Three Narratives on Income Inequality

Importance of Good Data Analysis, Methodology, and Theory

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For Heckman's Econ 350

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Will You Enjoy Today's Lecture?

- You will either love or hate today's lecture

Important, interesting questions about inequality, labor supply

- What has happened with inequality over the past 40 years (100 years)
- What are sources & causes of income inequality

But much of what I cover is detailed, tedious, hard work

- To get the right answers, deep dive into data and methodology
  - Details of income tax and tax law!!

But let's forge ahead

- I hope the excitement of the results will offset the hard work of looking carefully at data

Today is about Data, Methodology, Theory

U.S. INEQUALITY since 1980s

Some (generally wrong) narratives, and open questions:

1. Top 1% takes everything – *wrong* – yes top grows, but less than claimed
2. Taxes less progressive – *wrong* – tax policy has mitigated rising inequality
3. Rising transfers at the bottom – *questions* – how big? effect on labor supply?

Why are these narratives so resonant today?

- Reflect a sense we all have – inequality has risen
- Incorrect narratives supported by (flawed) work (Piketty, Saez, Zucman)

Correct answers are important if we want the right policies

- Simple solutions (tax the rich, break up corporations) not supported by data
- More complicated – education and human capital
- Value in careful attention to *data*, *methodology*, and *theory*

This work is hard – good and careful work is always hard

What I Do Not Cover – *Interesting, Important, No Time*

Wealth Distribution and Inequality

- Large and growing, but not as large as sometimes claimed (Piketty, Saez, Zucman)

Lifetime vs Annual Income; Mobility Across Time

- People move up and down the distribution – transitory & life-cycle

Intergenerational Mobility

- Do children move up and down relative to parents?

Consumption

- In many cases, care more about *consumption* than *income*
- We can consume *more* today, for same income
  - In 1968 long-distance telephone call roughly $10/min (today's income)

International (cross-country) inequality *much* lower than 40, 100 yrs ago

- Health measures (life expectancy, height) really interesting

Group Inequality – by gender, by race

All Interesting, Important, but No Time Today

Outline

Puzzles in Measuring Top 1% – Who Is Right?

Well-known Piketty & Saez results:

- Earnings of top 1% from 10% to 23%
- The top 1% took roughly 60% of the growth in earnings

	Piketty & Saez (Average, $2018)		
	per 100 people	Top 1%	% share
1979	$4,527,936	$465,454	***10.3%***
2014	$5,885,177	$1,323,642	***22.5%***
Change	$1,357,241	$858,187	***63.2%***

But Auten & Splinter find very different:

- Earnings of top 1% from 7% to 9%
- The top 1% took roughly 11% of the growth in earnings

Auten & Splinter (Avg, $2018)		
per 100 people	Top 1%	% share
$3,008,056	$218,648	***7.3%***
$5,246,407	$461,088	***8.8%***
$2,238,352	$242,439	***10.8%***

And things get worse – much worse – measure income *growth*

Average Real Income Growth, 1979-2014	Bottom 50%	50-90th	90-99th	Top 1%
PSZ Fiscal Income	-37.6%	5.7%	52.9%	184.4%
AS After-tax	55.8%	76.4%	89.7%	112.3%

- Bottom half: did average go ***down*** by 37.6% or ***up*** by 55.8%?
- Clearly not *down* by almost 40% – just silly

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Who Is Right? Short Answer & Long Answer

Short Answer: Auten & Splinter are right

- Top 1% rose, but not so much; Bottom grew, but less than top

Long Answer: Takes us on a long & wonderful journey to understand income

- What is income? Wages only? Labor income? All earnings? Transfers?
  - No right or wrong. Depends on *why* we are looking at income? Job prospects? How much we can consume?
- Income for who? The individual who earns income? The family? Tax unit?
- How do we measure? Administrative (tax returns)? Survey (CPS)?
- Taxes – before or after? Are taxes progressive or regressive?

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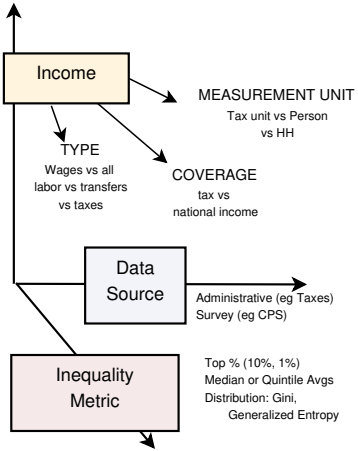
Three Pillars of Income Distribution Framework

Analytical & methodological framework in which to place empirical studies

- Necessary for comparing across studies – and understanding results

Three pillars for Framework

- Metric – e.g. Top 1%, or Gini
- Source – e.g. CPS (survey) or Tax data (administrative)
- Income – the important one
  - Type: wages vs all labor earnings vs transfers vs taxes
  - Coverage: tax income (60% of national income) or all income
  - Measurement / Sharing Unit – Tax return vs person vs household – very tricky here



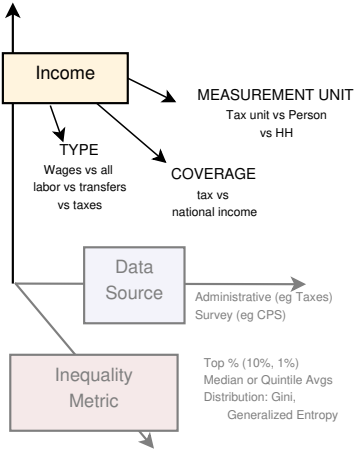
With this, seemingly-contradictory studies can be reconciled

Punchline: It is Income Definition and Measurement Unit

- Metric – Important but easy
- Source – seems important but not
- Income definition – the big one – often "depends on the question" (rather than "right" vs "wrong")
- Measurement Unit – obscure & confusing but crucial – both empirically & for economic analysis

My conclusion?

- Empirical studies consistent when compare same income definition and measurement unit
  Except Piketty, Saez, Zucman – problems



- Inequality has increased since 1970s, but less than claimed by some
- Income growth throughout distribution, not only at the top
- At top: growth largely driven by human capital (not financial capital)
- At bottom: growth supported by government transfers

Outline

Metrics: Many Ways to Measure – But Straightforward

Overall Distribution

- Gini, Generalized Entropy & Theil measures (mean log deviation, coeff of var'n)
- Decile ratios (80:20 or 90:10)
- Standard Deviation of Log Income

Growth

- Median or other quantiles
- Average of quantile income

Decile (Percentage) shares, Top %

- Percent of total income earned by top 10% or 1%, or bottom 10%
- Very popular now

Data Sources: Survey vs Administrative

Some big (and important) innovations, particularly past 20 years

- Administrative datasets, such as IRS (Tax) or SSA (earnings)

Two biggest sources

- CPS: Current Population Survey.
  - Monthly (weekly earnings) and annual (annual earnings – ASEC)
  - Relatively small sample (30k per month?)
  - Top-coding problems – top incomes masked for confidentiality
- IRS: Tax data
  - Large sample, well-measured at the top
  - ***Important***: Income definition changes over time (consistency problems)
  - ***Important***: Taxable income may not match what we want to measure (e.g. tax-exempt income)

My reading of literature:

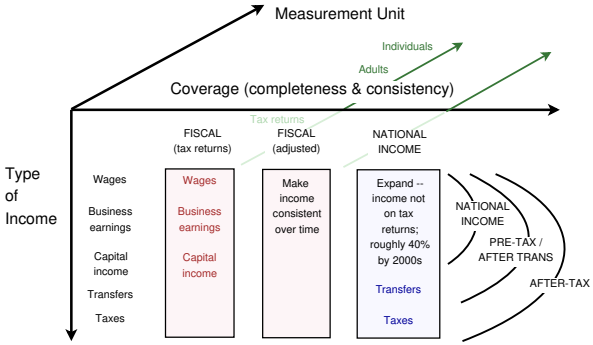
- Expect possible large differences due to source, but actually no big differences
- Differences due to: 1) Income type (e.g. wages vs all earnings vs after tax & transfers); 2) Coverage (how much of economy is covered); 3) Consistency of measurement over time

Outline

What Income Do We Want? How Do We Measure?

Consider two dimensions:

1. *Type* – e.g. wages vs capital
2. *Coverage* – how much captured



Type: different types for asking different questions

- Equality of job market opportunity and outcome: wages
- Equality of welfare and well-being: total income including transfers and taxes

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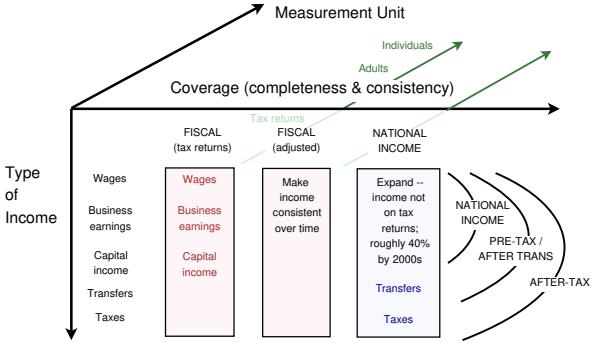


Coverage: how much of the relevant income is captured by our source

- Tax (Fiscal) income covers roughly 60% of total national income
- Equality of welfare and well-being: total income including transfers and taxes

Examine Piketty, Saez, Zucman vs Auten & Splinter to understand issues

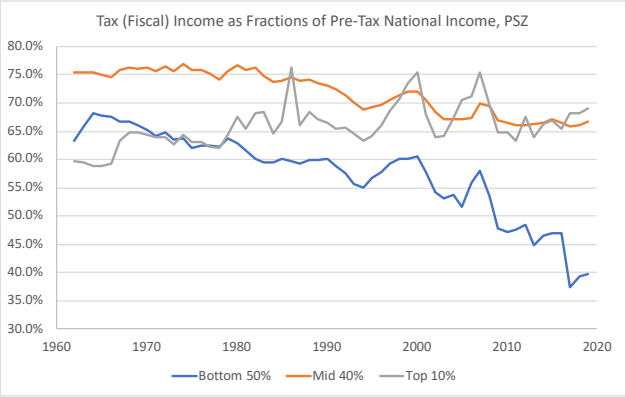
Coverage is Absolutely Crucial

Nobody (certainly not myself) has recognized how crucial this *coverage* was for original Piketty & Saez results

Just does not measure income we care about

- Tax ("fiscal") income sounds good
- Administrative: huge samples, good quality

- Covers only 50-75% of all income
- Fatal flaw: fraction varies dramatically across distribution and over time



Just does not measure income we care about

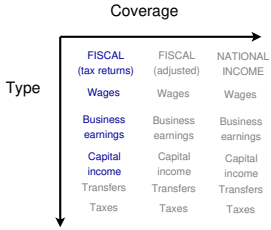
Details on Piketty, Saez, Zucman vs Auten & Splinter

PS Fiscal: tax returns, not corrected for tax law (or marriage rate) changes

- Original tax return (administrative) analysis – reinvigorated inequality measurement
- Focused on "Top 1% share" – grew from 10.3% to 22.5%
- Look at "Overall" and "Bottom 50%" – fundamental problems
- Overall misses large components of income – grows too slowly – overall GDP & Nat Inc grows about 76%
- Bottom 50% "down 37.6%" is just silly – that never happened

Conclusion: fiscal (tax) income does not provide information on inequality

- Only useful as foundation for building more comprehensive income



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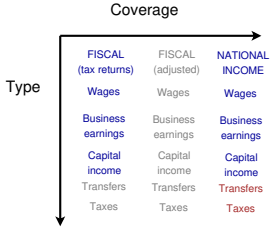
PSZ Pre-Tax: expand coverage (along horizontal), including income not collected on tax returns (and marriage) – but no correction for tax law changes

- Addresses many criticisms of original analysis
- Income per *adult* not per person – adjusts for marriage rates by not family size
  - "Overall" grows 56% but if adjust by no. of *people* then up to 71% (diff from 75.6% due to deflator)

PSZ After-Tax: expand *type* of income (down vertical) – transfers & taxes

- Best measure of the economic resources available for consumption, savings
- Shows "progressivity" – bottom 50% goes from 0.9% to 18.2% growth due to taxes & transfers



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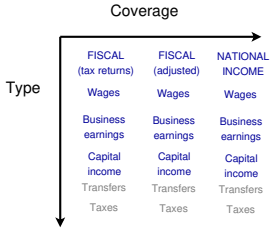
A&S Pre-Tax: expand coverage, but differ from PSZ in important respects

- **Coverage**: Adjust *Fiscal* (tax) income, income definition & incentive changes (eg TRA86)
  - Before 1986: strong incentive for businesses to keep income in Corp (Sched C)
  - After 1986: strong incentive for *pass-through* business (Sched S or partnership)
  - Change *reporting* of income as personal, not change in underlying business
  - Small businesses (doctors, dentists, plumbers) are important in US economy
- **Coverage**: From *fiscal* to *NI* – many small differences, seem more careful than PSZ
- **Measurement Unit**: A&S per person, PSZ per adult
  - Easy to adjust for overall (55.9% $\rightarrow$ 71/3%)
  - Hard to adjust for bottom 50% – maybe all of 0.5% vs 27.1% ??

My judgment: AS more reliable



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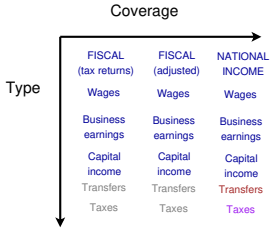
A&S Transf: includes transfers (cash & non-cash) – Social Security, refundable tax credits, Medicaid, SNAP

- Overstates national income (transfers are credited, but not paid by taxes)
- Better measure of economic income (before taxes)

AS After-Tax: nets out taxes

- "Bottom 50%" grows substantially, top 1% reduced
- Shows taxes as progressive, largely because of transfers and reduced taxation at bottom of distribution
- Other work indicates importance of *Earned Income Tax Credit* – acting as government subsidy to low-wage work



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Why Unit – Return vs Person vs Household – Is Important

Measurement / Sharing Unit **Critically Important** – But messy and confusing

TAX RETURN EXAMPLE: Change filing states → Change Top 1% Share

- ***Fraction by Return***: Simply filing different forms changes Top 1% Share
- Before: 4 tax units, 2 lo & 2 hi, 2 people each, 67% income in Top Half
- After: have the bottom 2 units file single – no other change
  - 6 tax units, but people pushed up: 75% income in Top Half

Bottom Files Jointly Tax Unit	*1*	*2*	*3*	*4*	Fraction 2/4
Income in Top 50%	$10	$10	$20	$20	40/60
People in Top 50%	2	2	2	2	4/8

Bottom Files Singly Tax Unit	*1a*	*1b*	*2a*	*2b*	*3*	*4*	3/6
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Why important? US marriage rates at bottom have gone down (top remained)

	1960	2015	
Everyone	69%	39%	Exactly as in tables
Top 1%	90%	86%	

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Income Distribution: Highlight Income / Sharing Unit

To illuminate problem, need to write out income distribution:

$$\textit{Total Income} = \sum_{t=1}^{N} \underbrace{I(t)}_{\textit{income unit}} \cdot \underbrace{w(t)}_{\textit{size adjust}} \cdot \underbrace{g_n(t)}_{\textit{count units}} \cdot \underbrace{g_I(t)}_{\textit{unit wt}}$$

- $I(t)$: actual the income, measured for a *Tax Return* or *Household* or *Person*
- $g_n(t)$ allows us to count tax returns ($g_n(t) = 1$) or people ($g_n(t) = n$, *1 or 2 or 3 people)*
- $w(t)$ controls how income is "shared" across unit
  - $w(t) = 1$ "full sharing" (each person gets full tax return income) seems odd, but simply assumes full returns to scale
  - $w(t) = 1/n$ "equal sharing" seems natural, but $\Rightarrow$ no RTS within tax unit (household)
  - $w(t) = 1/\sqrt{n}$ "square-root sharing" is commonly used in empirical work
- $g_I(t)$ needed to ensure total income sums properly: $w(t) \cdot g_n(t) \cdot g_I(t) = 1$
- Of course, need to re-rank (sort) by *Equivalent* incomes $I(t) \cdot w(t)$

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Think about three things we are doing:

1. Ranking People: $I(t) \cdot w(t)$: How much "equivalent income" each unit (person) has
   - Defines how "rich" someone is and where they rank in distribution
   - Seems natural to split income ($w = 1/n$) but this ignores economies of scale – a couple with \$100k better off than each with \$50k
2. Counting People & size of groups: $g_n(t)$: How many people (units) in each income group or percentile after ranking people
   - E.g. above & below median: Same number of *people* or *tax returns*?
3. Measuring Income: Use *Actual Income* for income shares or averages
   - Purpose of $g_I(t)$

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Examine and compare sorting / ranking / Top share by *Tax Returns* vs *People*
Framework for argument between Auten & Splinter vs Piketty, Saez, Zucman

- PS(2003) use $g_n(t) = 1$ & $w(t) = 1$: Unit = *Return*: Ranking and Shares by *Tax Return*
- PSZ(2019) use $g_n(t) = a$ & $w(t) = 1/a$: Unit = *Adults*: Ranking and Shares by *Adults*
- A&S(2018) use $g_n(t) = a$ & $w(t) = 1$: Unit = *Adults*: Ranking Income by *Tax Return* and Shares by *Adults* – equivalent to full sharing or full economies of scale
  - A&S perform sensitivity analysis with $g_n(t) = n$ & $w(t) = 1/\sqrt{n}$, square-root
- A&S(2019) use $g_n(t) = n$ & $w(t) = 1/\sqrt{n}$: Units=*People*: Ranking and shares by *People*

PSZ don't seem to understand possibility of $g_n(t) = n$ & $w(t) = 1$ (cf fn 2 of their AEA Papers & Proceedings); A&S understand, but talk about "re-ranking" or not

Example of *Returns* vs *People* – People More Appealing

$$\textit{Total Income} = \sum_{t=1}^{N} \underbrace{I(t)}_{\textit{income unit}} \cdot \underbrace{w(t)}_{\textit{size adjust}} \cdot \underbrace{g_n(t)}_{\textit{count units}} \cdot \underbrace{g_I(t)}_{\textit{unit wt}}$$

- Income $I(t)$ measured for the *Tax Return* (Tax Unit)

Counting Unit = *Return*

Returns	*1a*	*1b*	*2a*	*2b*	*3*	*4*	%
Tax Inc	\$5	\$5	\$5	\$5	\$20	\$20	45/60
$w(t)$	1	1	1	1	1	1	
$g_n(t)$	1	1	1	1	1	1	3/6
$g_I(t)$	1	1	1	1	1	1	
n	1	1	1	1	2	2	5/8

- Measures fraction of *returns* in Top 50%
- Not "wrong" but probably not what we think of as "Top Share"

Counting Unit = *People*, Full Sharing

People	*1a*	*1b*	*2a*	*2b*	*3*	*4*	%
Tax Inc	\$5	\$5	\$5	\$5	\$20	\$20	40/60
$w(t)$	1	1	1	1	1	1	
$g_n(t)$	1	1	1	1	2	2	4/8
$g_I(t)$	1	1	1	1	1/2	1/2	
n	1	1	1	1	2	2	4/8

- Measure fraction of *People* in Top 50%
- Probably closer to what we think of, but a little odd to assign (share) full income

Assigning (sharing) full income to everyone on tax return ($w(t) = 1$) seems a little odd

- In *this* example, doesn't matter – no re-ranking
- But, effectively, do that in original tax return analysis ("Unit=Return")

Household Equivalence Scales (our w)

Adjusting for Economies of Scale (w): Square-Root & Other

People	Adults	Children	Household income	HH income per person	Square-root	Citro & Michael
n	a	k	I	$w = 1/n$	$w = 1/\sqrt{n}$	$w = \frac{1}{(a+.7k)^{.7}}$
1	1	0	\$100,000	\$100,000	\$100,000	\$100,000
2	2	0	\$100,000	\$50,000	\$70,711	\$61,557
2	1	1	\$100,000	\$50,000	\$70,711	\$68,974
3	2	1	\$100,000	\$33,333	\$57,735	\$49,894
3	1	2	\$100,000	\$33,333	\$57,735	\$54,182
4	2	2	\$100,000	\$25,000	\$50,000	\$42,459
4	1	3	\$100,000	\$25,000	\$50,000	\$45,295

- There are economies of scale when multiple people share a household
  - Example: the rent on a two-bedroom apartment is generally less than twice the rent of a one-bedroom apartment
- One common method: divide by $\sqrt{n}$ as in table
- Another (Citro & Michael): $(a + 0.7k)^{0.7}$ (a=adults, k=kids)

Some Common Alternatives

$$\textit{Total Income} = \sum_{t=1}^{N} \underbrace{I(t)}_{\textit{income unit}} \cdot \underbrace{w(t)}_{\textit{size adjust}} \cdot \underbrace{g_n(t)}_{\textit{count units}} \cdot \underbrace{g_I(t)}_{\textit{unit wt}}$$

Tax Returns

- Original Piketty Saez (2003): $I(t)$ *by return*; $w(t) = 1; g_n(t) = 1$
- Piketty, Saez, Zucman (2019): $I(t)$ *by return*; $w(t) = 1/n; g_n(t) = n$
- Auten & Splinter (2018): $I(t)$ *by return*; $w(t) = 1; g_n(t) = n$
- Auten & Splinter (2019): $I(t)$ *by return*; $w(t) = 1/\sqrt{n}; g_n(t) = n$
- CBO: $I(t)$ *by return*; $w(t) = 1/\sqrt{n}; g_n(t) = n$ (I think)

CPS and other survey data:

- Bureau of the Census HH income $I(t)$ *by household*; $w(t) = 1; g_n(t) = 1$
- Census Personal Income: $I(t)$ *by individual*; $w(t) = 1; g_n(t) = 1$
- Ellwell, Burkhauser, others: $I(t)$ *by household*; $w(t) = 1/\sqrt{n}; g_n(t) = n$

Currently working (with help from Alejandra Campos) on building a database of various studies

How to Think About Alternatives

$$\textit{Total Income} = \sum_{t=1}^{N} \underbrace{I(t)}_{\textit{income unit}} \cdot \underbrace{w(t)}_{\textit{size adjust}} \cdot \underbrace{g_n(t)}_{\textit{count units}} \cdot \underbrace{g_I(t)}_{\textit{unit wt}}$$

Less about "Right vs Wrong" than "What does this tell us?"

- I would say analysis by tax return (original P&S, $I(t)$ *by return*; $w(t) = 1$; $g_n(t) = 1$) not very useful

Different views focus on different questions:

- Welfare and Consumption: look at household or tax unit income, count by individuals, size adjust / share in some way: $I(t)$ *by return*; $w(t) =?; g_n(t) = n$, income including transfers, after taxes
  - Size adjustment makes a difference ($w(t) = 1$; $w(t) = 1/n$; $w(t) = 1/\sqrt{n}$) but I think differences not large
  - Difference between PSZ ($w(t) = 1/n$) vs AS ($w(t) = 1$) seems to be more about income defintion
  - Census published HH income measures use $I(t)$ *by HH*; $w(t) = 1; g_n(t) = 1$ which has same issue as original PS – why houses rather than people?
- Labor market outcomes, look at $I(t)$ *by individual*; $w(t) = 1; g_n(t) = 1$, Labor market or earnings
  - Focus on individuals and market outcomes rather than welfare

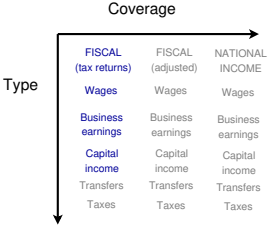
Sharing: Piketty, Saez, Zucman vs Auten & Splinter

PS Fiscal: original method, simply count tax returns

- Some returns for 1 person, some 2, some 3+
- Half of returns in top 50%, may be more than half of people (more people married at top)
- Problem with comparing across time: marriage rates falling at lower end, not at top – pushes income into top

PSZ EqSplit: same income (type and coverage) but different sharing & grouping

- Now group by individuals (so same number of *people* in bottom and top 50%)
- Share (split) income among people – split equally 50/50 (no returns-to-scale)
- Only count adults – ignore changes in HH size
- Honestly, I don't fully understand why top growing so fast – maybe changing HH size?



Avg Real Grth, 1979-2014	Overall	Bottom 50%	Top 1%	***Top Share***
PS Fiscal	30.0%	-37.6%	184.4%	***22.5%***
PS EqSplit	43.7%	-26.0%	217.5%	***20.5%***
PSZ Pre-Tax	55.9%	0.5%	172.7%	***19.0%***
AS Pre-Transf	75.6%	27.1%	161.6%	***13.8%***

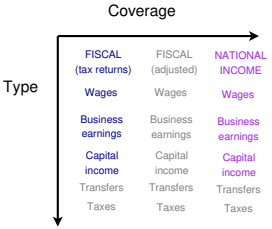
Sharing: Piketty, Saez, Zucman vs Auten & Splinter

PSZ EqSplit: fiscal (tax) income grouping by individuals / equal split income

- Addresses many criticisms of original analysis
- Income per *adult* not per person – adjusts for marriage rates by not family size
  - "Overall" grows 56% but if adjust by no. of *people* then up to 71%

PSZ Pre-Tax: expand coverage (along horizontal), including income not collected on tax returns (and marriage) – but no correction for tax law changes

- Shows how just expanding coverage changes growth and shares
- Much income from bottom not collected by tax returns



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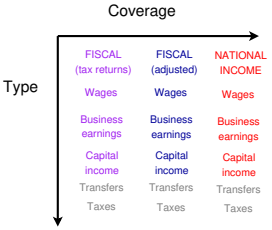
PSZ Pre-Tax: expand coverage (along horizontal), including income not collected on tax returns (and marriage) – but no correction for tax law changes

- Starts with non-adjusted fiscal income, expands coverage

AS Pre-Tax: also expands coverage, differs from PSZ three ways:

- Starts from *adjusted* fiscal income, making it consistent over time (changes in tax law)
- Different (I think better) assumptions about expanded coverage – e.g. underreported income
- PSZ counts *adults* (share $1/n$), AS *individuals* in HH – includes children (shares $1/\sqrt{n}$)
  - Income *per person* grows faster than income *per adult* – HH size has gone down
  - GDP per capita grew 76%



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Outline

Broad Agreement – Top Has Grown (But Bottom Also)

Top 1% share has increased since 1970s

- Originally – "Fiscal Income" – large increase
- Other researchers find lower Top 1% share than PSZ across the board

Bottom has grown, but less than top

- Supported by taxes and transfers

	Average Growth			Top 1% Share	
	Overall	Bot 50%	Top 1%	1979	***2014***
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Summary Comparison

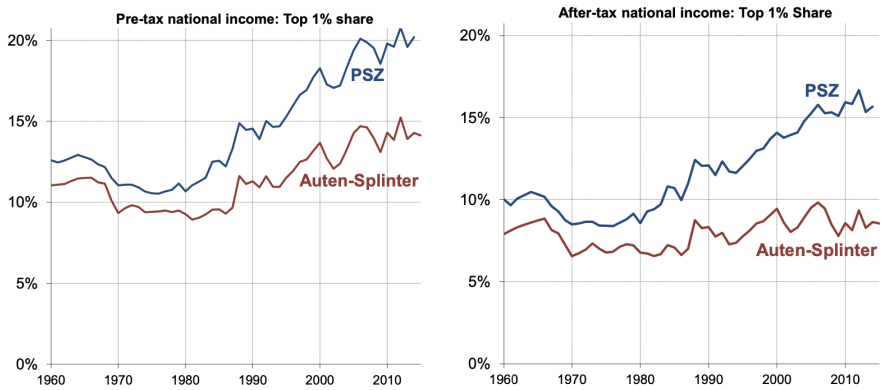


Figure 1: Top 1% shares of national income

Notes: Adjustments used to estimate Auten-Splinter pre-tax and after-tax income are listed in Tables 1and 2 and described in detail in the online appendix.
Sources: Authors' calculations, and Piketty, Saez, and Zucman (2018, PSZ in figure).

Outline

Recent Income Growth – Labor or Capital?

Piketty, Saez, Zucman claim virtually all income growth since 2000 is "capital":

almost all the 2000-2014 growth of average national income ... stems from the rise of capital income (PSZ 2018)

and that most went to top 1%

- Share of top 1% income due to *Capital* vs *Labor*
- Since 2000, labor flat, capital increasing

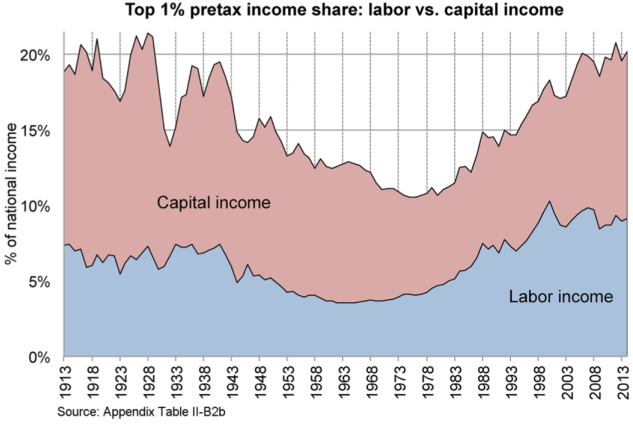


FIGURE VIII

The Capital Share across the Distribution

Multiple Studies on Top Entrepreneurial Income

Smith, Yagan, Zidar, Zwick (2019 *QJE*)

- IRS personal tax returns (1040) – Statistics of Income – stratified sample
- IRS pass-through business income (S-corp 1120S, partnership 1065) matched with personal income(1040)

Guvenen & Kaplan (2017 WP, publication ??)

- IRS SOI & Social Security Administration labor income
- Complement SYZZ in finding surge of top pass-through income
  - IRS (all income) & SSA (wage income) diverge at very top - top 0.1%+

Part of an explosion of studies using administrative data

- Administrative data deepens our understanding
- Recent very good work on combining survey & administrative data
- Supplement rather replacing survey data (such as CPS)

CPS & IRS Top Share results largely consistent

- Bricker (2016 Brookings), Burkhauser et al. (2012 RES), Larrimore et al. (2017 WP, JPE?)

Not discussing today: Wealth shares

- Valuable new work combining survey (Survey Consumer Finances) and IRS
- Continues trend of finding problems with work of Piketty, Saez, Zucman

Understand Labor vs Capital: Corporate Structure & Taxes

Require background knowledge of *Corporate Structure* and *Business Taxation*

- Seems tedious, but actually interesting *and* important

What do you think of when I talk about a *Business* or *Corporation*?

- A company like IBM or Amazon or Google – large, many employees, owned arms-length by investors
- This is a *C Corporation* – a separate legal entity, taxed and managed separately from owners

Vast majority of businesses – and most top income earners – are *Pass-Through Entities*

- S-Corporations (LLC) or Partnership or Sole Proprietorship
- Activities such as lawyer, doctor, dentist, consultant

What is S-Corp and Partnership or Sole Proprietor?

- Usually (but not always) small.
- Usually closely-held – managed by the owner(s)

Not hard to start – I have started a Ltd. (UK), a Co. (US), and an LLC (US)

Pass-Through Taxation vs C-Corp Taxation

For discussion of Labor vs Capital, two crucial facts

- Pass-Throughs Important: Large fraction (more than half?) of business income
- Pass-Throughs taxed at *Individual* level (regular 1040) rather than at *Entity* level (corporation)

An S-Corp (LLC) is a legal entity (separate from the owner) but for *Tax* purposes it does not exist

- All profits flow through to the owner's personal income tax form

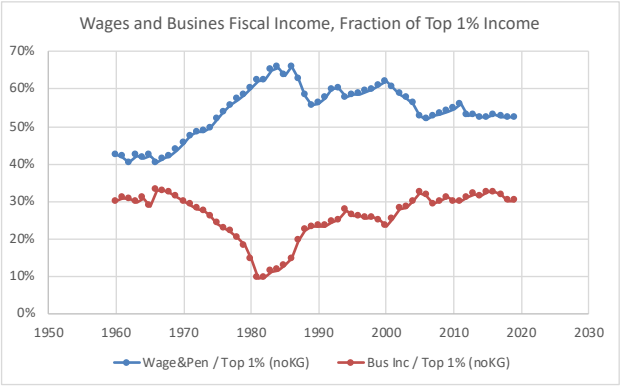
Important implications

- Depending on tax rates for C-Corp vs Individual, may make sense to set up business as C-Corp or Pass-Through
  - Before 1986 TRA: C-Corp better deal
  - After 1986 TRA: Pass-Through (S-Corp, Partnership) better
  - After 1986, many businesses re-organized, and personal income (particularly Top 1%) went up – due to tax rules, not economics
- Owners of Pass-Through don't really care if pay themselves high wage (low profit) or low wage (high profit)
  - Distinction between wages and profits sort-of disappears

Piketty, Saez, Zucman don't seem to understand these issues

Wages & Business Income in Top 1%

From PSZ data on Top 1% source of income



- 1960-1986: rise of wages
- 1986-present: rise of business income

Dramatically shows effect of 1986 TRA

- SYZZ argue much of post-1986 (and post-2000) growth in business (pass-through) income is returns to human capital

Smith, Yagan, Zidar, Zwick Argue it is Labor

Recent work by Smith, Yagan, Zidar, Zwick (QJE) argues much of top income is returns to human capital. "Three Facts" about growth of top entrepreneurial income:

- Late 20th c, large rise in wage income, then nonwage income post-2000
- "the vast majority of rising top nonwage income came in the form of business income"
- "within business income, most of the growth took the form of pass-through income"

SYZZ show that most (75%) of pass-through is attributable to human capital

- Supports the argument that much rising inequality (since 1970) due to human capital: rising relative demand for skills
- Argues against "Capital in the 21st Century"

Argues pretty strongly that recent rise is labor (not capital)

- Piketty, Saez, Zucman seem mistaken

Outline

Taxes Have Become More Progressive

This is not what most people (myself included) believe

- But it does seem to be true – supported by multiple studies
- Blue shows before tax
- Violet shows after tax
- Both Piketty, Saez, Zucman and Auten & Splinter show more growth in bottom 50% *after* taxes & transfers
- I think Auten & Splinter are more reliable, and show a bigger effect

Avg Real Grth, 1979-2014	Overall	***Bottom 50%***	50-90th	90-99th	Top 1%
PSZ Pre-Tax	55.9%	***0.5%***	42.0%	77.0%	172.7%
PSZ After-Tax	55.9%	***18.2%***	47.3%	72.6%	172.2%
AS Pre-Tax	75.6%	***27.1%***	69.3%	99.8%	161.6%
AS After-Tax	75.6%	***55.8%***	76.4%	89.7%	112.3%

Supported by evidence from multiple other studies

Implied Tax & Transfer Rate

Simplest way to express: define *Implied Tax & Transfer Rate*:

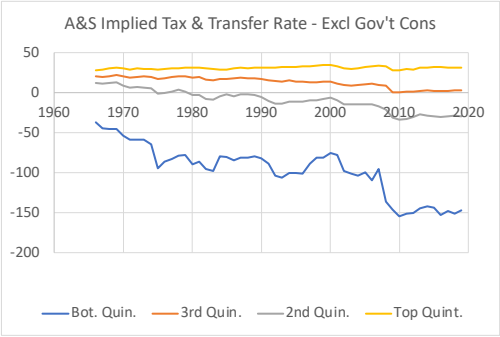
$$\frac{Pretax - Aftertax}{Pretax}$$

- With taxes only, $Pretax > Aftertax$, a regular tax rate, like 15%
- With transfers, we can have $Aftertax > Pretax$ and this rate can be *negative*

Auten & Splinter call this *net redistribution rate*

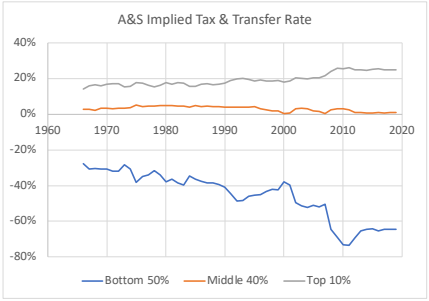
Figures are extraordinary

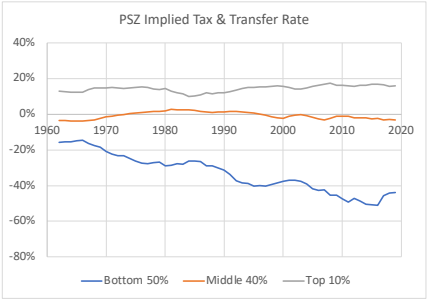
- Bottom quintile (20%): from –37% in 1966, to *-150%* in 2019
- For every $100 of pre-tax income, *receive $150 more in transfers*
- Even middle quintile zero since 2008



Similar Results from Multiple Researchers

Piketty, Saez, Zucman Before- & After-Tax results show the same (for bottom 50% of distribution)





- PSZ show smaller implied tax rate (closer to zero) for bottom 50%, consistent with their giving less income to the bottom
- But still large and growing dramatically over time
- Need to be careful – these figures include "government consumption" – services like police and roads

Even middle 40% has close to zero taxes (after transfers and gov't consumption)

More Results for Bottom

Results from Elwell, et al.: big jump in bottom quintile when include transfers

- Average for 5 quintiles, 1959-2016
- Labor Income, Tax Units: Huge inequality, Q1 –52.7%, Q5 +110.6%
- Post-transfer, HH Size-Adjusted: Pretty equal, Q1 +184%, Q5 +165%

Table 1. Income Growth for 1959-2016 and 1959-2007 using Alternative Measures of Income by Quintiles

					Household Size-Adjusted Post-Transfer		
	Labor Income of Tax Units (1)	Market Income of Tax Units (2)	Household Size-Adjusted Labor Income of Persons (3)	Household Size-Adjusted Market Income of Persons (4)	Pre-Tax Income of Persons (5)	Post-Tax Income + In-Kind Income of Persons (6)	Post-Tax Income + In-Kind Income + Medicare + Medicaid + ESI of Persons (7)
Panel A:							
Median	6.4%	23.0%	75.1%	91.3%	103.1%	130.4%	153.7%
Q1	-52.7%	-75.5%	-61.3%	18.0%	109.0%	183.8%	262.0%
Q2	-4.7%	20.7%	35.5%	63.3%	88.5%	119.7%	157.6%
Q3	8.6%	24.3%	75.7%	91.9%	103.8%	130.4%	154.5%
Q4	41.6%	54.0%	103.4%	116.2%	120.4%	145.1%	162.2%
Q5	110.6%	121.2%	149.8%	160.4%	157.2%	164.7%	175.7%
Top 5%	146.7%	155.0%	190.6%	193.4%	184.9%	179.3%	186.8%

Conclusions

- Methodology: Size adjustment matters (some)
- Transfers and taxes have hugely reduced inequality

Conclusion: Increasing Progressivity of Taxes & Transfers

Not widely recognized

- U.S. tax & transfer policy appears to be greatly (and increasingly) supportive of the lower end of the income distribution
- Due to large and increasing transfers

I would not have thought this two years ago (before looking at these data)

Outline

Transfers are Large

Recent book by Gramm, Ekelund, Early has some scary numbers

Table 2.4. Average annual household earned income, transfer payments, and taxes and the resulting income after taxes by household earned income quintile, 2017

Earned income quintile	Earned income	Government transfers	Private transfers	Income before taxes[a]	Federal, state, and local taxes	Income after taxes	Taxes as percentage of income before taxes	Income after taxes as percentage of earned income
Bottom	4,908	45,389	3,313	53,610	3,996	49,613	7.5	1,010.9
Second	30,931	29,793	2,041	62,765	8,841	53,924	14.1	174.3
Middle	66,148	17,850	947	84,945	19,314	65,631	22.7	99.2
Fourth	112,563	9,738	865	123,166	35,034	88,132	28.4	78.3
Top	295,904	7,282	845	304,030	106,997	197,034	35.2	66.6
Average	*102,093*	*22,010*	*1,602*	*125,705*	*34,837*	*90,868*	*27.7*	*89.0*
Ratio								
Top to bottom	60.3	0.2	0.3	5.7	26.8	4.0	4.7	0.1
Top to middle	4.5	0.4	0.9	3.6	5.5	3.0	1.5	0.7
Middle to bottom	13.5	0.4	0.3	1.6	4.8	1.32	3.1	0.1

Note:
a. Earned income plus government and private transfers.

Sources: Tables 2.1, 2.2, and 2.3.

The percentage of 1,010.9 for bottom quintile translated to my "implied tax & transfer rate" is –910.9%

- For every \$100 of earned income, \$910.90 of "taxes & transfers"
- Seems high – maybe using "earned income" rather than "pre-tax income" ??

Comparison of Gramm, Ekelund, Early vs Auten & Splinter

We can do some basic comparisons

- Gramm et al. report per household (126.22mn HH)
- Auten & Splinter report per person (320.66mn people)
- "Adjust" A&S per-person upwards to per HH – correct for overall avg, not for quintiles
- Gramm lower for avg because includes only *earned* income
- Quintiles don't look right – something funny
- Partly, need to re-rank for HH vs person difference

Inadequate comparison – needs some careful work

	Gramm: Average per HH		Auten & Splinter: Avg per Person, "adjusted" to HH	
2017	Earned Income	Gov't Transfers	Pre-Tax Nat Inc	Transfer
1st	4,908	45,389	18,938	23,287
2nd	30,931	29,793	48,556	23,785
3rd	66,148	17,850	88,729	20,981
4th	112,563	9,738	144,274	19,534
5th	295,094	7,282	368,204	16,507
Average	102,093	22,010	132,902	20,391

Additions to Tax Income (from Auten & Splinter) for Bot & Top 20%

Goal: understand more carefully where additions and subtractions enter

	2014 Ratio to Pre-Tax Income			2014 Change in Ratio to Pre-Tax Income		
Bot & Top 20%	Overall	Bot	Top	Overall	Bot	Top
PS fiscal inc	**59.8%**	**72.1%**	**69.9%**			
Correct Sample				1.6%	-49.7%	1.0%
Rank, size-adj inc				0.0%	27.6%	-5.5%
Other				1.0%	1.1%	-0.3%
Correct fiscal inc	**62.3%**	**51.1%**	**65.0%**	**2.5%**	**-21.0%**	**-4.9%**
C-corp earn & taxes				6.1%	6.6%	7.0%
Underreported				3.7%	9.0%	3.9%
Imputed Rent				4.3%	2.8%	4.1%
Payroll tax & ins				9.2%	12.3%	6.5%
Indirect tax, ...				6.7%	11.5%	5.3%
Other				7.7%	6.8%	8.2%
Pre-tax Income	**100%**	**100%**	**100%**	**37.7%**	**48.9%**	**35.0%**

Fiscal Inc:

- I think "correct sample" takes out people from bottom, "re-rank" puts them back

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Expanding fiscal inc:

- Underreported inc, adding back taxes

Transfers – Additions to Pre-Tax Income (from Auten & Splinter)

	2014 Ratio to Pre-Tax Income			2014 Change in Ratio to Pre-Tax Income		
Bot & Top 20%	Overall	Bot	Top	Overall	Bot	Top
Pre-tax Income	**100.0%**	**100.0%**	**100.0%**			
Soc Sec benefits				5.6%	45.2%	2.3%
Unemploy. benefits				0.2%	3.6%	0.0%
Other cash transfers				1.2%	-10.6%	0.2%
Medicare				3.4%	22.6%	1.8%
Other non-cash				4.7%	66.7%	0.4%
Pre-tax + transfers	**115.1%**	**227.4%**	**104.7%**	**15.1%**	**127.4%**	**4.7%**
Federal & S&L tax				-11.0%	-6.2%	-16.8%
Corp income tax				-2.0%	47.8%	-2.3%
Other				-14.6%	-14.2%	-11.9%
After-tax, pre-gov't	**87.5%**	**254.7%**	**73.7%**	**-27.6%**	**27.3%**	**-31.0%**
With gov' sector	**100.0%**	**335.9%**	**79.8%**	**12.5%**	**81.2%**	**6.1%**

Transfers:

- Social Security: not work-related
- Medicare: valued at cost
- Other non-cash: need to study more

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- Other non-cash: need to study more

Taxes:

- Why big *positive* for corp tax for bot 20%

Gov't sector

- NI includes gov't spending
- Need to allocate across distribution

Transfers: An Observation & A Question

1. **Observation**: Government transfers to the bottom of the income distribution have grown dramatically over the past 20-50 years
2. **Question**: What has been the effect on labor supply?

Subsidiary Questions:

- What are basic observations about transfers?
  - Split between unconditional vs conditional?
  - Work incentive (EITC) vs other? How has that changed over time?
  - How much of increased transfers are increased social security to retirees?
  - How big and what proportion is disability? How has that changed over time?
- What is the labor supply response?
  - Extensive margin
  - Intensive margin
  - Lower on income distribution vs higher income
  - By demographic group (since population at lower end will be different than middle and upper)

Important questions, I'm not sure anyone knows the answers

Outline

Missing

Wealth Distribution

- Important work recently
- Smith, Zidar, Zwick (WP?) is good
- Highlights flaws in work by Saez & Zucman's (surprised?)

Income mobility over the lifetime

- I like work by Auten, Gee, other co-authors. Also Guvenen, Kaplan, others.
- I am sure many others

Intergenerational mobility (parents / children)

- Prof Heckman, Xi Song know much more about this than I do

Today is about Data, Methodology, Theory

U.S. INEQUALITY since 1980s

Some popular (but wrong) narratives and outstanding questions:

1. Top 1% does *not* take everything – top grows, but so does bottom
2. Taxes are *not* regressive – tax policy has mitigated rising income inequality
3. Large and increasing transfers – what impact on labor supply?

Why are these narratives so resonant today?

- Reflect a sense we all have – inequality has risen
- Incorrect narratives supported by (flawed) work

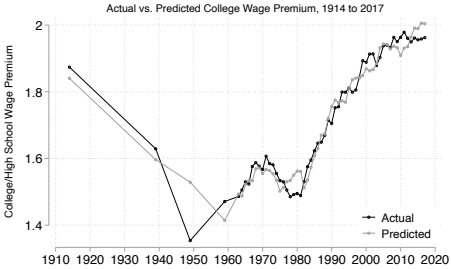
Correct answers are important if we want the right policies

- Simple solutions (tax the rich, break up corporations) not supported by data
- More complicated – education and human capital
- Value in careful attention to *data*, *methodology*, and *theory*

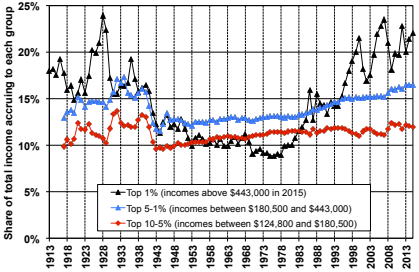
This work is hard – good and careful work is always hard

Outline

Long Sweep of Inequality: Education



Autor, Goldin, Katz. 2020. "Extending the Race between Education and Technology." ***AEA Papers and Proceedings***



Education "premium" drives much of inequality

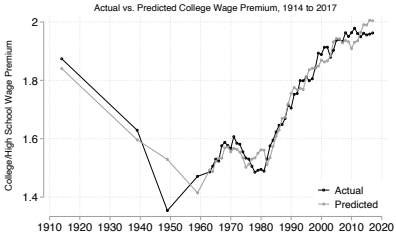
Wage ratio: $W_{college}/W_{HS}$ – measured in logs

- In 1915, about 1.9 (exp(0.65)) – college earns 90% more
- By 1950, down to 35%
- By 2010, back up to 85%

Look at Piketty & Saez "Top 1%"

- We know it overstates changes, but still more-or-less right in long history
- Same pattern as wage premium
- "Great Compression" in middle of 20th c: Top 1% down

Strong Evidence: Inequality is Education-Related



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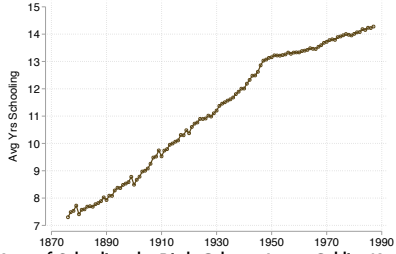

Years of Schooling, by Birth Cohort: Autor, Goldin, Katz. 2020. "Extending the Race between Education and Technology." *AEA Papers and Proceedings*

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First half of 20th c: education grew strongly

- Technology was growing, increasing demand for skilled workers
- But supply of workers increased so much, pushed down wage
- "Great Compression" in middle of 20th c
- Until birth cohort 1949: flat

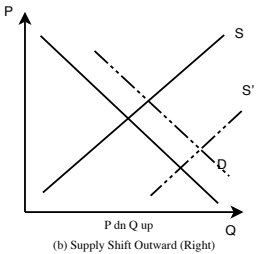
A Simple Supply & Demand Story

Increasing Supply of Skills

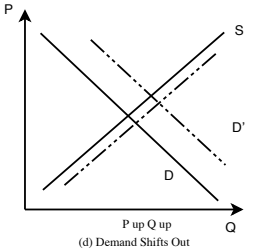
- IF supply shifts out, pushes wage down
- Presumably happened 1900-1960

Increasing Demand for Skills

- Technological change $\rightarrow$ increased demand for skilled workers
- Pushes college wage up (if no change in supply)
- Presumably happening now (since 1980)



(b) Supply Shift Outward (Right)



(d) Demand Shifts Out

Good News / Bad News

Good News: It's education

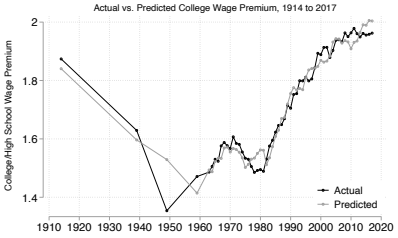
- This can be solved

Bad News: It's education

- It's not easy to solve

Predict wage premium via simple supply (college vs HS) and supply (growing at constant rate)

- Works *remarkably* well



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Outline

If It Is Education, Then It Is Children & Families

James Heckman (at Chicago) has been working on this for many years

> *the shortfalls in achievement in the twenty-first century among all groups stem from shortfalls in education and on-the-job training as well as cognitive and personality traits – not in the rewards accorded those skills*
>
> *American society is divided into affluent haves and under-privileged have-nots, with differences in skills accounting for most of the disparity*

Three issues he emphasizes:

1. Soft skills matter
2. Skill formation in early childhood is critical
3. Families matter

Connection between early childhood environment and family, and later life outcomes, is very strong.

- Early investments are self-reinforcing, so that a small investment early can have a large and lasting effect later in life
- Remediating poor early childhood environment (lack of early investment) becomes costly later (say in middle school or high school)