ECON 133 Global Inequality and Growth
Section #1: Definitions

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January 26, 2022

When discussing inequality, we prefer income rather than GDP for two main reasons:

- Depreciation (loss in the value of capital due to passing of time) is not income, and including it may artificially inflate the economic income of capital owners
- Net foreign income - foreign dividends are substantial for top incomes (e.g. foreigners with U.S. assets)

To describe the dynamics of income, it's useful to define it in the following ways:

1 Income = net domestic output + net foreign income

- National income (Y) =net domestic output (Y_d) + net foreign income ($r \cdot NFA$)
- At world level: $Y = Y_d$

1.1 Net domestic output Y_d

- $Y_d = F(K, L)$=GDP minus capital depreciation ($\approx$ 10-15% of GDP; 2–3% of capital stock K, but it varies with assets)

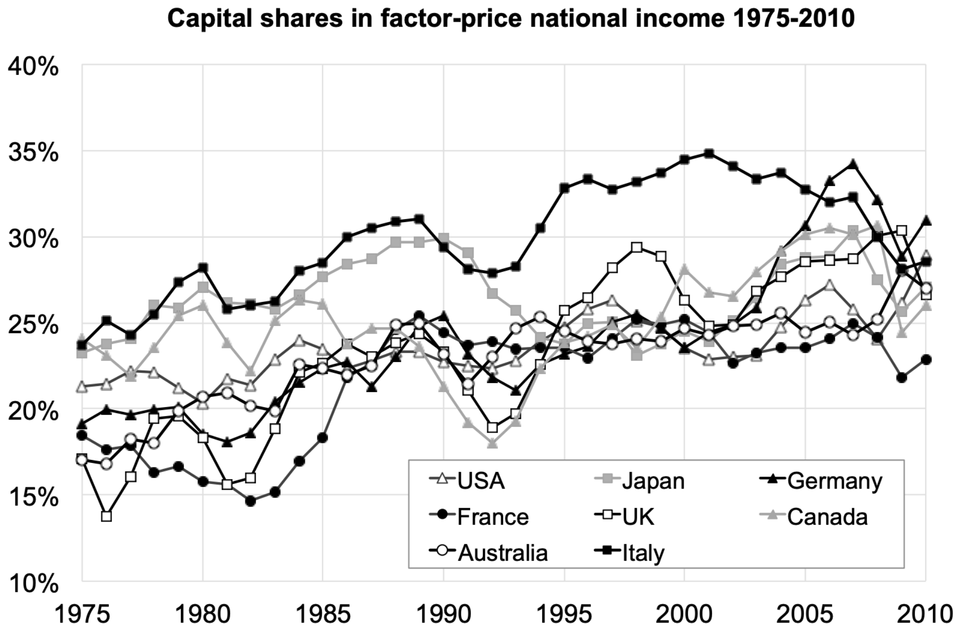
1.2 Net foreign income $r \cdot NFA$

- Net Foreign Income = net foreign labor income (negligible) + net foreign capital income
- NFA = net foreign asset position = $FA - FL$
- Net foreign capital income: $FA \times r_A - FL \times r_L$, where
  - FA, FL depend on stage of development, etc.
  - r_A, r_L depends on the composition of external assets
  - Today, NFA of rich countries small so that income $\approx$ output

2 Income = labor income + capital income

- $Y = Y_K + Y_L$
- Y_K = capital income (domestic + foreign) = corporate profits (distributed + undistributed) + rents + interest + K component of mixed income
- Y_L= labor income (domestic + foreign) = wages + supplements to wages (health benefits, employer contribution to pensions...) + labor component of mixed income
- $\alpha = Y_K/Y$ = share of capital in national income $\approx$ 25-30%
- $1 - \alpha = Y_L/Y$= share of labor in national income$\approx$ 70-75%

*These notes borrow heavily from past notes by José Díaz, Margie Lauter, Cristóbal Otero, Anton Heil, Nina Roussille, Juliana Londoño-Vélez, Jon Schellenberg, and Marcelo Milanello. All mistakes are our own.



Source: Piketty and Zucman (2014)

3 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 $Y = \sum_i y_i$ across individuals i (what today's economists are mostly interested in)
- Both are related, since y_i depends on:
  - Distribution of y_{Li} across individuals i
  - Distribution of y_{Ki} across individuals i
  - Relative size of $Y_K = \sum_i y_{Ki}$ and $Y_L = \sum_i y_{Li}$
  - Correlation between y_{Li} and y_{Ki}

The Distribution of National Income in the United States, 2014

Income group	Number of adults	Pre-tax income Average income	Pre-tax income Income share	Post-tax income Average income	Post-tax 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)

4 Pre-tax income vs post-tax income

- Without government intervention: $y_i = y_{Ki} + y_{Li}$ = income that derives from the ownership of factors of production = factor income
- With government intervention: actual income that people can spend or save can be different from $y_{Ki}+y_{Li}$ (e.g. social insurance, redistributive income taxation)
- Pre-tax income = income before government taxes and transfers.
  - This is inequality created by the market
- Post-tax income = income after all taxes have been paid and all transfers have been received = income people can consume or save.
  - Here transfers refers to two elements:
    * Individualized transfers (monetary, in-kind)
    * Collective expenditure (roads, police)

By comparing Pre-tax and Post-Tax income we can evaluate the redistributive effects of government.