Inequality and human development: The role of different parts of the income distribution

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Working Paper

Inequality and human development

The role of different parts of the income distribution

In this paper we reassess the relationship between inequality and human development, focusing on the differential effect associated with the concentration of national income at different parts of the income distribution. To do so, we rely on a large global panel of countries over the last decades which includes information on economic and human development as well as detailed information on the distribution of income within countries. We take advantage of detailed distributive data consistent across countries and over time

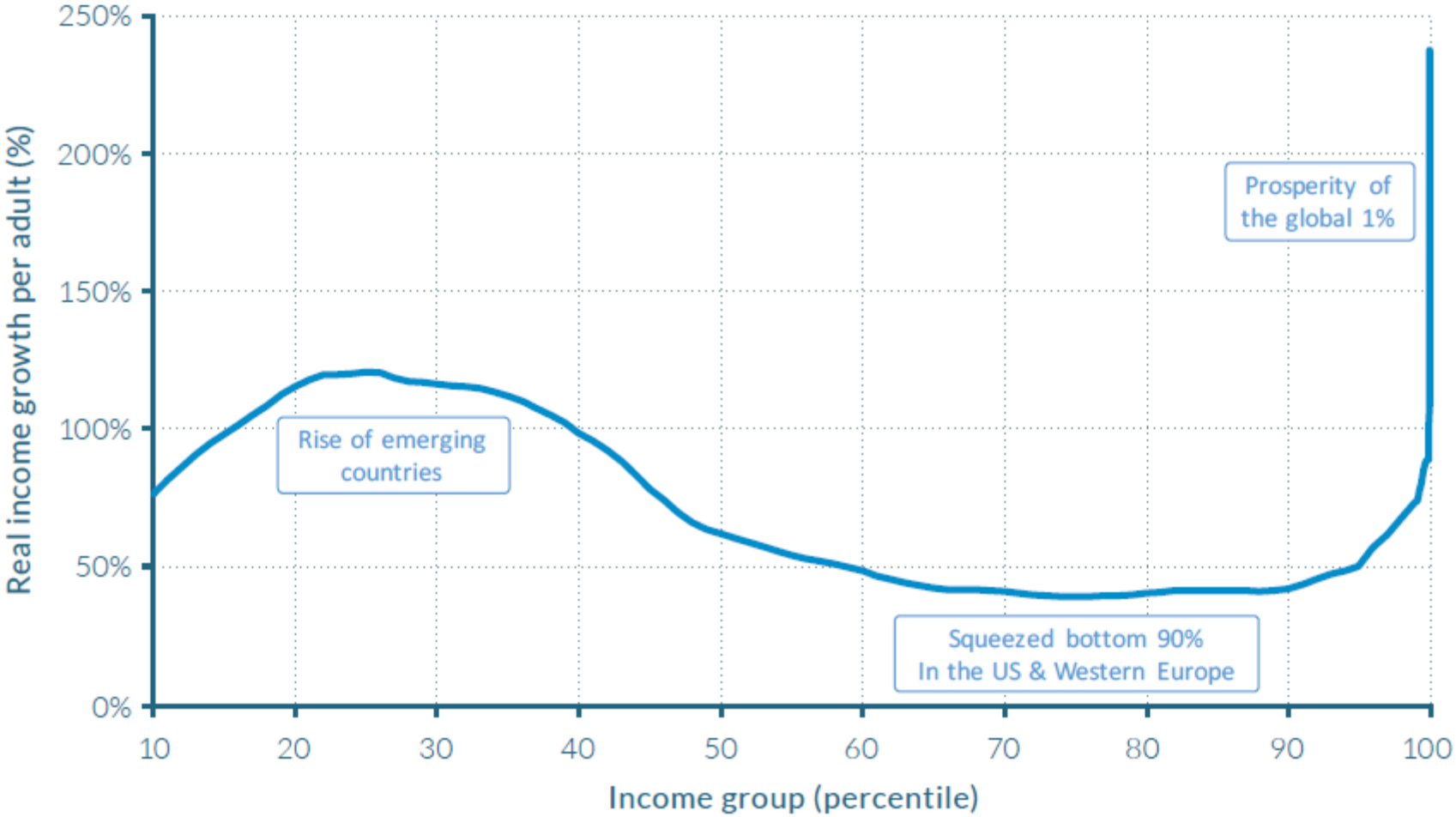
Inequality and human development

Motivation

- **Inequality (within countries) on the rise** almost everywhere, becoming a major concern
  - with **disproportional concentration of income at the very top of the distribution**!

- Acknowledgment that **development means more than pure economic growth**

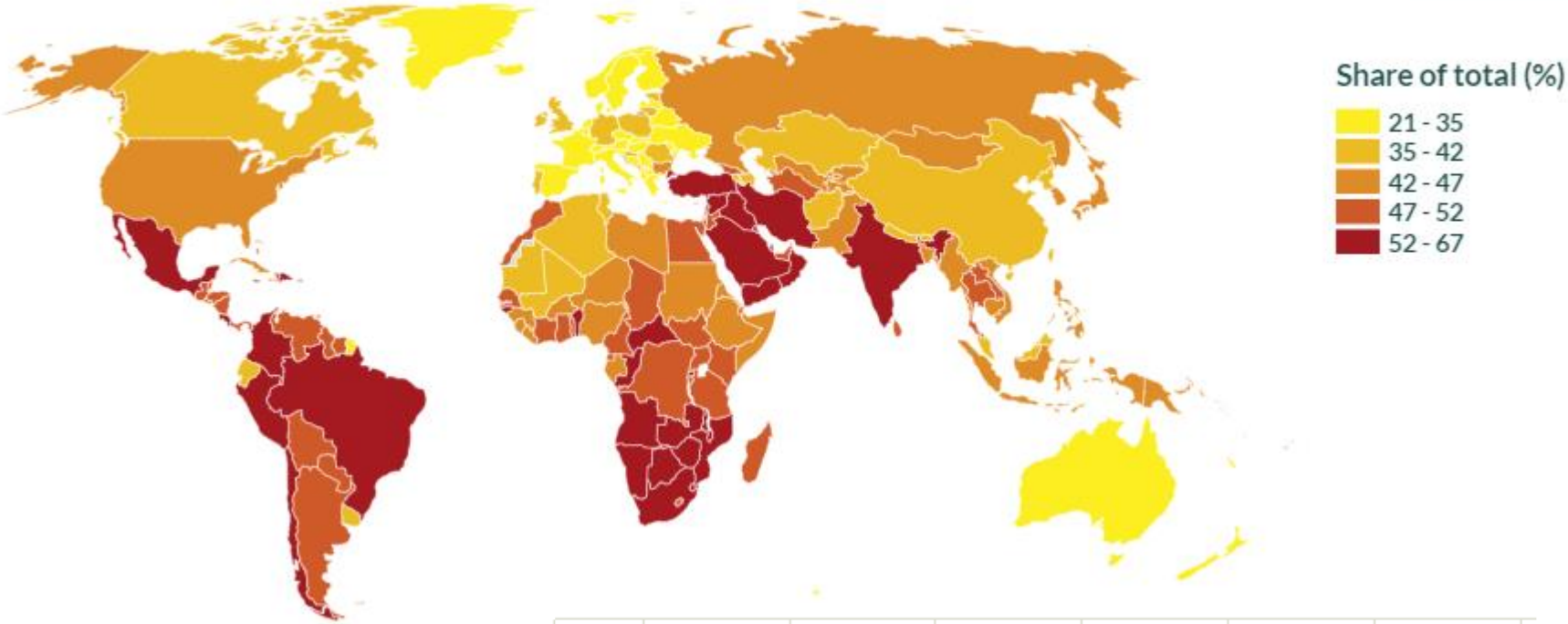
Total income growth by percentile across all world regions, 1980–2016: Scaled by population

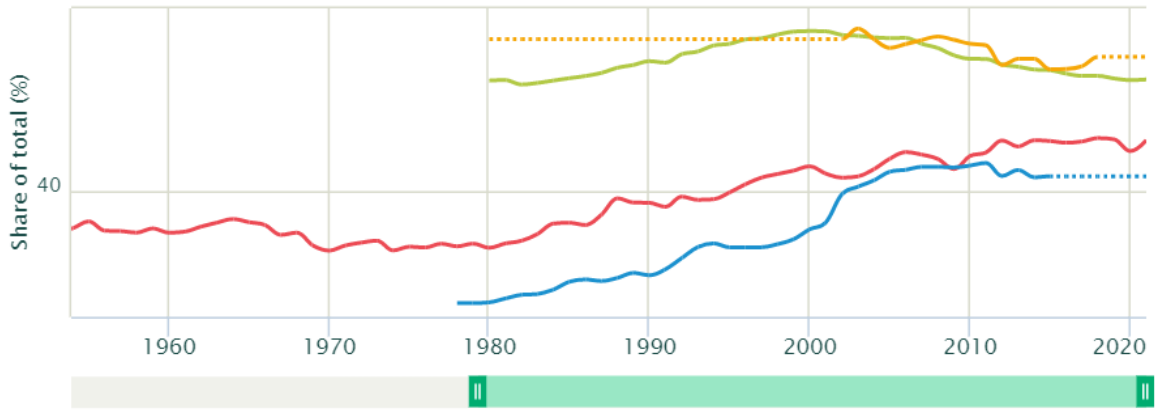


Source: World Inequality Report 2018, Appendix Figure A1. See wir2018.wid.world for data sources and notes.

Top 10% national income share

Region View

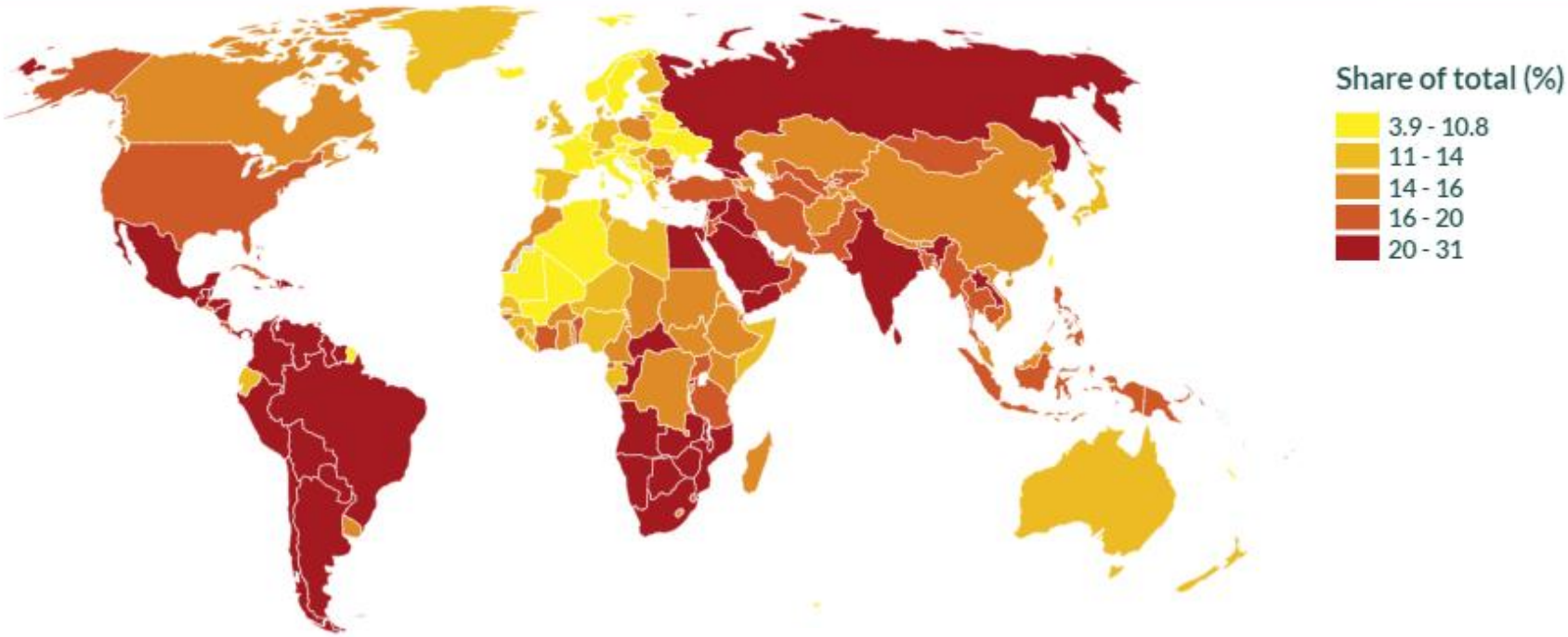


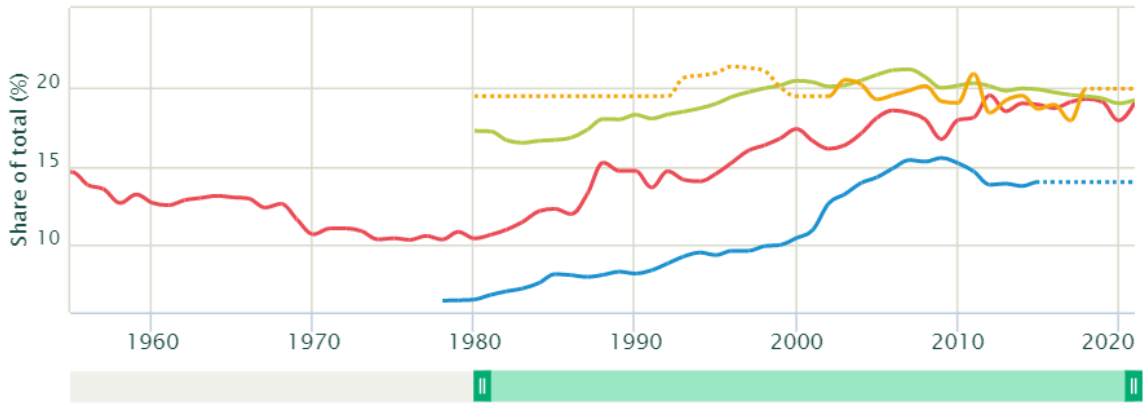


USA ⊗ China ⊗ World ⊗ Colombia ⊗

Top 1% national income share

Region View





USA China World Colombia

Inequality and human development:

Aim:

Reassess the relationship between the **income inequality** and the evolution of **human development**.

- Looking at **a large global panel of countries** (close to 150) **over the last decades** (1990-2019),

- and exploring the **differentiated role of the concentration of income at different parts of the income distribution**, such as the *bottom*, *middle*, and *top*

Inequality and development: Lit Rev (1)

- **Inequality can have an impact on economic growth**:
  - Usually positive in the short run (Forbes 2000)
  - Negative in the long run (Alesina & Rodrik 1994; Easterly 2007; Herzer & Vollmer 2012; Persson & Tabellini 1994; Ostry et al. 2014, among others)
- The impact works through **different channels** (mechanisms)
  - Some positive: like higher savings and incentives
  - Some negative: socio-eco instability; lower demand and lower HK acc; higher fertility
- **The impact further depends on several country´s characteristics**:
  - Level of development (Barro 2000)
  - Initial level of inequality (Chen 2003)

Inequality and development: Lit Rev (2)

- The impact of inequality on growth also depends on the **type of inequality** (*market vs structural*)
  - Positive for market inequality and negative for structural inequality (Castells-Quintana & Royuela 2017)

- Beyond economic growth, **inequality can also impact health outcomes** (e.g., Chetty et al. 2016; Leigh et al. 2011; Lynch et al. 2004; Pickett and Wilkinson 2015), **and educational attainment** (Dabla-Norris et al. 2015; Easterly 2007; Galor and Zeira 1993; García-Peñalosa 1995; Gutiérrez and Tanaka 2009).

- **High inequality** also **lowers human development** (Castells-Quintana et al 2019)

Inequality and development: Our contribution

But:

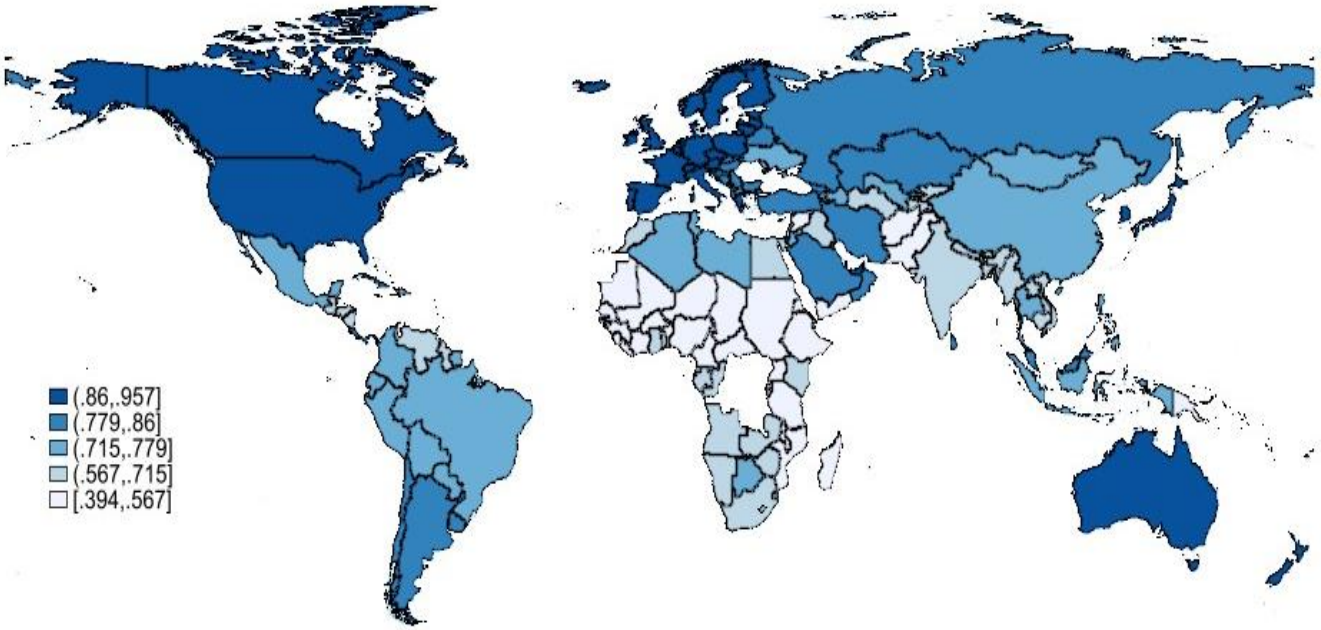
- **Aggregate inequality indices (like the Gini) can hide important differences along the distribution of income**,
- And these differences may be relevant for development dynamics, including the inequality-development nexus

➢ No paper to data explores the **role of different parts of the income distribution** on the evolution of human development

A look at global data

HDI: Average achievement in three key dimensions of human development: having a long and **healthy life** (based on life expectancy at birth), being **knowledgeable** (education index based on the mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age), and having a **decent standard of living** (GNI pc)

HDI 2019



A look at global data

Income inequality

We use country-level income distributions in the global companion dataset of the **World Income Inequality Database** (WIID) put together by the United Nations University World Institute for Development Economics Research (**UNU-WIDER**).

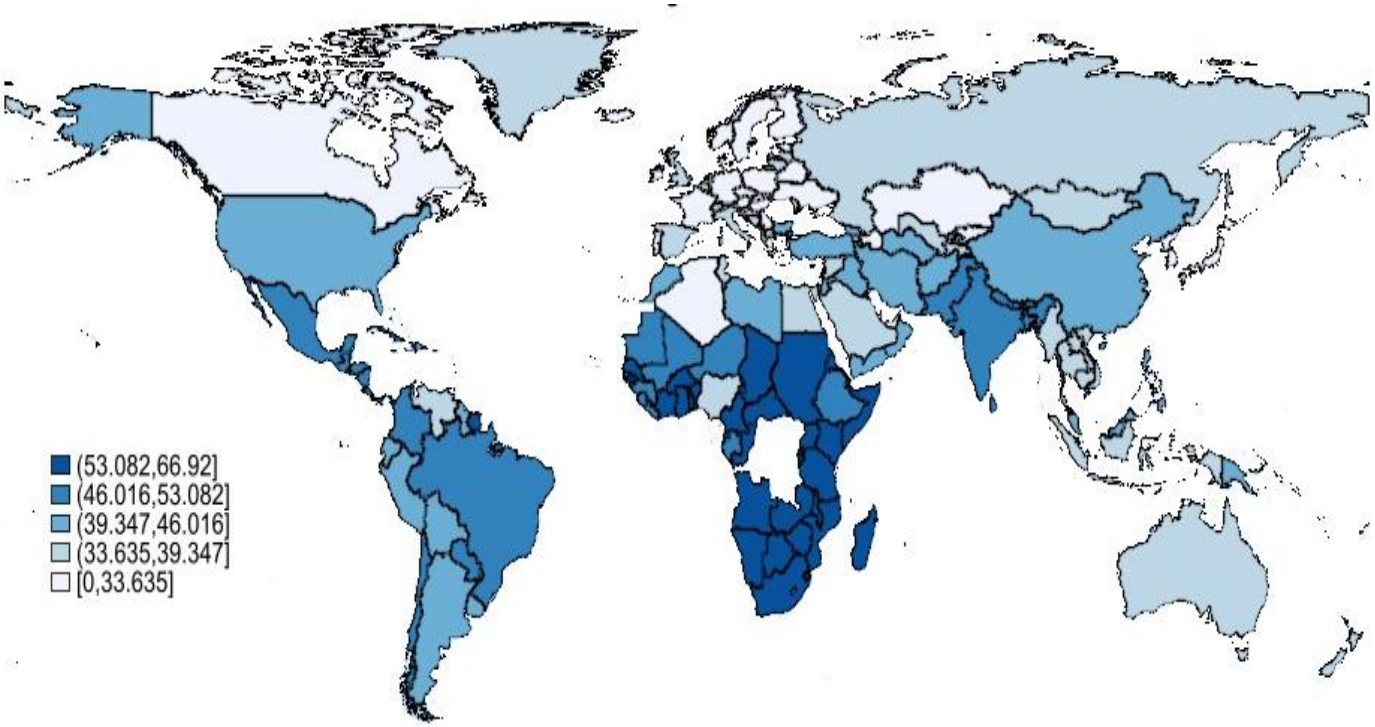
The WIID Companion (version 31 May 2021) includes estimates for up to 208 countries or territories for the period between 1950 and 2019 for the percentile share of each country's total net income, as well as various relative inequality measures computed using these distributions, including Gini coefficients.

We consider: **Gini index, bottom 40%, top 10%,** and **top 1%**

A look at global data

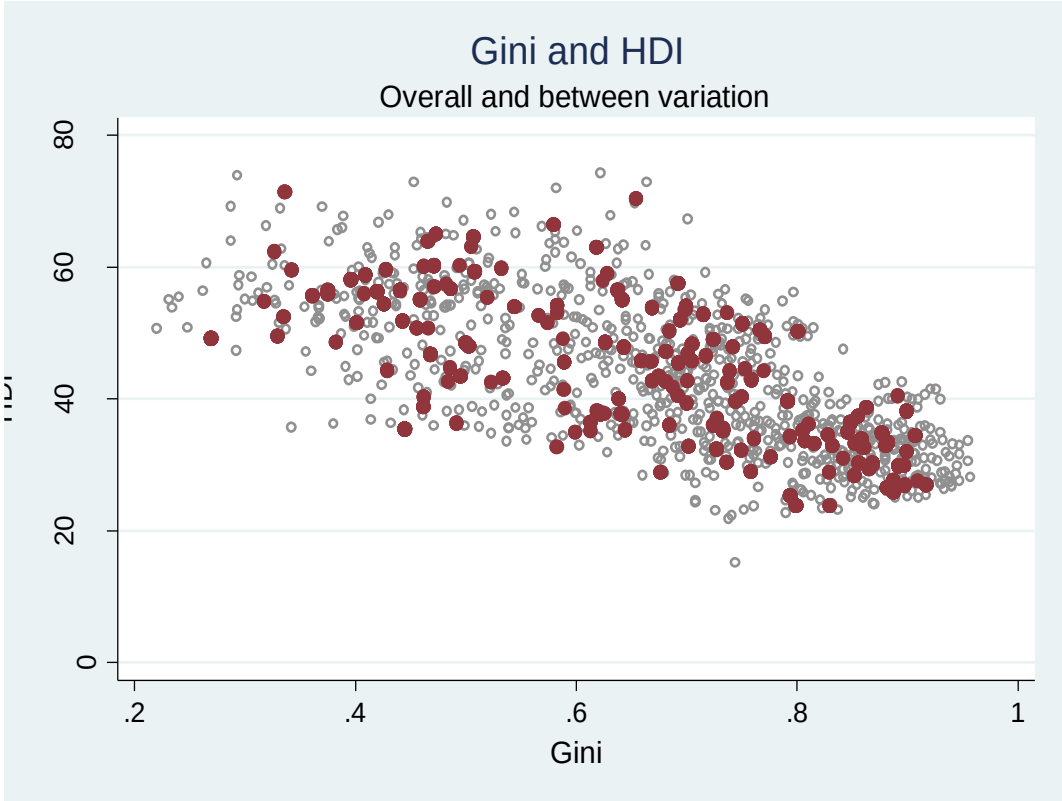
Income inequality

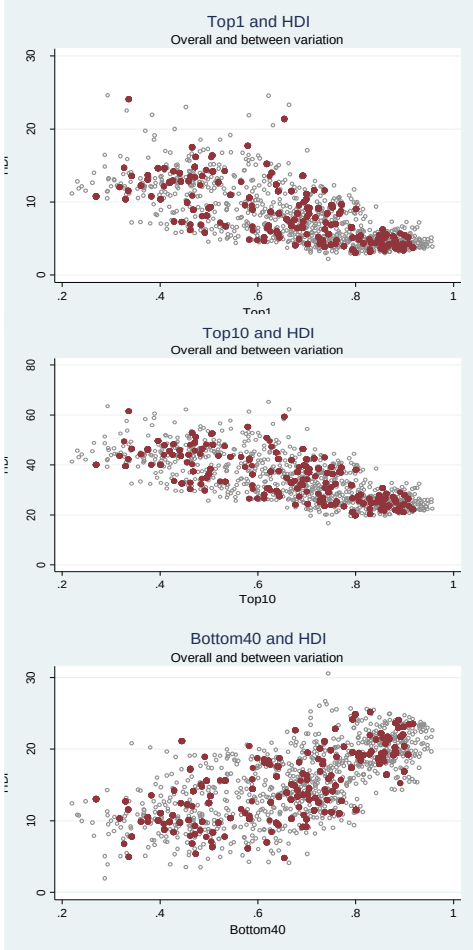
Gini index
2019



Association between inequality & HDI

Scatterplot HDI and Inequality measures





Econometric analysis

$$HDI_{i,t} = \alpha + \beta\ Inequality_{i,t-10} + \boldsymbol{X}_{i,t-5}\emptyset + \xi_i + u_{i,t}$$

$$HDI_{i,t} = \alpha + \beta_1 Bottom_{i,t-10} + \beta_2 Top_{i,t-10} + \boldsymbol{X}_{i,t-5}\emptyset + \xi_i + u_{i,t}$$

- For our global panel, in **5-year intervals**
- **Controls**: inflation and price of investment + foreign trade openness, share of government consumption, share of gross capital formation, and ratio of capital over output.
- **Clustering residuals** at the country level

Panel (FE) results (1)

Table 1: Human development and four alternative measures of inequality

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Variable:	HDI	HDI	HDI	Income	Education	Health
Gini	0.046	0.055	0.053	0.169**	0.038	-0.043
	(0.062)	(0.066)	(0.061)	(0.082)	(0.048)	(0.11)
R-squared	0.878	0.878	0.886	0.646	0.877	0.669
Bottom40	-0.107	-0.126	-0.12	-0.383**	-0.106	0.125
	(0.122)	(0.132)	(0.12)	(0.172)	(0.096)	(0.204)
R-squared	0.878	0.878	0.886	0.65	0.877	0.669
Top10	0.03	0.04	0.038	0.153	0.015	-0.037
	(0.079)	(0.082)	(0.078)	(0.094)	(0.062)	(0.143)
R-squared	0.878	0.877	0.885	0.639	0.876	0.669
Top1	-0.024	-0.003	-0.013	0.262	-0.043	-0.199
	(0.175)	(0.179)	(0.173)	(0.188)	(0.142)	(0.316)
R-squared	0.877	0.877	0.885	0.635	0.876	0.67
Observations	681	657	657	657	657	657
Number of countries	152	148	148	148	148	148
Country FE	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES
Controls 1	NO	YES	YES	YES	YES	YES
Controls 2	NO	NO	YES	YES	YES	YES

Note: robust standard errors reported in parentheses. Significance: * 10%, ** 5%, *** 1%. All models consider time and country FEs plus several control variables: inflation, price of investment, foreign trade openness, share of government consumption, share of gross capital formation, and ratio of capital over output.

The positive and significant association between the Gini and Income disappears when we look at concentration at the top

Panel (FE) results (2)

Table 2: Human development and inequality: Bottom and top income shares introduced simultaneously

	(1)	(2)	(3)	(4)
Dep. variable:	HDI	Income	Education	Health
Bottom40	-0.220	-0.556**	-0.285	0.245
	(0.166)	(0.267)	(0.180)	(0.222)
Top10	-0.070	-0.124	-0.127	0.086
	(0.110)	(0.127)	(0.111)	(0.192)
R-squared	0.89	0.65	0.88	0.67
Bottom40	-0.336**	-0.622**	-0.346**	0.037
	(0.158)	(0.277)	(0.167)	(0.201)
Top1	-0.381*	0.425	-0.424*	-0.156
	(0.218)	(0.286)	(0.229)	(0.351)
R-squared	0.89	0.65	0.88	0.67
Observations	657	671	658	672
Countries	148	149	148	149

Note: robust standard errors reported in parentheses. Significance: * 10%, ** 5%, *** 1%. All models consider time and country FEs plus several control variables: inflation, price of investment, foreign trade openness, share of government consumption, share of gross capital formation, and ratio of capital over output.

Higher **concentration of income at both tails,** at the expense of the middle income, **is associated with a lower HDI, particularly with Education**

Results by level of development (1)

Table 3: Human development and inequality, by level of development

	High-income countries				Low- & middle-income countries			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. variable	HDI	Income	Education	Health	HDI	Income	Education	Health
Bottom40	0.083	-0.184	0.523	-0.153*	-0.315	-0.651*	-0.528**	0.386
	(0.127)	(0.146)	(0.348)	(0.088)	(0.22)	(0.351)	(0.216)	(0.308)
Top10	0.045	-0.002	0.292	-0.181***	-0.044	-0.098	-0.198*	0.236
	(0.118)	(0.103)	(0.297)	(0.064)	(0.135)	(0.161)	(0.116)	(0.243)
R-squared	0.94	0.84	0.87	0.96	0.89	0.65	0.90	0.65
Bottom40	0.021	-0.197	0.307	-0.104	-0.442**	-0.741**	-0.531**	0.105
	(0.109)	(0.126)	(0.316)	(0.088)	(0.205)	(0.355)	(0.205)	(0.298)
Top1	-0.025	-0.037	0.283	-0.373***	-0.317	-0.393	-0.489*	0.109
	(0.278)	(0.233)	(0.69)	(0.139)	(0.258)	(0.342)	(0.255)	(0.438)
R-squared	0.94	0.84	0.87	0.96	0.89	0.65	0.90	0.64
Observations	240	242	240	242	417	429	418	430
Countries	48	48	48	48	100	101	100	101

For **low- and middle income countries** we find that the concentration of income at top and bottom, at the expense of the rest of the distribution, is negatively correlated with education**: a higher income share going to the middle group is associated with higher average education**.

Results by level of development (2)

Table 3: Human development and inequality, by level of development

	High-income countries				Low- & middle-income countries			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. variable	HDI	Income	Education	Health	HDI	Income	Education	Health
Bottom40	0.083	-0.184	0.523	-0.153*	-0.315	-0.651*	-0.528**	0.386
	(0.127)	(0.146)	(0.348)	(0.088)	(0.22)	(0.351)	(0.216)	(0.308)
Top10	0.045	-0.002	0.292	-0.181***	-0.044	-0.098	-0.198*	0.236
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	(0.109)	(0.126)	(0.316)	(0.088)	(0.205)	(0.355)	(0.205)	(0.298)
Top1	-0.025	-0.037	0.283	-0.373***	-0.317	-0.393	-0.489*	0.109
	(0.278)	(0.233)	(0.69)	(0.139)	(0.258)	(0.342)	(0.255)	(0.438)
R-squared	0.94	0.84	0.87	0.96	0.89	0.65	0.90	0.64
Observations	240	242	240	242	417	429	418	430
Countries	48	48	48	48	100	101	100	101

For **high-income countries** we find that a higher **concentration of income at the top 10 per cent**, at the expense of the income of the middle, **significantly associated with lower health**

Concentration of income or institutional quality?

We proxy institutional quality using data from the International Country Risk Guide (ICRG) from the PRS group:

- ***political institutions***
- ***socioeconomic conflict***

Our main results hold when:

- looking at countries with **low-quality institutions** (usually countries with a lower level of development),
- or controlling for institutional quality
- while part of the effect of inequality may work 5the **concentration of income at the bottom and the top, at the expense of the concentration at the rest of the distribution** (i.e. the middle), is significantly associated with **lower human development**, especially in terms of **education**.

Table A8: Human development and inequality. Countries with high and low political institutions. Human Development Index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Variable:	HDI	Income	Education	Health	HDI	Income	Education	Health
Bottom40	0.066	-0.109	0.14	0.16	-0.403	-0.828	-0.607*	0.324
	(0.668)	(0.465)	(0.571)	(0.61)	(0.172)	(0.131)	(0.021)	(0.329)
Top10	0.118	0.027	0.144	0.231	-0.145	-0.163	-0.325*	0.1
	(0.512)	(0.795)	(0.448)	(0.577)	(0.324)	(0.463)	(0.009)	(0.634)
Obser.	376	381	377	382	277	286	277	286
Countries	85	85	85	85	62	63	62	63
R-squared	0.888	0.798	0.867	0.633	0.914	0.66	0.904	0.759

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Variable:	HDI	Income	Education	Health	HDI	Income	Education	Health
Bottom40	-0.073	-0.172	0.001	-0.035	-0.503*	-0.921*	-0.592*	0.11
	(0.128)	(0.127)	(0.216)	(0.239)	(0.256)	(0.54)	(0.236)	(0.275)
Top1	0.028	-0.058	0.093	0.207	-0.495*	-0.527	-0.744*	-0.093
	(0.367)	(0.213)	(0.404)	(0.831)	(0.283)	(0.465)	(0.263)	(0.401)
Obser.	376	381	377	382	277	286	277	286
Countries	85	85	85	85	62	63	62	63
R-squared	0.887	0.798	0.866	0.631	0.917	0.663	0.905	0.758

Table A11: Human development and inequality (Top1%). Control with institutions – political instability. Countries with high and low income. Human Development Index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Variable:	HDI	Income	Education	Health	HDI	Income	Education	Health
Bottom40	0.011	-0.294**	0.363	-0.122	-0.467*	-1.012**	-0.451**	0.091
	(0.939)	(0.032)	(0.374)	(0.223)	(0.055)	(0.027)	(0.038)	(0.754)
Top1	0.012	-0.129	0.462	-0.389**	-0.435*	-0.634*	-0.513**	-0.109
	(0.974)	(0.68)	(0.592)	(0.029)	(0.092)	(0.097)	(0.046)	(0.782)
Political instability	0.004	0.135	-0.118	-0.211	0.333*	0.561*	-0.026	0.663*
	(0.986)	(0.584)	(0.841)	(0.169)	(0.085)	(0.062)	(0.918)	(0.067)
Observations	232	234	232	234	346	354	346	354
Countries	46	46	46	46	75	76	75	76
R-squared	0.943	0.848	0.867	0.964	0.914	0.654	0.906	0.73

Note: robust standard errors reported in parentheses. Significance: * 10%, ** 5%, *** 1%. All models consider time and country FEs plus several control variables: inflation, price of investment, foreign trade openness, share of government consumption, share of gross capital formation, and ratio of capital over output. Columns 1 to 4 consider high-income countries, while columns 5 to 8 use information for middle- and low-income countries.

Robustness checks

Our main results hold to:

- Using **alternative series of human development indicators**: the HHDI and the AHDI: results for the 1990-2019 period.

- Using **alternative ways of introducing the role of middle-income groups** in explaining the inequality–development relationship as in Partridge (1997, 2005): Gini index + Q3 or middle 50, meant to capture the role of the ‘middle class’ or ‘median voter’.

Conclusions

We reassessed the **inequality–development relationship**, looking at the HDI and exploring the differentiated role of different parts of the income distribution, for a global panel over the last decades.

- **Concentration of income** at the expense of income in the middle, **is found to be associated with a lower HDI**,
  - ➢ especially in what refers to human capital accumulation (i.e. education) in developing countries
  - ➢ and health in high-income countries.

- Our analysis highlights the **need for deeper exploration of the specificities of distributional dynamics** (for instance by looking at the differences along the whole distribution of income) when assessing the role of inequality in other development outcomes.

- For further work aim at exploring the inequality–development relationship in specific subnational contexts and policy frameworks.

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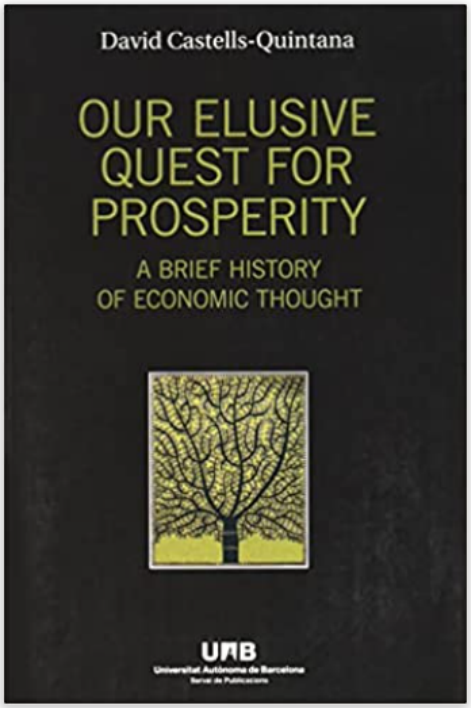

Ver las 2 imágenes

Our elusive quest for prosperity: A brief history of economic thought Tapa blanda

de David Castells-Quintana (Author)

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Pasta blanda

2 Nuevo de US$28.00

We all want to have a prosperous life. We want to be happy. The pursuit of prosperity has indeed been a long quest for the human race. But what does it mean to be prosperous? Is it having material possessions such as clothes, furniture and electrical appliances? Or jewellery, cars and property? We want a vast range of things. We also crave new experiences, whether it s playing sport, going to the cinema or traveling to new places. And we usually want it all; the more the better. And often, all is not enough. In 'Our Elusive Quest for Prosperity', David Castells-Quintana brings together, in a brief and easy-to-read book, centuries of economic thought: from the ideas of past empires and civilizations, the economic thinking of medieval times, the lessons of classical economists, Marxism, neoclassical economics and Keynesianism, to the neoliberal revolution and the most important contributions of modern times. All to help us understand the meaning of true wealth, the way we collectively work to achieve it, and the challenges we face in our elusive quest for shared prosperity and individual welfare.

Gracias!