Inequality and Poverty: Analysis and Policy

Third lecture: Inequality and poverty empirics
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Course web page: http://rszarf.ips.uw.edu.pl/inequality/
Empirical focus on inequality and poverty: several territorial categories of micro and macro units

- **Households or individuals as units (micro units) on the country and beyond country territorial level**
  - Within-country inequality and poverty, e.g. Gini for Portugal, Poland etc. in year t, or in years t1, t2, t3... etc. We can averaging indicators to see multi-country trends e.g. averaging within-country Gini for European countries
    - One country non-comparative focus
    - Multi-country comparative focus
  - Within-region or global inequality and poverty, i.e. putting together all households for multi-countries region (all-countries region means global) and measuring inequality and poverty for defined multi-country region e.g. poverty in the EU

- **Countries as units**
  - Between-country inequality and poverty i.e. country is treated the same as one micro unit e.g. Poland’s income, Portugal’s income, Italy’s income, Germany’s income etc. and measuring Gini and poverty rate for these countries’ incomes. Between-country poverty requires between-country poverty line
Classification of units measured to determine inequality and poverty

Units measured for determining inequality and poverty

Unit: individual, household

Comparing individuals or households to determine how unequal they are and how much poverty is within them e.g. income of household A is compared to income of household B etc. The main question is how much inequality and poverty is in the set of households. Every individual lives in some territory: inequality and poverty within territory. Example: rich people and poor people living in the same territory

Unit: territory

Comparing territorial units to determine how unequal they are and how much poverty is within them e.g. income of country A is compared to income of country B etc. The main question is how much inequality and poverty is in the set of regions, countries etc. territory is an individual: inequality and poverty between territories. Example: rich countries and poor countries in terms of GDP per capita
Within-country inequality and poverty non comparative focus: USA
Comparison of selected countries within-country inequalities: evolution of inequality measured as top 1% share of total income

**Share of Total Income going to the Top 1%, 1900-2010**

The evolution of inequality in English speaking countries followed a U-shape.

The evolution of inequality in continental Europe and Japan followed an L-shape.

**Data source:** The World Top Incomes Database.

The interactive data visualisation is available at OurWorldInData.org. There you find the raw data and more visualisations on this topic.

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Poverty and Shared Prosperity 2016: Taking on Inequality, World Bank
Widening inequality
In advanced economies, the incomes of the top 1 percent have grown three times faster than those of the rest of the population over the last three decades.

(per capita real market income in advanced economies, 1980-2012 (index))

Quotation from International Monetary Fund report:
Why should this be a concern to policy makers? To put it simply, when the benefits of growth are shared more broadly, growth is
• stronger,
• more durable,
• more resilient.

Within-country inequality with comparative focus: Gini for 101 countries with average, 2013

The red line shows the unweighted average Gini index in 2013. „+” = increase in the Gini > 1 Gini point, 2008-13. „−” = decline in the Gini > 1 Gini point. „.” = change in the Gini within 1 Gini point.
Number of people living in extreme poverty and China case (1990-2013)

People living in extreme poverty, 1990

People living in extreme poverty, 2013

China had 25 million people living in extreme poverty in 2013.

1990 750 million
1996 512 million
2002 400 million
2008 194 million
2013 25 million

Globally there are 746 million people in extreme poverty (in 2013).

Extreme poverty is defined as living with less than $1.90/day.

This is measured in international dollars (i.e. price differences between countries are taken into account).

Africa (383 million)

Nigeria 86M
Tanzania 22M
Ethiopia 20.4M
Madagascar 17.9M
Mozambique 15.9M

Democratic Republic of Congo 55.1M

Asia (327 million)

India 218M
China 25.1M

Indonesia 24.7M

Brazil 9.9M

South America (19M)

North America (13M) Europe (0.7M)

Data source: World Bank (PovcalNet)
The interactive data visualization is available at OurWorldinData.org. There you find the raw data and more visualizations on this topic.Licensed under CC-BY-SA by the author Max Roser.
Global absolute poverty trends with different poverty lines
Two famous charts about inequality and mobility

The elephant chart

The Great Gatsby chart

This Gilded Age is found in the Great Gatsby in 5 major themes throughout the book: wealth, corruption, lies, separation between rich and poor, and the gender inequality.
Winners and losers of globalization: original Elephant Chart

• The Trunk: The global elite, in particular the top 1 percent, have enjoyed massive income growth over the past decades. Their high income growth, coupled with a high initial share of income, implies that they continue to capture a large share of global income growth.

• The Trough: The global upper middle class, interpreted as the rich world’s middle classes in 1988, has seen its income stagnate. This appears to corroborate other data showing stagnant real wage growth and other frustrations fueling populist politics in advanced economies.

• The Torso: The global middle class has risen rapidly as select developing countries converge toward rich countries. Countries like China have lifted large impoverished populations into the middle class. This can be seen in the graph’s peak at the elephant’s torso.

• The Tail: The global extreme poor have largely been left behind, with several countries stuck in a cycle of poverty and violence. This can be seen in the elephant’s slumped tail.

Some qualifications: “both those saying globalisation automatically benefits everyone and those saying that developed world middle classes have seen no income growth are wrong. Perhaps most crucially, where individual countries lie in between those extreme positions is to a significant degree down to policy choices.”
Elephant Chart update: more countries for longer period with more optimistic results

Interpretation related to the tail part...

*there is limited evidence that the global poor have been seriously left behind...* Incomes at the bottom of the global distribution grew at least 40 percent over 20 years.

Explanation

The slumped tail on the original elephant appears to be largely an artifact of a shift in the sample of countries used in the original chart between the initial and final year.

Optimism

*We remain optimistic that the world is a better place for more and more people, and that the real global story is now one of improvement in global income distribution; between-country and within-country convergence both appear to be widespread in the global economy.*

Homi Kharas, Brina Seidel *New Insights into the distribution of world income*, The Brookings Institution
Mobility and inequality negative correlation: Great Gatsby Curve

The higher inequality the lower earnings intergenerational mobility

The Great Gatsby Curve has had political traction in the US, because it has been interpreted as suggesting that high inequality of outcomes is not, in the American experience, offset by higher equality of opportunity or... upward mobility. The curve suggests that beliefs in the evitability of this tradeoff are illusory.

http://www.nber.org/chapters/c13915.pdf

About the name of the chart see: Miles Corak, How
The Great Gatsby Curve got its name

What is intergenerational earnings elasticity? „Take, for example, a country with an intergenerational earnings elasticity of 0.20. This means that if an individual in that country earns $10,000 less income than the average, 20 per cent of that difference (or, $2,000) will be passed on to the individual’s children. In other words, the children will earn $2,000 less than the average”

Yonatan Berman, Understanding the Mechanical Relationship between Inequality and Intergenerational Mobility, 2016
Great Gatsby curve for the world

**FIGURE 0.11** Higher relative IGM in income is associated with lower income inequality

IGM – intergenerational mobility

*Fair Progress? Economic Mobility across Generations around the World, World Bank 2018*
Other interesting empirical findings
Measuring mobility

The idea of mobility in questionnaire to elicit perceived mobility

Mobility between two generations

Mobility animation based on real data


Excelent animated charts about mobility in the US
Social and economic mobility

Measuring **absolute mobility**: fraction of children who have a higher standard of living than their parents

The American Dream, Quantified at Last, 2016


https://twitter.com/bermanjoe/status/971051862412746752
If you use different inequality measure you get different (opposite) results

Absolute, relative and intermediate indices of income inequality

https://twitter.com/stone_lis/status/1003998576018640896
In-work poverty or working poor: employed people in households below poverty line

Working poor, relative poverty rate (in %, OECD data, last available year, 2017)

Definition: Working poor are those with income below the poverty line (50% of median disposable income), living in households with a working age head and at least one worker

Is employment a guarantee against poverty? No

Data: http://www.oecd.org/social/soc/IDD-Key-Indicators.xlsx
Intergenerational Justice in Aging Societies

Child and elderly poverty rates: comparison for OECD countries

The lower the elderly poverty relative to child poverty the higher the ratio is e.g. 10% child poverty to 2% elderly poverty equals 500% ratio. If the ratio is below 100% it means that child poverty rate is less than elderly poverty rate.
Poverty rates for elderly by gender in OECD countries

Appendix
Within-country inequality non-comparative focus: Portugal

**Economic Inequality in Portugal**

- Earnings Dispersion
- Overall Income Inequality
- Poverty
- Top Income Shares


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Within-country inequality non-comparative focus: France

Economic Inequality in France

- Earnings Dispersion
- Overall Income Inequality
- Poverty
- Top Income Shares
- Wealth Inequality

Top decile of earnings as % of the median

Gini – Equivalised disposable household income

Share of top 1% in total individual net wealth

Per cent living in households with equivalised disposable income below 60 per cent median (urban France)

Share of top 1% in gross income (individuals, excluding capital gains)


This visualisation is licensed under a Creative Commons BY-SA license.
Comparison of the USA and several rich countries: evolution of inequality measured as top 1% share of total income.
Measuring changes of within-country inequality with comparative focus: changes in Gini index with salience criterion

**Figure 1.3. Change in Disposable Income Inequality for Selected Countries, 1985–2015**

(Change in Gini index)

The benefits of growth have been shared less and less evenly in the last three decades.

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**Figure 2.7: Change in overall income inequality since 1980 in selected world countries**

2 According to the Atkinson salience criterion, changes in the Gini index larger than 0.03 are considered economically significant and are indicative of a salient change in redistribution policy (Atkinson 2015).

Poverty and inequality correlation

The higher the inequality measured as gross income going to top 1% the higher the poverty rate

Figure 1.4: Poverty and top income shares in selected countries, c. 2010

A.B. Atkinson, Inequality What Can Be Done?, 2015
Distribution of world population by income decile (2013)

MENA = Middle East and North Africa; EU and OECD = European Union and Organization for Economic Cooperation and Development

World income inequality evolution: top 1% share vs bottom 50% share of world population 1980-2016

Red line – share of top 1% in pre-tax world national income
Blue line – share of bottom 50%

World Inequality Database
The global picture: inequality downward evolution
Impact of within-country inequality and between-country inequality on global inequality, 1988–2013

For policy purposes it is useful to be able to decompose these sources of inequality [within and between]: if most inequality is due to disparities across regions, for instance, then the focus of policy may need to be on regional economic development, with special attention to helping the poorer regions.

Inequality Measures

Explanations to the chart
For each country, household income or consumption per capita is obtained from household surveys and expressed in 2011 PPP exchange rates. Each country distribution is represented by 10 decile groups.

- The line (measured on the right axis) shows the level of the global Gini index.
- The height of the bars indicates the level of global inequality as measured by $GE(0)$ (the mean log deviation).
- The red bars show the corresponding level of population-weighted inequality within countries.
- The yellow bars: the level of between-country inequality, which captures differences in average income across countries.
- The numbers in the bars refer to the relative contributions (in percent) of these two sources to total global inequality.

Poverty and Shared Prosperity 2016: Taking on Inequality, World Bank
At risk of poverty threshold is 60% of the median equalised household income.
Global poverty trends vs people pessimism

Max Roser and Esteban Ortiz-Ospina (2018) - "Global Extreme Poverty".
Published online at OurWorldInData.org.
Different poverty lines and global poverty distribution: another optimistic message

*The global poverty rate has been going down in recent years, and this is true independently of whether we set the poverty line at 1.90 or 10 dollars per day.*
Number of absolutely poor is going down but number of relatively poor is going up in developing world

**Absolute poverty**
The overall percentage of the population living below $1.25 a day
- 52 percent in 1981
- 22 percent in 2008
Number of people living below $1.25
- 1.9 billion in 1981
- 1.3 billion in 2008

**Weakly relative poverty**
The overall percentage of the population living in relative poverty
- 63 percent in 1981
- 47 percent in 2008
Number of people living below $1.25
- **2.3 billion in 1981**
- **2.7 billion in 2008**

*Martin Ravallion, Direct Interventions against Poverty in Poor Places, 2016*
Extreme poverty in low and middle income countries, by age group (2013)

Share of people living in households with per capita consumption (or income) below 1.90 ‘international dollars’ per day. International dollars are adjusted for price differences between countries.

Estimates correspond to aggregates across 89 countries in the Global Micro Database. These include 84.2% of the population in low and middle income countries.


Data Note: Data comes from surveys taken between 2009 and 2014, but all figures are extrapolated to represent the estimates of extreme poverty in 2013.

The source defines the universe of low and middle income countries as all countries except: Australia, Belgium, Cyprus, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States.

This data visualization is available at OurWorldinData.org. There you find more visualizations and research on extreme poverty. Licensed under CC-BY-SA by the author Max Roser.
Extremely poor and bottom 40% in the developing world

Distribution of the **extreme poor**, **non-poor bottom 40 percent**, and **neither poor nor bottom 40 percent** based on data from 2010.

- The area of the figure represents the total population of the developing world (5.9 billion people).
- **Horizontal axis**: countries are listed along the horizontal axis in descending order from the highest extreme poverty rate on the left to the lowest on the right.
- **Vertical axis**: a vertical bar represents each individual developing country used in this sample, with the width of the bar corresponding to the country's population, so, for example, India and China have the widest bars.

- **The red group**: The extremely poor (those who earn less than $1.25 per day)... in some countries (to the left) this population is much larger than 40 percent and in other countries (to the right) this population is much smaller than 40 percent.
- **The bottom 40 percenters**: The bottom 40 percent of income earners in each developing country, which can include both extremely poor individuals and those who are not extremely poor (below dotted line)
  - **The blue group**: These are individuals who are not extremely poor (earn more than $1.25 per day) but fall within the bottom 40 percent
- **The green group**: This group encompasses the top 60 percent of income earners in each developing country who are not extremely poor. This does not include the individuals who belong to the top 60 percent of the income distribution but who are also extremely poor.

Kathleen Beegle et al. *Ending Extreme Poverty and Promoting Shared Prosperity: Could There Be Trade-offs Between These Two Goals?*, Inequality in Focus, 2014
Extremely poor and the bottom 40% in the whole world

Distribution of the \textit{extreme poor}, \textit{non-poor bottom 40 percent}, and \textit{neither poor nor bottom 40 percent} based on data from 2013.

- The area of the figure represents the total population of the world (over 7 billion people).
- \textbf{Horizontal axis}: countries are listed along the horizontal axis in descending order from the highest extreme poverty rate on the left to the lowest on the right.
- \textbf{Vertical axis}: a vertical bar represents each individual country used, with the width of the bar corresponding to the country's population, so, for example, India and China have the widest bars.
Bottom 40% in different countries

Poverty and Shared Prosperity 2016: Taking on Inequality, World Bank
The size of the middle class and other income tiers varies across the U.S. and countries in Western Europe.

% of adult population in each income tier, 2010

<table>
<thead>
<tr>
<th>Country</th>
<th>Middle Income</th>
<th>Lower Income</th>
<th>Higher Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>79.7%</td>
<td>26.0%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Denmark</td>
<td>79.5%</td>
<td>25.0%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>79.1%</td>
<td>22.2%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>75.2%</td>
<td>22.1%</td>
<td>11.9%</td>
</tr>
<tr>
<td>Finland</td>
<td>74.9%</td>
<td>19.4%</td>
<td>12.2%</td>
</tr>
<tr>
<td>France</td>
<td>74.2%</td>
<td>19.3%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Germany</td>
<td>72.4%</td>
<td>17.8%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Ireland</td>
<td>68.6%</td>
<td>17.3%</td>
<td>8.7%</td>
</tr>
<tr>
<td>UK</td>
<td>67.0%</td>
<td>17.1%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Italy</td>
<td>66.9%</td>
<td>16.9%</td>
<td>7.9%</td>
</tr>
<tr>
<td>Spain</td>
<td>63.6%</td>
<td>14.3%</td>
<td>7.5%</td>
</tr>
<tr>
<td>U.S.</td>
<td>59.2%</td>
<td>13.9%</td>
<td>6.6%</td>
</tr>
</tbody>
</table>

Note: Middle-income households have disposable incomes that are two-thirds to double the national median disposable income, after incomes have been adjusted for household size. For some countries the 1991 estimates are from the following survey years: Denmark 1992, France - 1999, Germany - 1993, Ireland - 1987, Netherlands - 1993, Spain - 1990.

Source: Pew Research Center analysis of data from the Cross-National Data Archive in Luxembourg (LUS).

“Middle Class Fortunes in Western Europe”

PEW RESEARCH CENTER

http://www.pewglobal.org/interactives/european-middle-class-calculator/