Inequality

Marek Šedivý

Charles University, Prague

March 3, 2020, Public Finance

Introduction
●○○○○

Measurement
○○○○○○○○○○○○

Evidence - national
○○○○○○○

Evidence - global
○○○○

Source: The CORE team

Why study inequality?

Instrumental reasons (e.g. Stiglitz (2012)):

▶ Inequality (increased) has negative effects on our society.

▶ Leads to a decrease in social cohesion, increased crime, ill health.

Intrinsic motivation:

▶ Based on a broader theory of justice/social welfare.

▶ e.g. Utilitarianism: "Excessive inequality reduces the sum of total utility, since the total value of an additional unit of income is lower to the well-off."

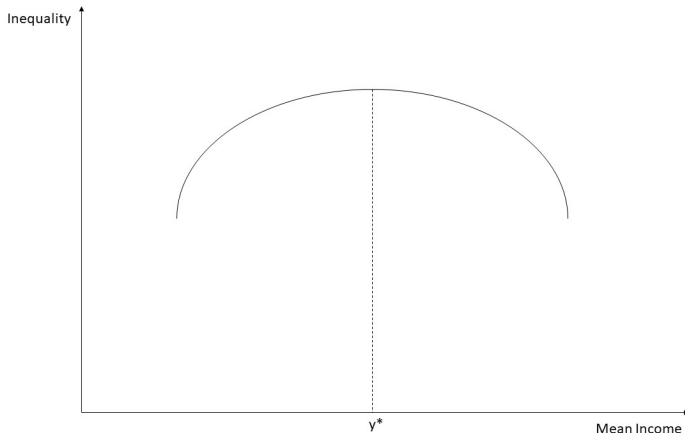Distinction by Atkinson (2015)

Theory - Kuznets Curve

Developed by Kuznets (1955)

Industrialization and economic development leads first to an increase and then to decrease of inequality.
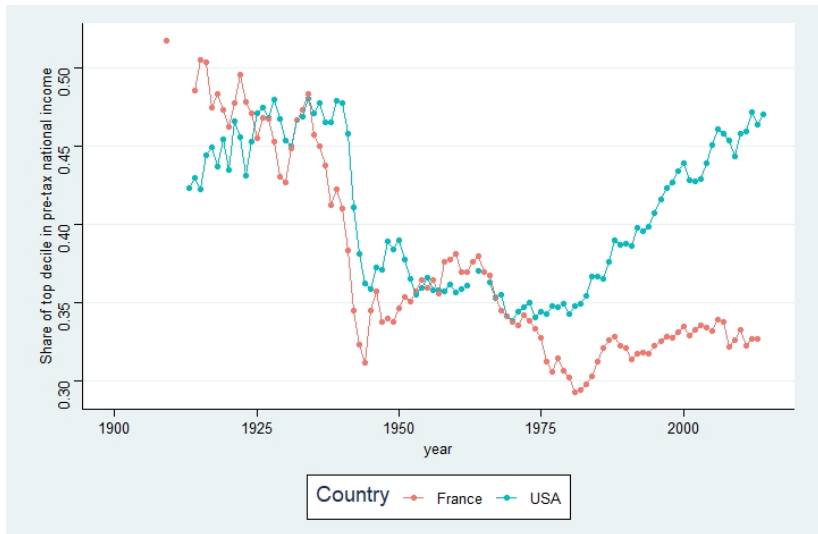
Mechanism

▶ In the early stages of industrialization only a minority benefits from the created wealth which leads to an increase in inequality.

▶ Over time, workers move to the new sector thus profiting from it which leads to a decrease in economic inequality.

Introduction
○○○●○

Measurement
○○○○○○○○○○○○○

Evidence - national
○○○○○○○

Evidence - global
○○○○

Kuznets Curve

Source: Author

Introduction
○○○○●

Measurement
○○○○○○○○○○○○○

Evidence - national
○○○○○○○

Evidence - global
○○○○

Kuznets Curve revisited

Source: Author based on World Inequality Database

Axiom 1: Transfer Principle (Pigou-Dalton principle)

If we transfer a given sum of money from person A to a poorer (richer) person B without changing their ranking then inequality must fall (rise).

Example:
A(0, 10, 10, 10, 10) $\succ^I$ B(3, 7, 10, 10, 10)

Axiom 2: Anonymity (Symmetry)

All permutations of personal labels are regarded as distributionally equivalent.

Example:
A(3, 7, 10, 10, 10) $\sim^I$ B(10, 10, 3, 7, 10) $\sim^I$ A(7, 10, 10, 10, 3)

Introduction
00000

Measurement
000●000000000

Evidence - national
0000000

Evidence - global
0000

Axiom 3: Scale invariance

Multiplying all incomes by a constant does not change the inequality measure.

Example:
A(0, 10, 10, 10, 10) $\sim^I$ B(0, 20, 20, 20, 20)

Introduction
00000

Measurement
000●000000000

Evidence - national
0000000

Evidence - global
0000

Axiom 4: Decomposability

Total inequality can be expressed as the sum of the inequality between groups plus inequality within groups.

Example:

A(0, 10, 10, 10, 10), B(0, 10), C(10, 10, 10)

These are not the only axioms, e.g. Monotonicity, Translation invariance, Population principle. For more see for example Cowell (2000).
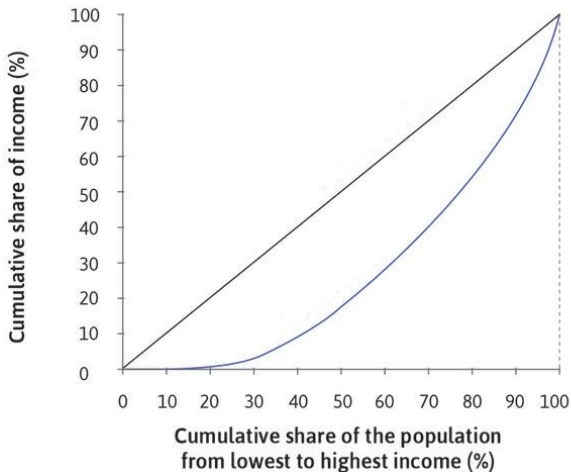
Introduction
00000

Measurement
0000●00000000

Evidence - national
0000000

Evidence - global
0000

Indices

Decile ratios:

- ▶ 90/10 ratio
- ▶ 90/50 ratio
- ▶ 80/20 ratio

Gini coefficient:

$$\frac{\sum_{i=1}^{n} \sum_{j=1}^{n} |y_i - y_j|}{2n^2 \bar{y}}$$

Atkinson index, Generalized Entropy measures (e.g. Theil index, Mean Log Deviation)

Visualizing distribution

Cumulative share of income (%)

Cumulative share of the population
from lowest to highest income (%)

Introduction
00000

Measurement
0000000●000000

Evidence - national
0000000

Evidence - global
0000

Measuring Income

Why?

▶ Indicator of whether the individual has access to a given minimum level of resources.

Challenges?

▶ Quality of reporting

▶ Household vs. Individual income

▶ Transitory vs. permanent income

▶ Variation in price levels

▶ Different concepts - market income, disposable income, expanded income

Introduction
○○○○○

Measurement
○○○○○○○●○○○○○

Evidence - national
○○○○○○○

Evidence - global
○○○○

Measuring Income - Concepts
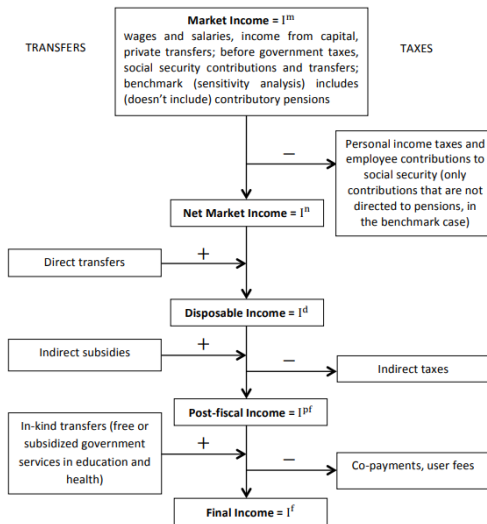
Source: Commitment to Equity

Measuring Income - Challenges

Survey of Consumer Finances
(US):

▶ Area-probability sample:
"standard" random sample
based on geography

▶ List sample:
disproportionately includes
wealthy families
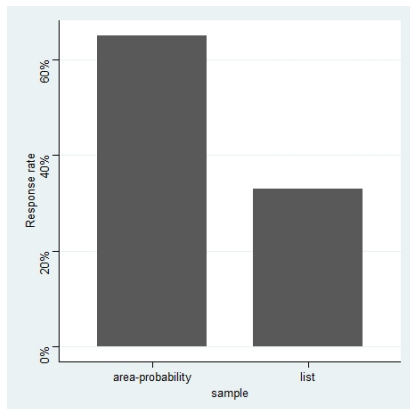
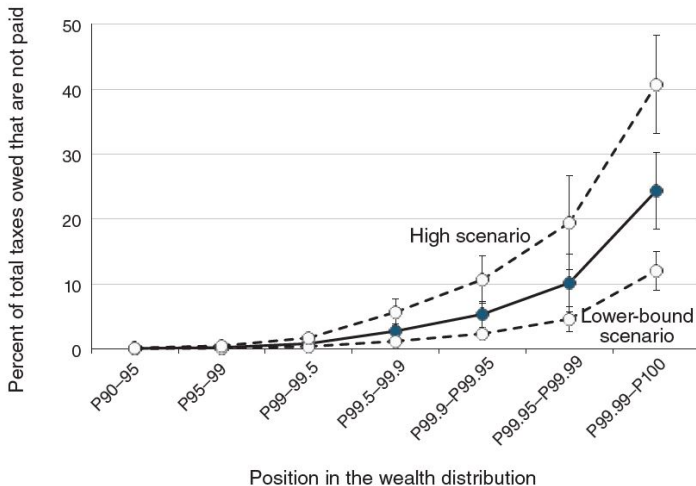Source: Author based on the Survey of Consumer
Finances

Introduction
00000

Measurement
000000000●000

Evidence - national
0000000

Evidence - global
0000

Measuring Wealth

Why?

- ▶ Concentration
- ▶ Longrun implications

Challenges?

- ▶ Ability to measure (evasion)
- ▶ What should be included
- ▶ Valuation

Introduction
00000

Measurement
000000000000●00

Evidence - national
0000000

Evidence - global
0000

Measuring Wealth - Challenges

Position in the wealth distribution

Source: Alstadsæter et al. (2019)

Introduction
ooooo

Measurement
oooooooooooo●o

Evidence - national
ooooooo

Evidence - global
oooo

Measuring Consumption

Why?

▶ Indicator of whether the individual is capable of attaining a
given standard of living.

Challenges?

▶ Consumption vs. Consumption expenditure

▶ Differences in quality of consumed items

▶ Mismatch between micro and macro based data

Measuring Opportunities

Why?

▶ Opportunities vs. outcomes.

Challenges?

▶ Definition

▶ Measurement - long run panel data required

Possible to measure inequality also in e.g. education, health or consider a composite indicator.

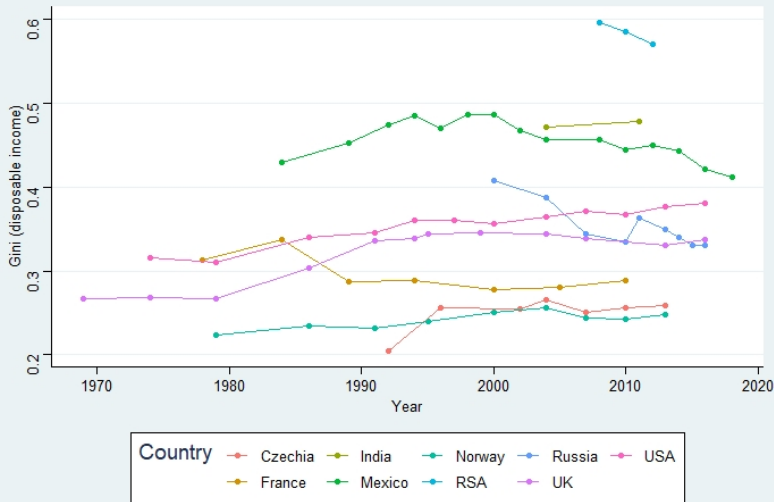# First look
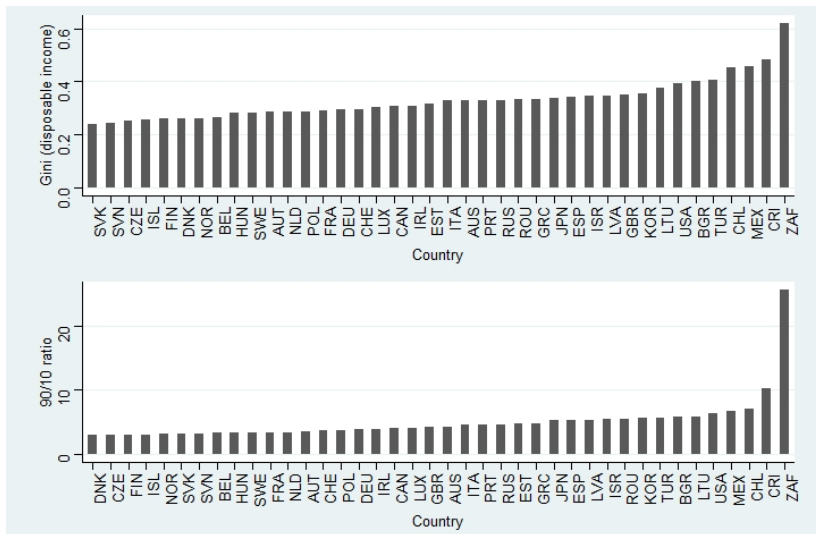
Source: Author based on the OECD database

Introduction
○○○○○

Measurement
○○○○○○○○○○○○○

Evidence - national
○●○○○○○

Evidence - global
○○○○

Income vs. Wealth inequality

Source: Jan Mareš

Introduction
00000

Measurement
0000000000000

Evidence - national
0000000

Evidence - global
0000
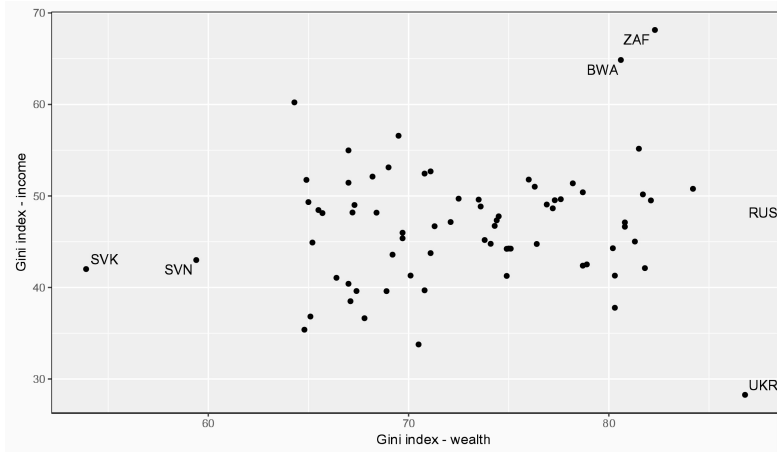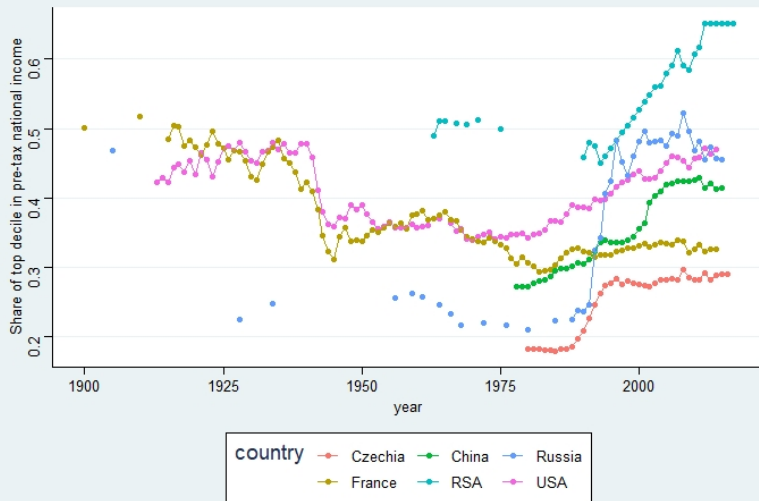
Long run trends

Source: Author based on the World Inequality Database

Introduction
00000

Measurement
0000000000000

Evidence - national
0000000

Evidence - global
0000

Long run trends (Gini)

Source: Author based on the Luxembourg Income Study

"Great Gatsby" Curve

Source: Corak (2013)

Introduction
○○○○○

Measurement
○○○○○○○○○○○○○

Evidence - national
○○○○○●○

Evidence - global
○○○○
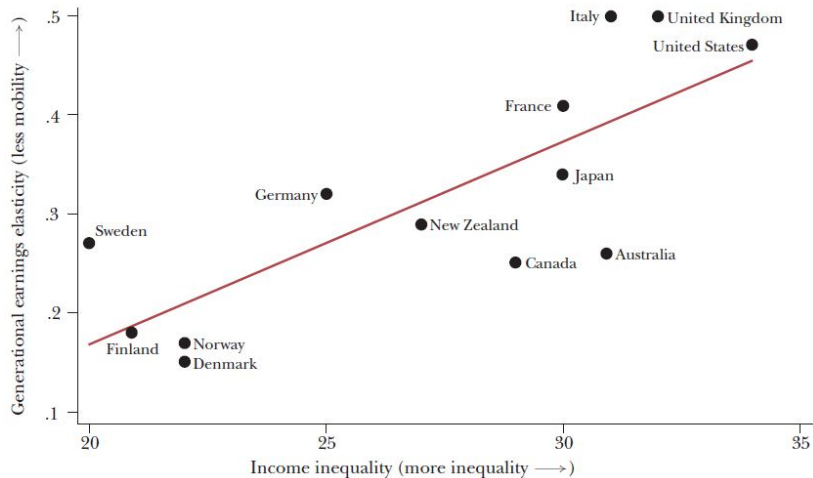
Role of Public Policy
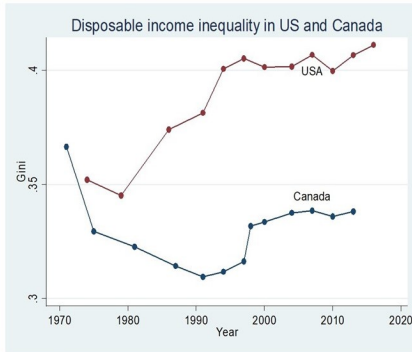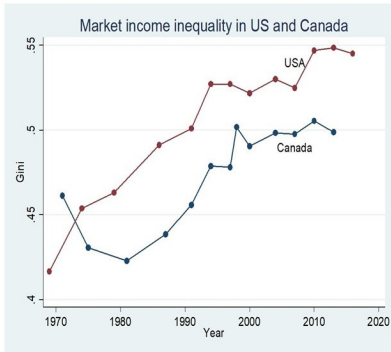
Source: Branko Milanovic based on Luxembourg Income Study

Role of Public Policy

- ► Taxation
  - ► Progressive income tax
  - ► Earned income discount
  - ► Capital vs. Labour
  - ► Inheritance
- ► Social security
- ► Education

Introduction
00000

Measurement
0000000000000

Evidence - national
0000000

Evidence - global
●000

Global inequality

Within-country inequality

▶ Inequality among individuals within country.

vs.

Between-country inequality

▶ The inequality that would be observed if incomes were identical within each country.

Within vs. Between country inequality
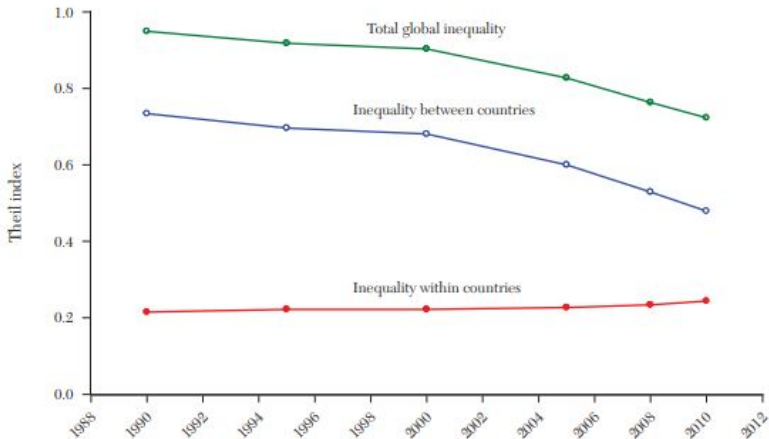
Figure 1. Global Inequality and its Between- and Within-Country Components
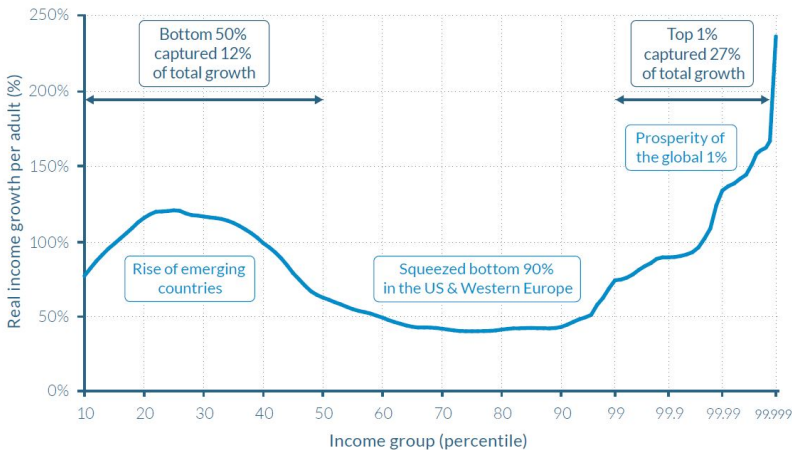
Source: Ravallion (2018)

Introduction
00000

Measurement
000000000000

Evidence - national
0000000

Evidence - global
0000
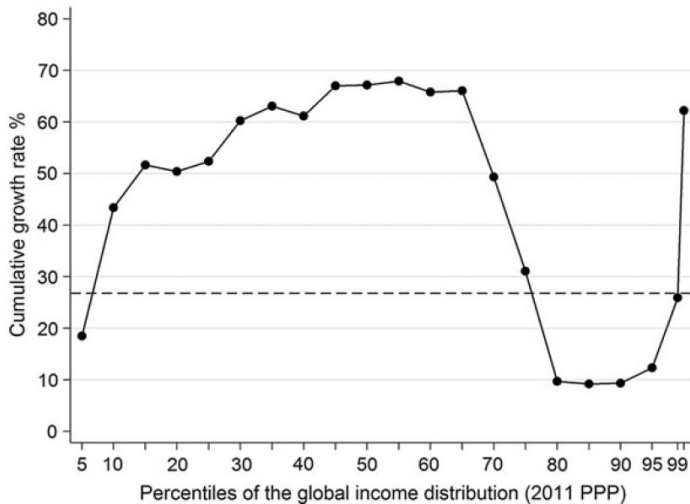
Elephant Curve

Source: Lakner and Milanovic (2016)

Introduction
00000

Measurement
0000000000000

Evidence - national
0000000

Evidence - global
000●

Elephant Curve Revisited

Total income growth by percentile across all world regions, 1980–2016

Source: Alvaredo et al. (2018)

See you next week!

Marek Šedivý

marek.sedivy@fsv.cuni.cz

References I

📄 Alstadsæter, A., Johannesen, N., and Zucman, G. (2019). "Tax evasion and inequality". *American Economic Review*, 109(6) (cited on p. 17).

📄 Alvaredo, F., Chancel, L., Piketty, T., Saez, E., and Zucman, G. (2018). *World inequality report 2018*. Belknap Press (cited on p. 30).

📄 Atkinson, A. B. (2015). *Inequality: What can be done?* Harvard University Press (cited on p. 3).

📄 Corak, M. (2013). "Income inequality, equality of opportunity, and intergenerational mobility". *Journal of Economic Perspectives*, 27(3) (cited on p. 24).

📄 Cowell, F. A. (2000). "Measurement of inequality". *Handbook of Income Distribution*, 1 (cited on p. 10).

References II

📄 Kuznets, S. (1955). "Economic growth and income inequality". *The American Economic Review*, 45(1) (cited on p. 4).

📄 Lakner, C. and Milanovic, B. (2016). "Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession.". *World Bank Economic Review*, 30(2) (cited on p. 29).

📄 Ravallion, M. (2018). "Inequality and globalization: A review essay". *Journal of Economic Literature*, 56(2) (cited on p. 28).

📄 Stiglitz, J. (2012). *The Price of Inequality*. (Cited on p. 3).