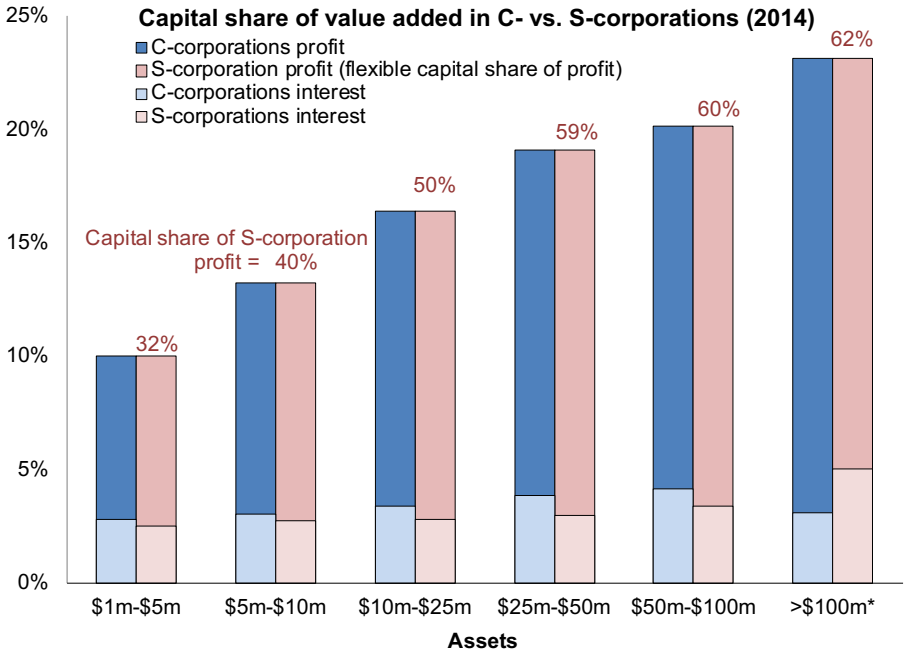
Method 2: Comparing factor shares of S-corporations and C-corporations



3/4 of S-corporation profit looks like labor in small firms, but not in big ones



Large S-corporations have a high capital share of profit



From business capital income to total capital income

To capture total capital income need to add:

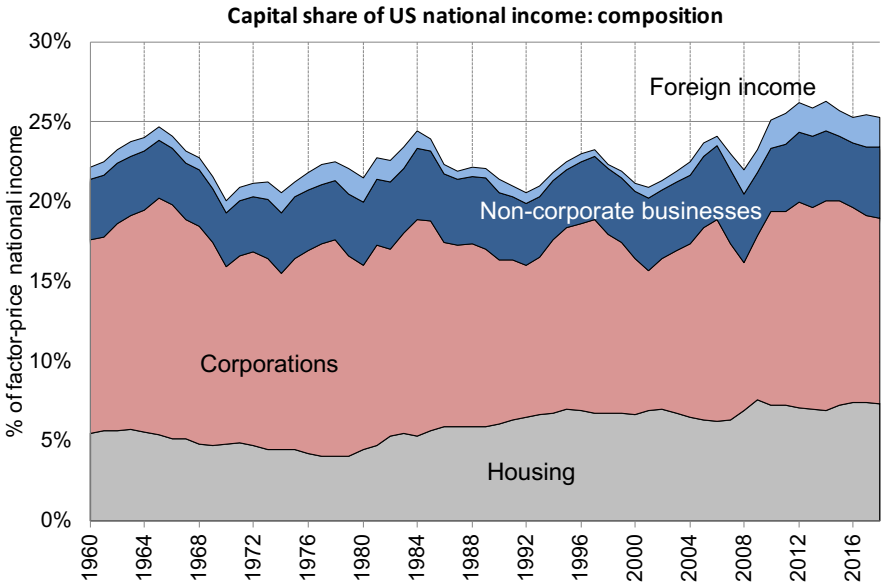
Housing income

- ▷ Large rise since 1980
- ▷ Pure capital income (net of depreciation)

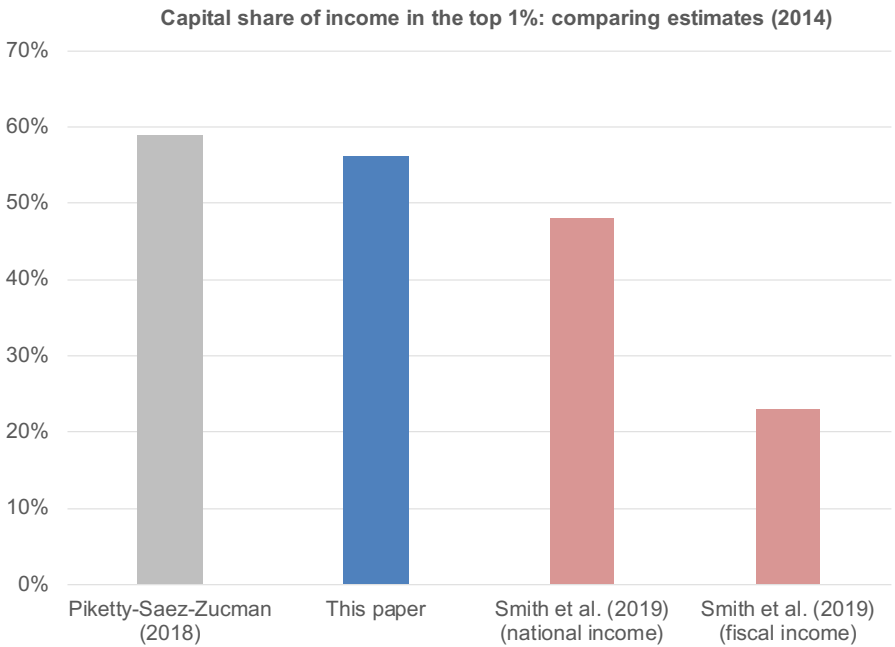
Net foreign income

- ▷ Significant rise since 2000
- ▷ Profit shifting
- ▷ Rising cross-border return differential (US investments in direct equity vs. foreign in US government bonds)

A declining fraction of US capital income originates from domestic corporations



More than half of income is capital income in the top 1%



Conclusion

Main findings

2000–2018: labor stagnates, capital grows

- ▷ Rising capital share of US national income
- ▷ High & ↑ fraction of top incomes derives from K

Research and policy implications:

- ▷ Results based on public data → could be incorporated into official national accounts
- ▷ Improved measure of capital/labor split of pass-through business income → improved estimates of wealth inequality (Saez and Zucman, 2020)
- ▷ Valuation of private equity: key for wealth taxation

Concluding remarks

Conceptually, capital income is income earned independently of any labor input

In practice, it can require effort to earn capital income (time spent managing wealth, etc.):

- ▷ Cost was non-negligible in the past
- ▷ But close to zero today (rise of Vanguard)

$\rightarrow$ Rise of the capital share under-estimated? **With more perfect capital markets, higher** α

Supplementary Slides

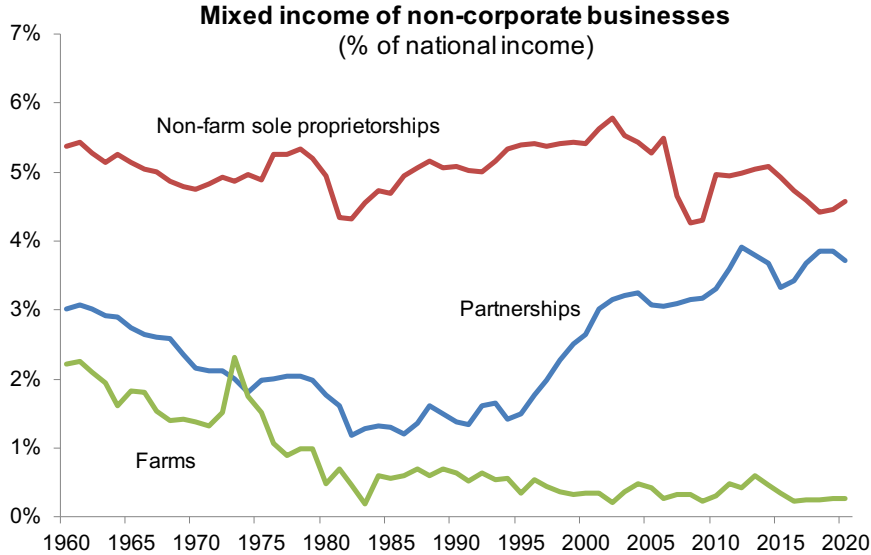
Key measurement issues in US context: Rising tax-exempt capital income

A growing fraction of capital income is legally exempt from the individual income tax:

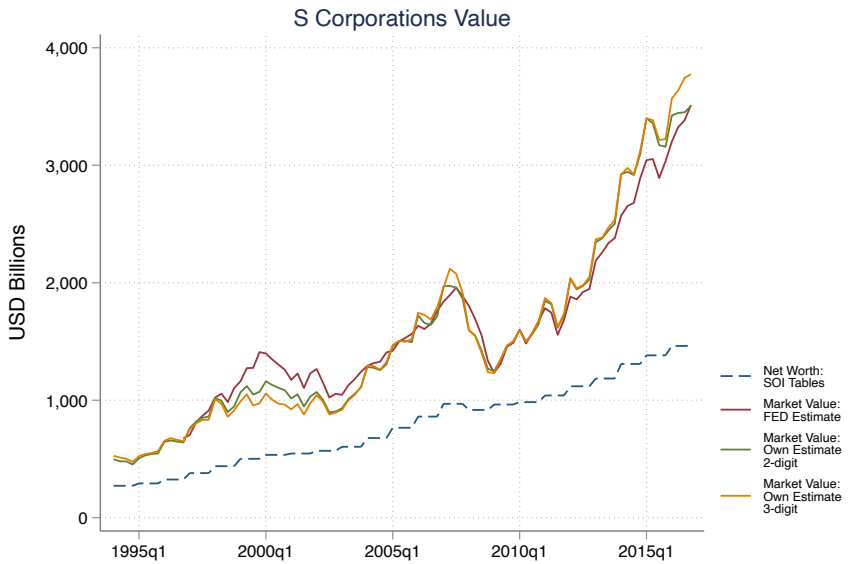
- ▷ Rising corporate retained earnings since 2000
- ▷ Rise of tax-exempt retirement accounts
- ▷ Rise of bonus depreciation (full expensing since 2018)
  $\rightarrow$ taxable business income $<$ true income

$\rightarrow$ capital/labor split cannot meaningfully be studied using individual income tax data only (which capture only 1/3 of economic capital income)

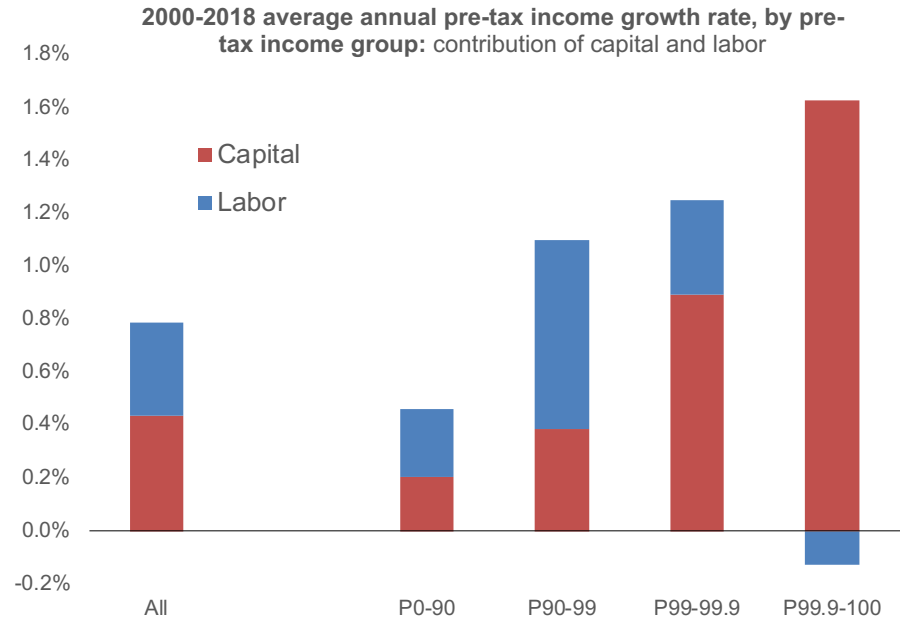
The rise of partnerships



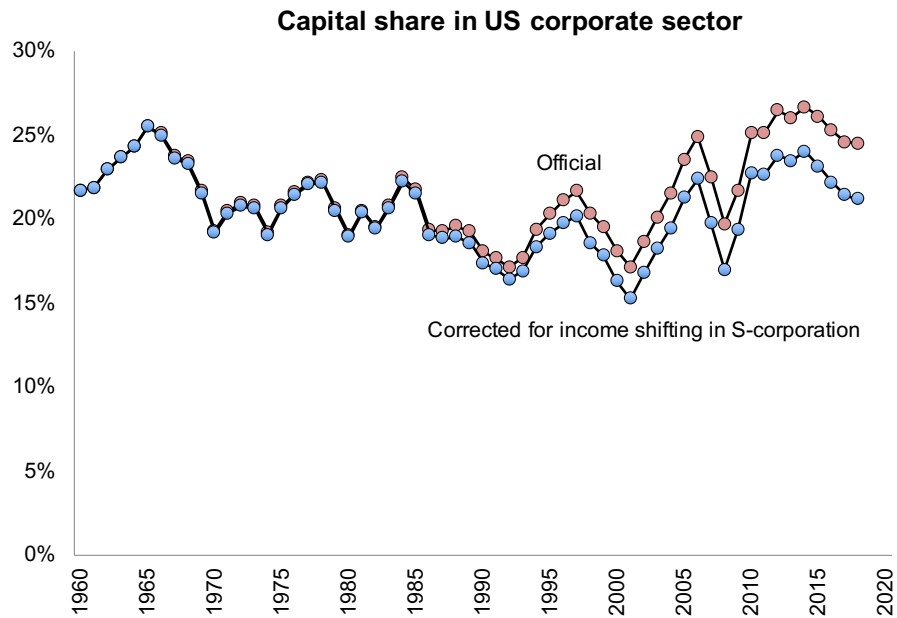
The rise of S-corporation equity wealth



Over 2000–2018, almost all income growth came from capital in the top 1%



Capital share in the corporate sector: before vs. after S-corporation correction



Return on assets in the top sectors by S-corporation profit