

Global Inequality & Growth:

What is income?

Ludvig Wier



Roadmap

1. $\text{Income} = \text{domestic output} + \text{net foreign income}$
2. $\text{Income} = \text{labor income} + \text{capital income}$
3. Functional vs. personal income distribution
4. Pre-tax vs. post-tax income

National income

National income Y of a country = net domestic output Y_d + net foreign income

- At world level: $Y = Y_d$

Net domestic output Y_d

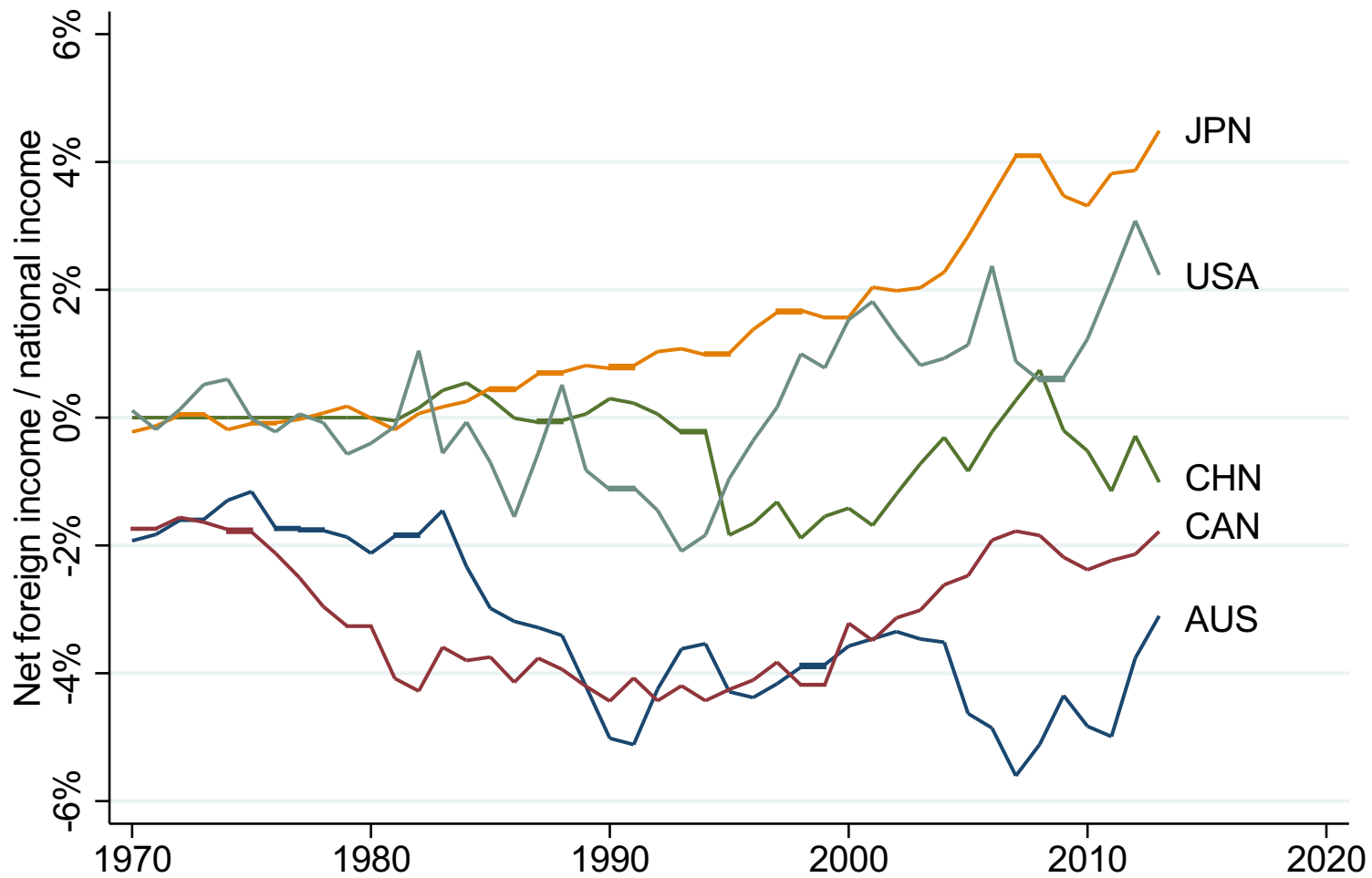
- Net domestic output $Y_d = F(K, L)$
- Net domestic output $Y_d = \text{GDP} \text{ minus capital depreciation}$

Gross domestic product

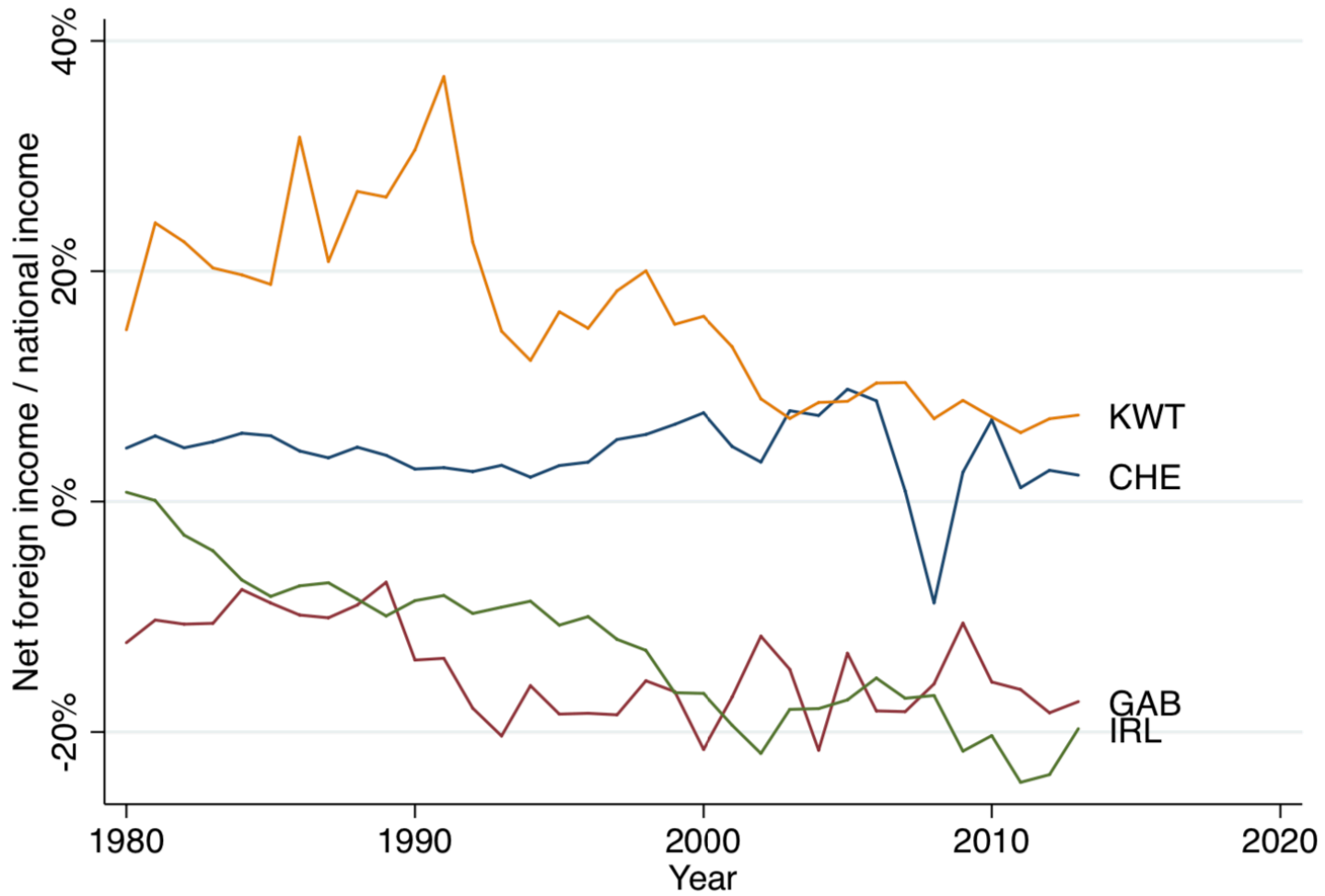
- GDP = gross domestic product = economy-wide value-added = the value of all goods and services sold to final users = $C + I$
- Depreciation: loss in the value of capital due to passing of time
- Depreciation is $\approx 10\text{-}15\%$ of GDP $\approx 2\text{-}3\%$ of capital stock K
- Depreciation varies with asset mix (buildings vs. software)
- Depreciation varies with geography \rightarrow harder to accumulate K in humid countries, exposed to cyclones.
 - See Hsiang and Jina (2015)

Net foreign income

- Net foreign income = net foreign labor income + net foreign capital income
- Net foreign labor income: wages of cross-border workers. Typically negligible (except in tiny countries like Luxembourg)
- Net foreign capital income: dividends, interest, rents generated by cross-border assets.
 - Can be large (and either > 0 or < 0)



Data source: World Bank's World Development Indicators



Data source: World Bank's World Development Indicators

What determines foreign income?

- Net foreign capital income = $FA \times r_A - FL \times r_L$
- $FA - FL =$ foreign assets minus foreign liabilities = net foreign asset position (NFA)
- FA, FL : depends on stage of development; demography; home bias; financial account policies
- r_A, r_L : depends on composition of external assets; exorbitant privilege; tax avoidance. See Gourinchas and Rey (2007)

Kahoot!

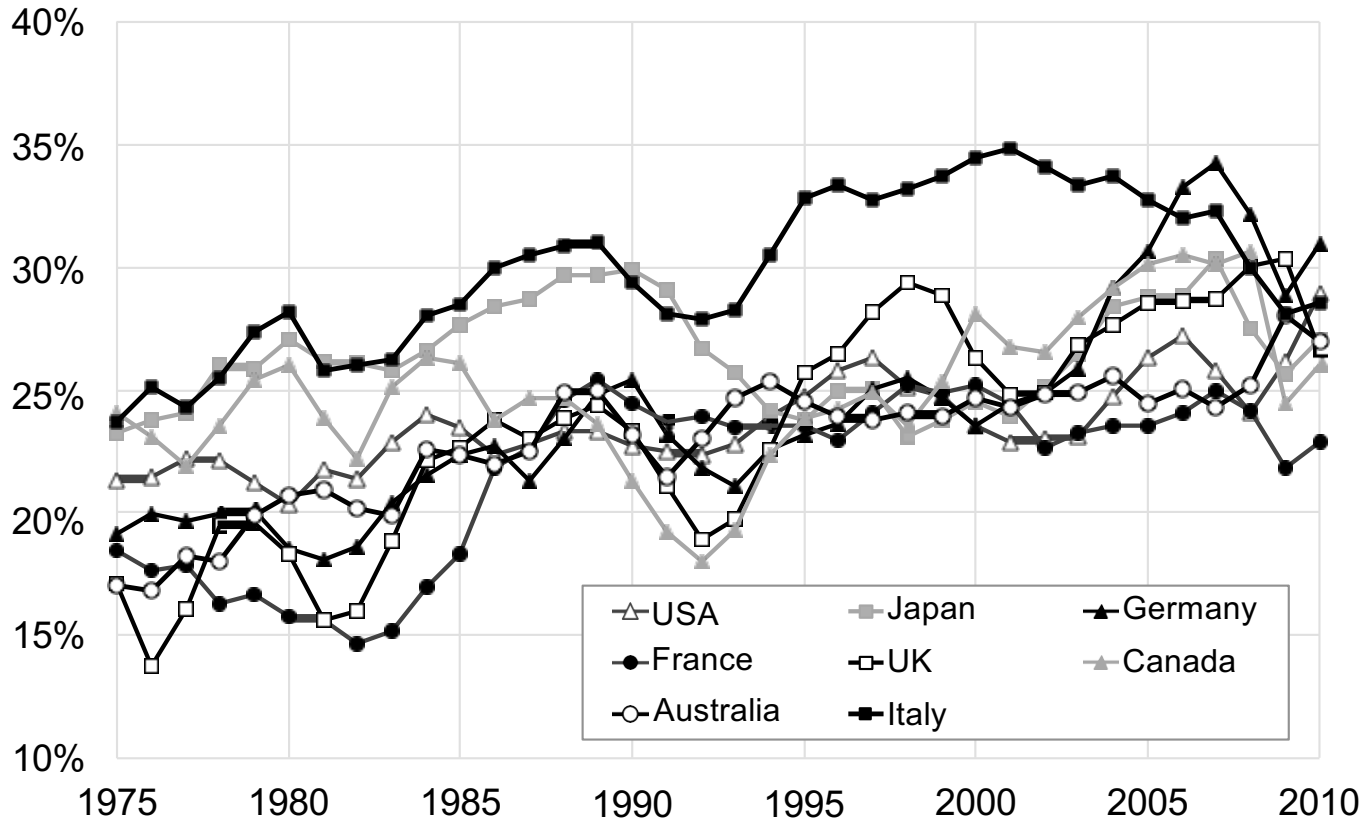
If a country has a negative net foreign asset position, then its national income is necessarily less than its net domestic output

- True
- False

Income = labor income + capital income

- $Y = F(K, L) + \text{net foreign income} = Y_K + Y_L$
- $Y_K = \text{capital income (domestic + foreign)} = \text{corporate profits} + \text{rents} + \text{interest} + \text{K component of mixed income}$
- $Y_L = \text{labor income (domestic + foreign)} = \text{wages} + \text{supplements to wages} + \text{labor component of mixed income}$
- $a = Y_K / Y = \text{share of capital in national income} \approx 25\text{-}30\%$
- $1 - a = Y_L / Y = \text{share of labor in national income} \approx 70\text{-}75\%$

Capital shares in factor-price national income 1975-2010



Source: Piketty and Zucman (2014)

Functional vs. personal income distribution

- Functional income distribution: distribution of $Y = Y_K + Y_L$ across factors of production K and L
 - What classical economists were mostly interested in
- Personal income distribution: distribution of $Y = \sum_i y_i$
 - What today's economists are mostly interested in (= part II of the course)

Both concepts are related

Distribution of y_i across individuals depends on:

- Distribution of y_{Li} across individuals (part III of the course)
- Distribution of y_{Ki} across individuals (part IV of the course)
- Relative size of $Y_L = \sum_i y_{Li}$ and $Y_K = \sum_i y_{Ki}$ (part I)
- Correlation between y_{Li} and y_{Ki} (part IV)

Pre-tax vs. Post-tax income

- So far we abstracted from the intervention of the government in the economy
- If no government, individual income $y_i = y_{Ki} + y_{Li} =$ income that derives from the ownership of factors of production
- With government intervention, the actual income that people can spend or save can be different from $y_{Ki} + y_{Li}$

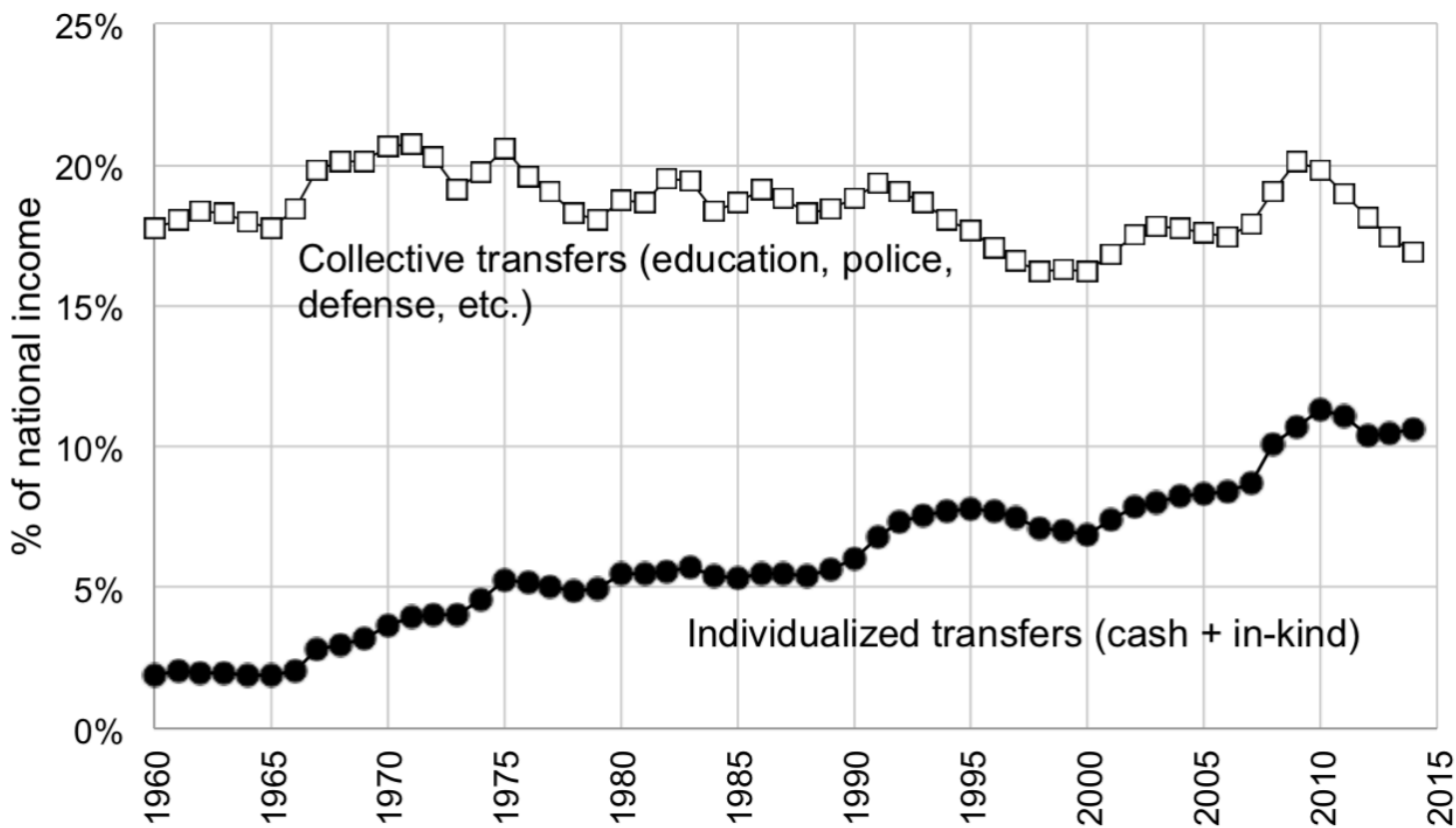
Pre-tax income

- Pre-tax income = income before government taxes and transfers
- Inequality of pre-tax income \approx inequality generated by the market
- This is the income that governments usually try to tax

Post-tax income

- Post-tax income = income after all taxes have been paid and all benefits have been received = income people can consume or save
- Two types of transfers:
 - Individualized transfers (monetary, in-kind)
 - Collective transfers

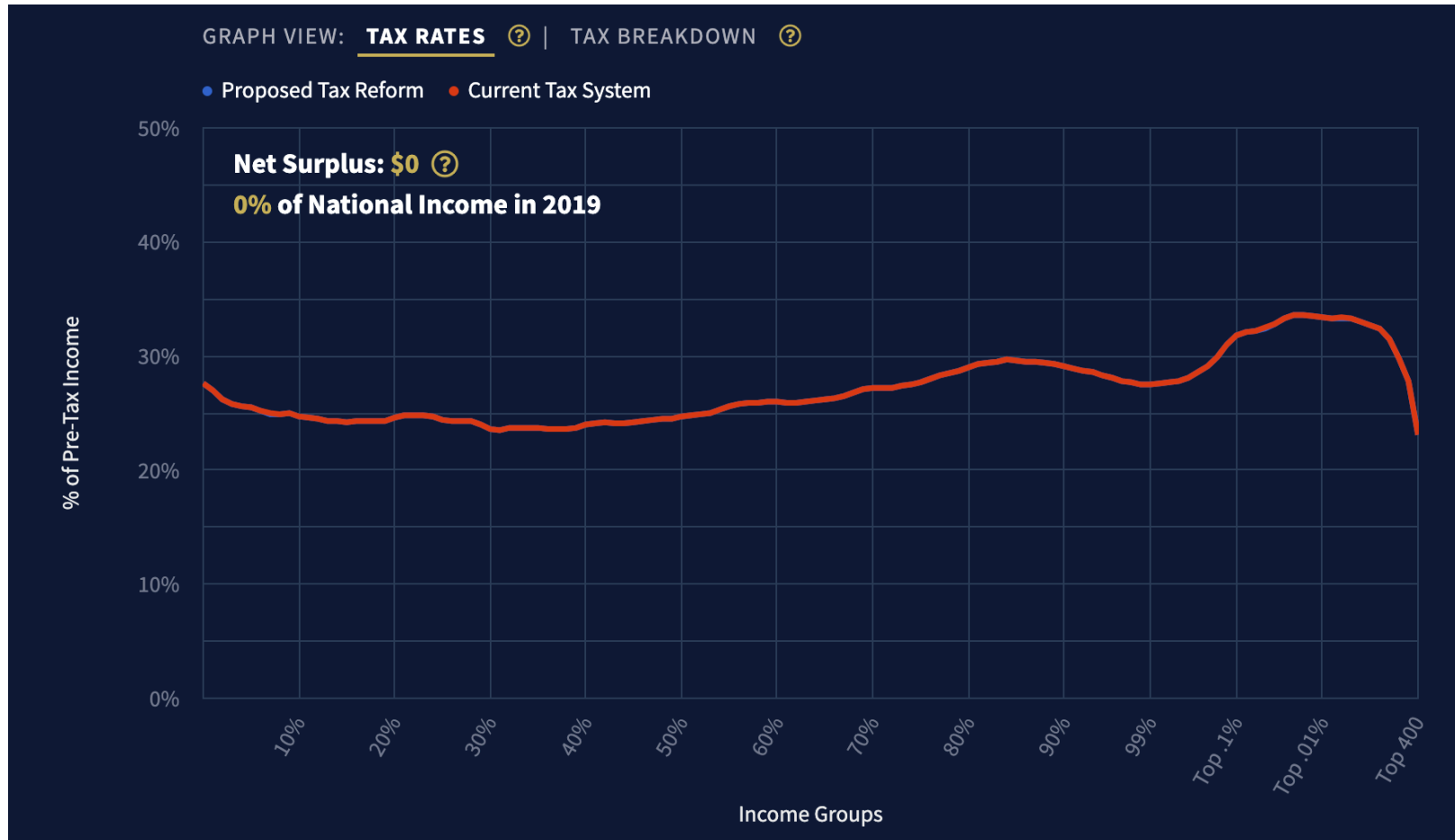
Transfers in the United States



Source: Appendix Table G4

Piketty, Saez and Zucman (2018)

<https://taxjusticenow.org/#/>



The Distribution of National Income in the United States, 2014

Income group	Number of adults	Pre-tax income		Post-tax income	
		Average income	Income share	Average income	Income share
Full Population	234,400,000	\$64,600	100%	\$64,600	100%
Bottom 50%	117,200,000	\$16,200	12.5%	\$25,000	19.4%
Middle 40%	93,760,000	\$65,400	40.5%	\$67,200	41.6%
Top 10%	23,440,000	\$304,000	47.0%	\$252,000	39.0%
Top 1%	2,344,000	\$1,300,000	20.2%	\$1,010,000	15.6%
Top 0.1%	234,400	\$6,000,000	9.3%	\$4,400,000	6.8%
Top 0.01%	23,440	\$28,100,000	4.4%	\$20,300,000	3.1%
Top 0.001%	2,344	\$122,000,000	1.9%	\$88,700,000	1.4%

Source: Piketty, Saez and Zucman (2018)

References

Gourinchas, Pierre-Olivier, and Helene Rey, “From World Banker to World Venture Capitalist: US. External Adjustment and the Exorbitant Privilege”, *NBER*, 2007 ([web](#))

Hsiang, Solomon M., and Amir S. Jina, “Geography, Depreciation, and Growth”, *American Economic Review*, 2015 ([web](#))

Karabarbounis, Lukas and Brent Neiman, “The Global Decline of the Labor Share”, *Quarterly Journal of Economics*, 2014 ([web](#))

Piketty, Thomas, and Gabriel Zucman, “Capital is back: wealth-income ratios in rich countries 1700-2010”, *Quarterly Journal of Economics*, 2014 ([web](#))

Piketty, Thomas, Emmanuel Saez, and Gabriel Zucman, “Distributional National Accounts: Methods and Estimates for the United States,” *Quarterly Journal of Economics*, 2018 ([web](#))