

Global wealth, income and carbon inequality

Insights from the World Inequality Report 2022



World Bank Event
16 June 2022

Lucas Chancel

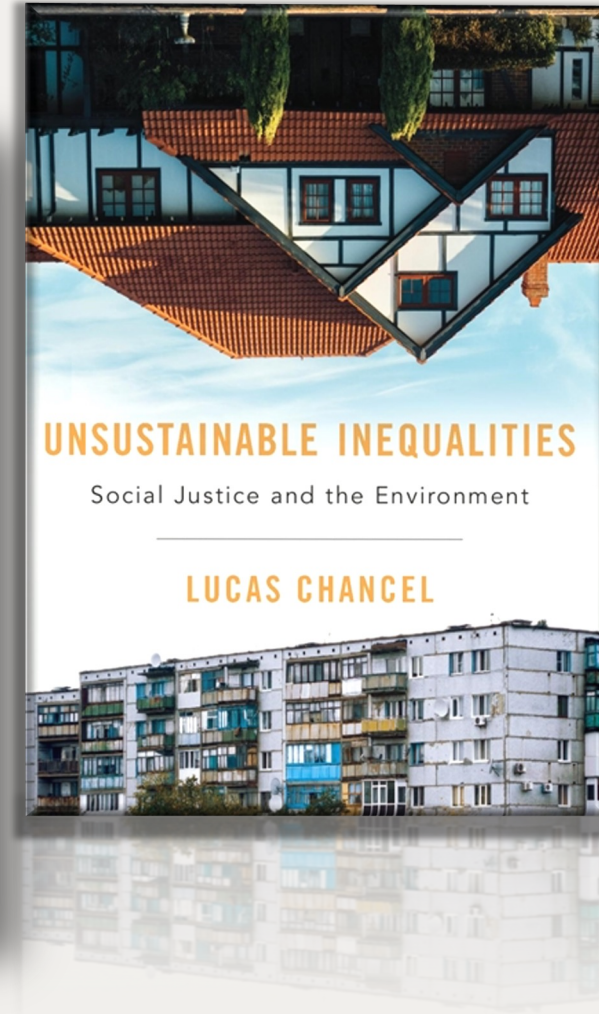
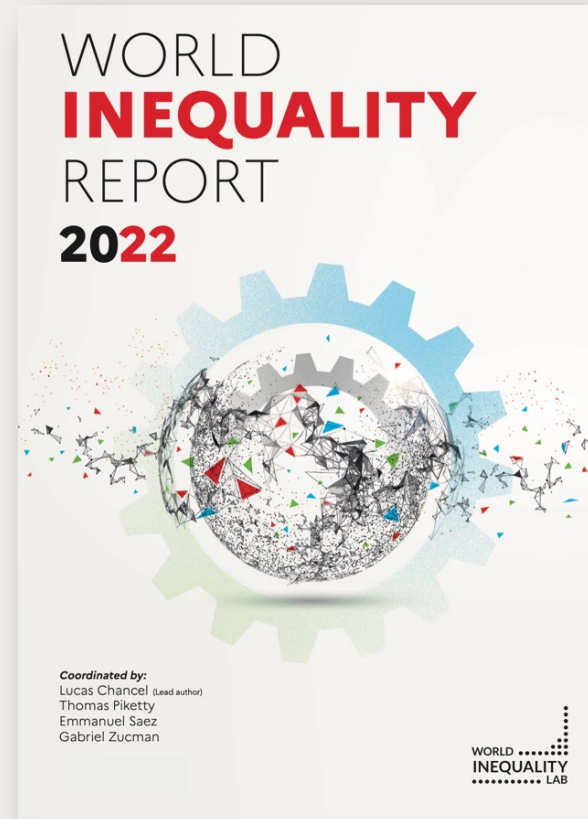
*Co-Director, World Inequality Lab, Paris School of Economics
Affiliate Professor, Sciences Paris*

Key take-aways

- Diverging inequality trajectories across countries → importance of social policies rather than deterministic forces
- Inequality makes it more difficult to protect the environment and environmental policies can exacerbate inequalities
- Several options to break vicious circle, but this requires important public policy changes

Further reading

- Chancel, L. (2020) *Unsustainable inequalities*, Harvard Univ Press
- Chancel, Piketty, Saez, Zucman (2022) *World Inequality Report*, Harvard Univ Press



This presentation

What have we learned from recent research on global income & wealth dynamics?

Exploring the new frontiers of global inequality research : carbon injustices

An international team of researchers contributing to the World Inequality Database over the years



Rolf Aaberge
STATISTICS NORWAY



Paolo Acciari
MINISTRY OF ECONOMY AND FINANCE (ITALY)



Arun Advani
UNIVERSITY OF WARWICK



Facundo Alvaredo
PARIS SCHOOL OF ECONOMICS, OXFORD UNIVERSITY AND CONICET



Pierre Brassac
BONN UNIVERSITY



Marius Brühlhart
UNIVERSITY OF LAUSANNE



Pawel Bukowski
LONDON SCHOOL OF ECONOMICS



Gabriel Burdín
UNIVERSIDAD DE LA REPÚBLICA



Fabien Dell
EUROPEAN COMMISSION



François Delorme
UNIVERSITÉ DE SHERBROOKE



Carmen Durrer de la Sota



Fernando Esponda



Verónica Amarante
ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN



Miguel Artola
UNIVERSIDAD CARLOS III DE MADRID



Lydia Assouad
PARIS SCHOOL OF ECONOMICS



Jorge Atria
PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE



Richard Burkhauser



François Burq



Raymundo Campos
EL COLEGIO DE MÉXICO



Guilhem Cassan
UNIVERSITY OF NAMUR



Matthew Fisher-Post



Ignacio Flores
PARIS SCHOOL OF ECONOMICS



Reto Foellmi
UNIVERSITÄT ST. GALLEN



Michael Förster
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT



Pierre Bachas
WORLD BANK RESEARCH GROUP



Abhijit Banerjee
MIT



Charlotte Bartels
GERMAN INSTITUTE FOR ECONOMIC RESEARCH (DIW)



Luis Bauluz
PARIS SCHOOL OF ECONOMICS



Lucas Chancel
PARIS SCHOOL OF ECONOMICS AND IDDRI SCIENCES PO



Nikolaos Charalampidis



Aroop Chatterjee
SOUTHERN CENTRE FOR INEQUALITY STUDIES - UNIVERSITY OF THE WITWATERSRAND



Teyu Chou



Juliette Fournier
MIT



Mark Frank
SAM HOUSTON STATE UNIVERSITY



Bertrand Garbinti
CENTRE DE RECHERCHE EN ECONOMIE ET STATISTIQUE (CREST) - ENSAE - INSTITUT POLYTECHNIQUE PARIS



Santiago Garriga
PARIS SCHOOL OF ECONOMICS



Augustin Bergeron
HARVARD UNIVERSITY



Yonatan Berman
LONDON MATHEMATICAL LABORATORY



Nitin Bharti



Thomas Blanchet
PARIS SCHOOL OF ECONOMICS



Cyrus Chu
ACADEMIA SINICA



Denis Cogneau
PARIS SCHOOL OF ECONOMICS



Frank Cowell
LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE



Guillermo Cruces
CEDLAS



Leonardo Gasparini
UNIVERSIDAD NACIONAL DE LA PLATA



Amory Gethin
PARIS SCHOOL OF ECONOMICS



Janet Gornick
CITY UNIVERSITY OF NEW YORK



Jonathan Goupille-Lebret
PARIS SCHOOL OF ECONOMICS



Florian Bonnet
PARIS SCHOOL OF ECONOMICS



François Bourguignon
PARIS SCHOOL OF ECONOMICS



Antoine Bozio
INSTITUT DES POLITIQUES PUBLIQUES (IPP) AND PARIS SCHOOL OF ECONOMICS



Andrea Brandolini
STATISTICS AND RESEARCH BANCA D'ITALIA



Léo Czajka
PARIS SCHOOL OF ECONOMICS



Conchita D'Ambrosio
UNIVERSITY OF LUXEMBOURG



Mauricio De Rosa
UNIVERSIDAD DE LA REPÚBLICA



Andre Decoster
UNIVERSITY OF LEUVEN



Yajna Govind
PARIS SCHOOL OF ECONOMICS



Malka Guillot
PARIS SCHOOL OF ECONOMICS



Roberto Iacono
NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY



Markus Jäntti
STOCKHOLMS UNIVERSITET

An international team of researchers contributing to the World Inequality Database over the years



Catharina Jenderny
UMEÅ UNIVERSITET



Stephen Jenkins
LONDON SCHOOL OF
ECONOMICS AND POLITICAL
SCIENCE



Peter Sandholt Jensen
UNIVERSITY OF SOUTHERN
DENMARK



Anders Jensen
HARVARD KENNEDY SCHOOL



Branko Milanovic
CITY UNIVERSITY OF NEW
YORK



Riyana Miranti
UNIVERSITY OF CANBERRA



Jørgen Modalsli
STATISTISK SENTRALBYRÅ



Elodie Moreau



Mark Price
KEYSTONE RESEARCH
CENTER



Nancy Qian
YALE UNIVERSITY



Marja Riihela
GOVERNMENT INSTITUTE OF
ECONOMIC RESEARCH (VATT)



Anne-Sophie Robillard
INSTITUT DE RECHERCHE
POUR LE DÉVELOPPEMENT
(IRD - FRANCE)



Pamela Katic
INTERNATIONAL WATER
MANAGEMENT INSTITUTE



Arthur Kennickell
FEDERAL RESERVE BOARD OF
GOVERNORS



Nak Nyeon Kim
DONGGUK UNIVERSITY



Jongil Kim
DONGGUK UNIVERSITY



Salvatore Morelli
CENTRO STUDI DI ECONOMIA
E FINANZA (CSEF)



Marc Morgan
PARIS SCHOOL OF
ECONOMICS



Chiaki Moriguchi
HITOTSUBASHI UNIVERSITY



Rowaida Moshrif



Jesper Roine
STOCKHOLM SCHOOL OF
ECONOMICS



Emmanuel Saez
UNIVERSITY OF CALIFORNIA
AT BERKELEY



**Guillaume Saint-
Jacques**
MIT



Wiemer Salverda
UNIVERSITY OF AMSTERDAM



Camille Landais
LONDON SCHOOL OF
ECONOMICS AND POLITICAL
SCIENCE



Wouter Leenders
LONDON SCHOOL OF
ECONOMICS AND POLITICAL
SCIENCE



Murray Leibbrandt
UNIVERSITY OF CAPE TOWN



Andrew Leigh
AUSTRALIAN HOUSE OF
REPRESENTATIVES



Mathilde Muñoz
PARIS SCHOOL OF
ECONOMICS



Brian Murphy
STATISTICS CANADA



Theresa Neef



Brian Nolan
OXFORD UNIVERSITY



Justin Sandefur
CENTER FOR GLOBAL
DEVELOPMENT



Claudia Sanhueza
UNIVERSIDAD DIEGO
PORTALES



Christoph Schinke
DEUTSCHKURSE BEI DER
UNIVERSITÄT MÜNCHEN E.V.



Moritz Schularick
UNIVERSITY OF BONN



Iliana Londoño Velez
UNIVERSITY OF CALIFORNIA-
BERKELEY



Maria Ana Lugo
WORLD BANK



Jacob Lundberg
UPPSALA UNIVERSITY



Nora Lustig
TULANE UNIVERSITY



Filip Novokmet
PARIS SCHOOL OF
ECONOMICS



Henry Ohlsson
SVERIGES RIKSBANK



Tahnee Ooms
UNIVERSITY OF OXFORD



Anna Orthofer
UNIVERSITY OF
STELLENBOSCH



Paul Segal
KING'S COLLEGE



Paul Sharp
SYDDANSK UNIVERSITET



Timothy Smeeding
UNIVERSITY OF WISCONSIN-
MADISON



Estelle Sommeiller
INSTITUT DE RECHERCHES
ÉCONOMIQUES ET SOCIALES



Isabel Martínez
UNIVERSITÄT ST. GALLEN



**Clara Martínez
Toledano**
IMPERIAL COLLEGE BUSINESS



Roxana Maurizio
IIEP-UBA-CONICET



Ricardo Mayer
UNIVERSIDAD DIEGO
PORTALES



Elisa Palagi
INSTITUTE OF ECONOMICS,
SANT'ANNA SCHOOL OF
ADVANCED STUDIES, PISA
(ITALY)



Thomas Piketty
PARIS SCHOOL OF
ECONOMICS AND ECOLE DES
HAUTES ETUDES EN SCIENCES
SOCIALES



Florencia Pinto
PARIS SCHOOL OF
ECONOMICS



Elena Pisano
BANK OF ITALY



Aurélie Sotura
PARIS SCHOOL OF
ECONOMICS



Jakob Egholt Sogaard
THE DANISH MINISTRY OF
TAXATION



Stefanie Stantcheva
HARVARD UNIVERSITY



Risto Sullstrom
GOVERNMENT INSTITUTE OF
ECONOMIC RESEARCH (VATT)

Institutional partnerships with the vast ecosystem of inequality data actors

- **International organizations** : United Nations, World Bank, OECD
 - **National statistical offices**: in Europe, Latin America, Africa...
 - **Partner institutions**: Luxembourg Income Study (LIS), Commitment for Equity Institute (CEQ), Southern Center for Inequality Studies, Stone Center Harvard Kennedy School...
- **Common challenges**: heterogeneity of data, lack of common standards
- **Common goals**: develop public data systems fit for 21st century challenges



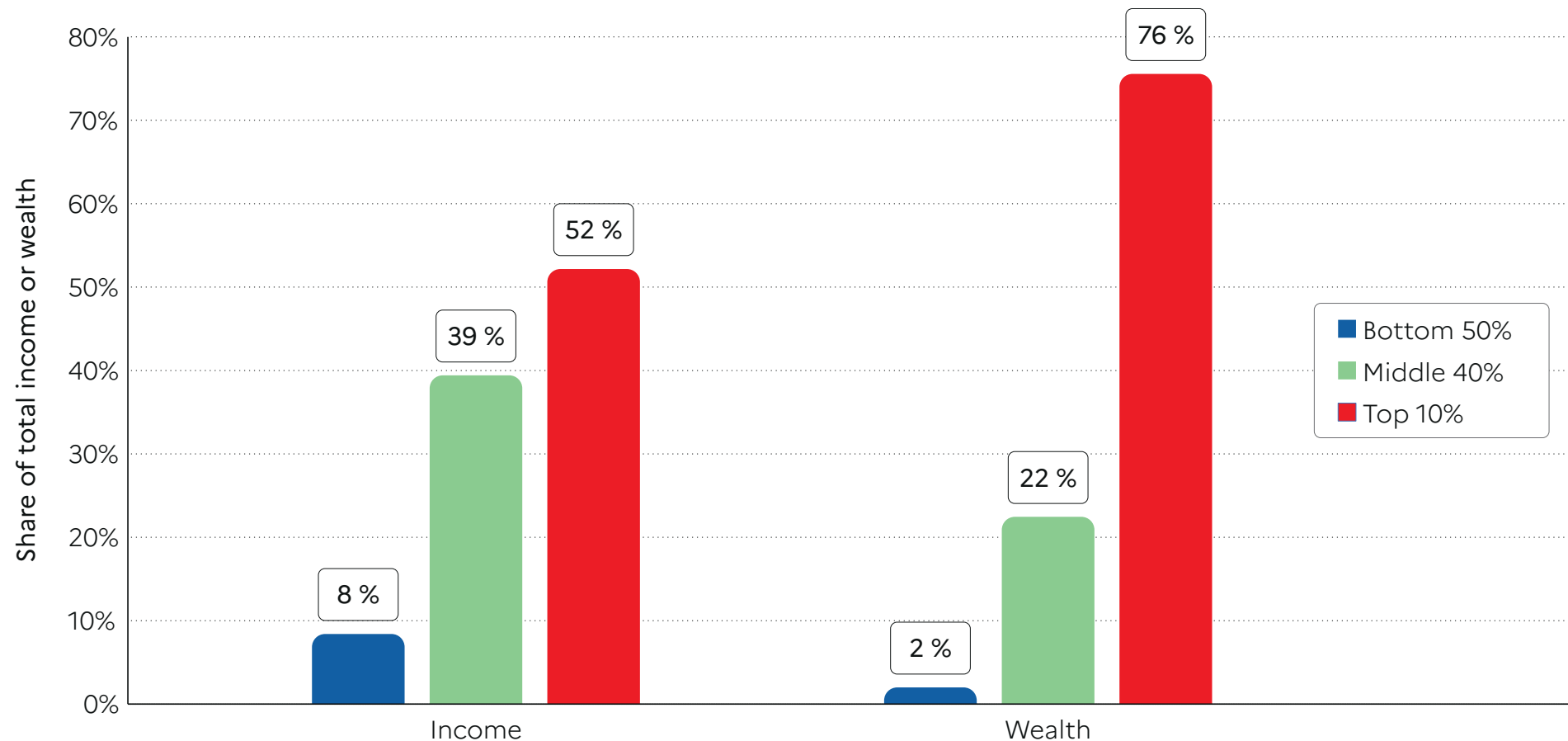
This presentation

What have we learned from recent research on global income & wealth dynamics?

Exploring the new frontiers of global inequality research : gender & carbon injustices

Global income and wealth inequality today

Figure 1 Global income and wealth inequality, 2021

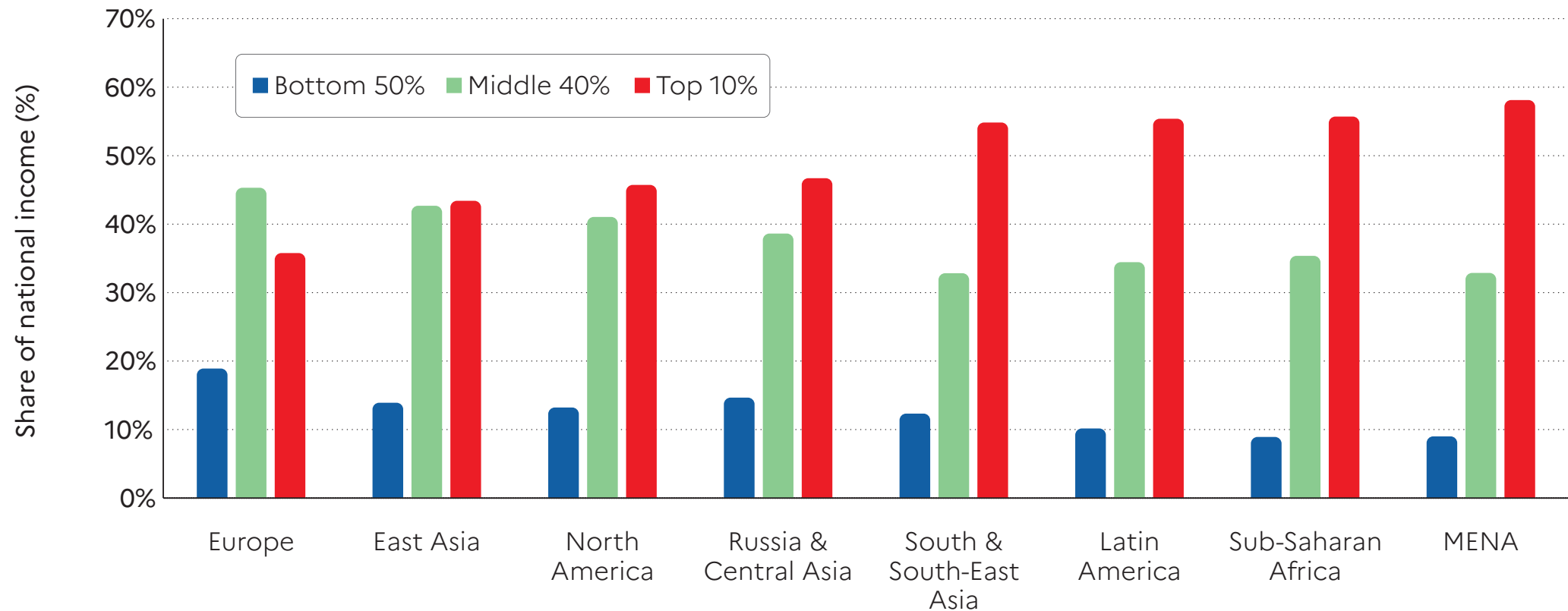


Interpretation: The global 50% captures 8% of total income measured at Purchasing Power Parity (PPP). The global bottom 50% owns 2% of wealth (at Purchasing Power Parity). The global top 10% owns 76% of total Household wealth and captures 52% of total income in 2021. Note that top wealth holders are not necessarily top income holders. Incomes are measured after the operation of pension and unemployment systems and before taxes and transfers. **Sources and series:** wir2022.wid.world/methodology.

A diversity of income inequality regimes

Top 10% captures 35%-60% of national income, bottom 50% = 10-20%

Figure 2 The poorest half lags behind: Bottom 50%, middle 40% and top 10% income shares across the world in 2021



Interpretation: In Latin America, the top 10% captures 55% of national income, compared to 36% in Europe. Income is measured after pension and unemployment contributions and benefits paid and received by individuals but before income taxes and other transfers. **Sources and series:** www.wir2022.wid.world/methodology.

Inequality differences after taxes are mainly due to inequality gaps before taxes: role of predistribution (min. wage, regulations, public services)

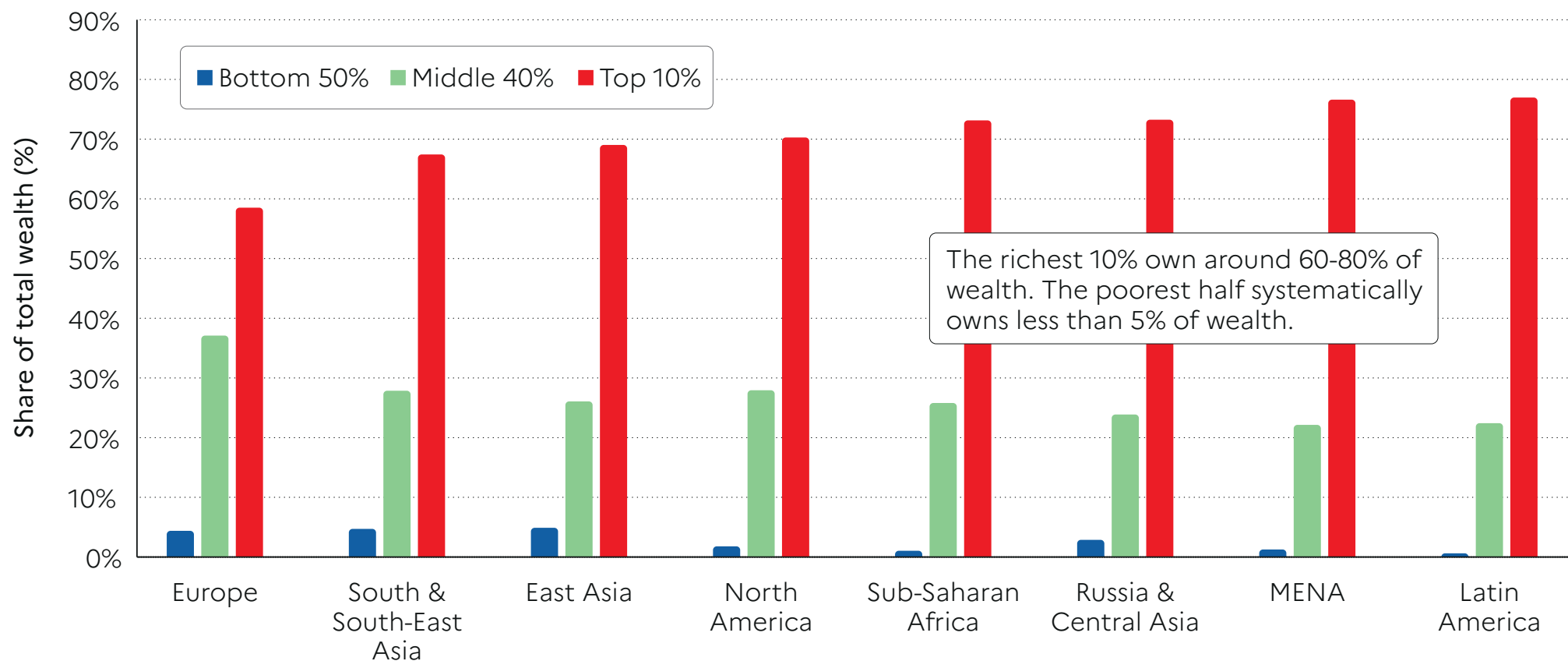
Figure 1.10 Inequality before and after taxes 2018-2021: Top 10/Bottom 50 income gap



Interpretation: Before taxes, the bottom 50% in South Africa earns 63 times less than the top 10%, whereas after taxes, the bottom 50% earns 24 times less than the top 10%. Income is measured after pension and unemployment payments and benefits received by individuals but before other taxes they pay and transfers they receive. Data for 2018-2021. **Sources and series:** wir2022.wid.world/methodology

Wealth inequality is extreme everywhere: no region with a bottom 50% owning more than 5% of wealth. Top 10% = 60-80%.

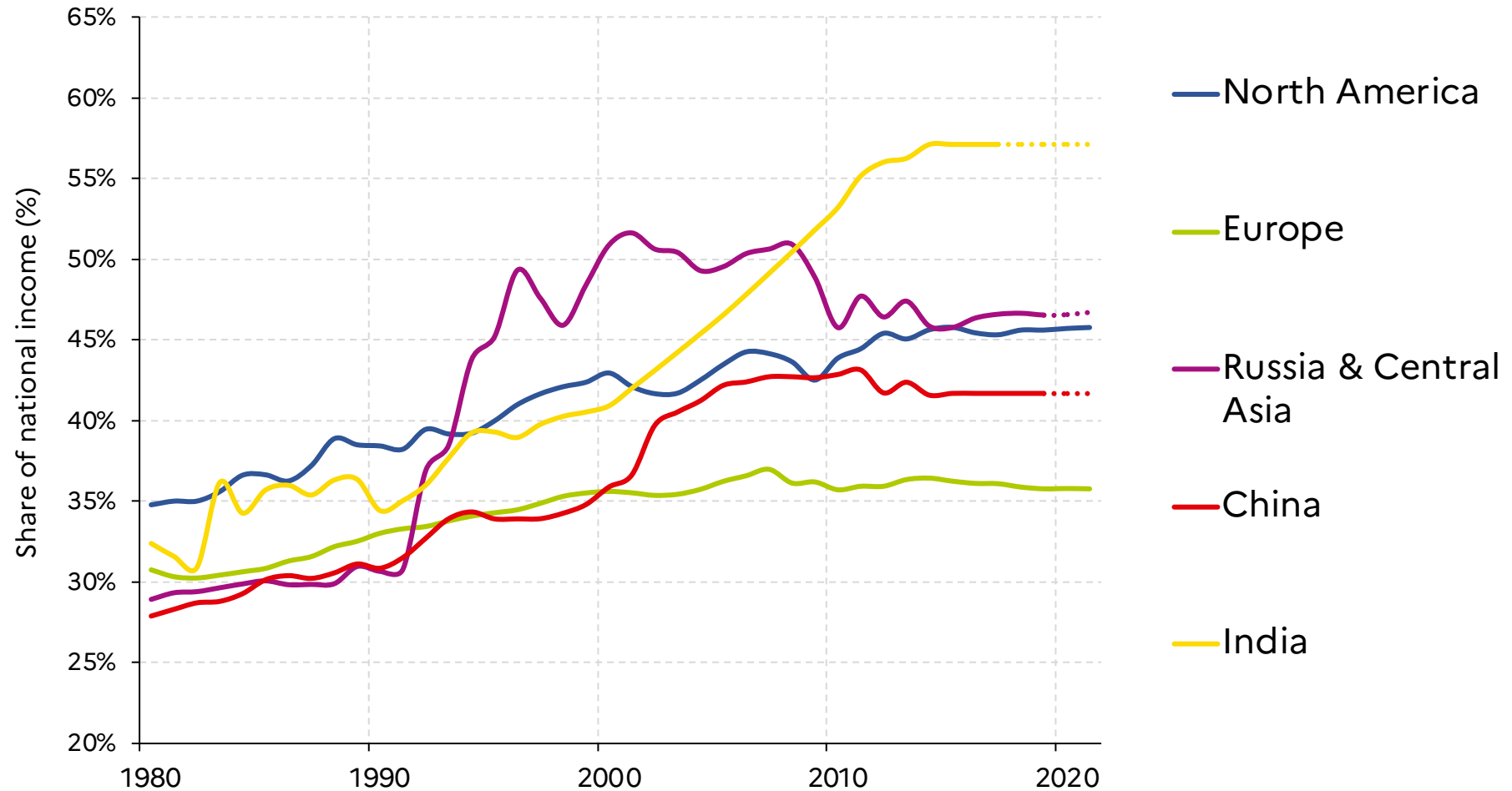
Figure 4 The extreme concentration of capital: wealth inequality across the world, 2021



Interpretation: The Top 10% in Latin America captures 77% of total household wealth, versus 22% for the Middle 40% and 1% for the Bottom 50%. In Europe, the Top 10% owns 58% of total wealth, versus 38% for the Middle 40% and 4% for the Bottom 50%. **Sources and series:** wir2022.wid.world/methodology.

Income inequality rose at different speeds: policy matters

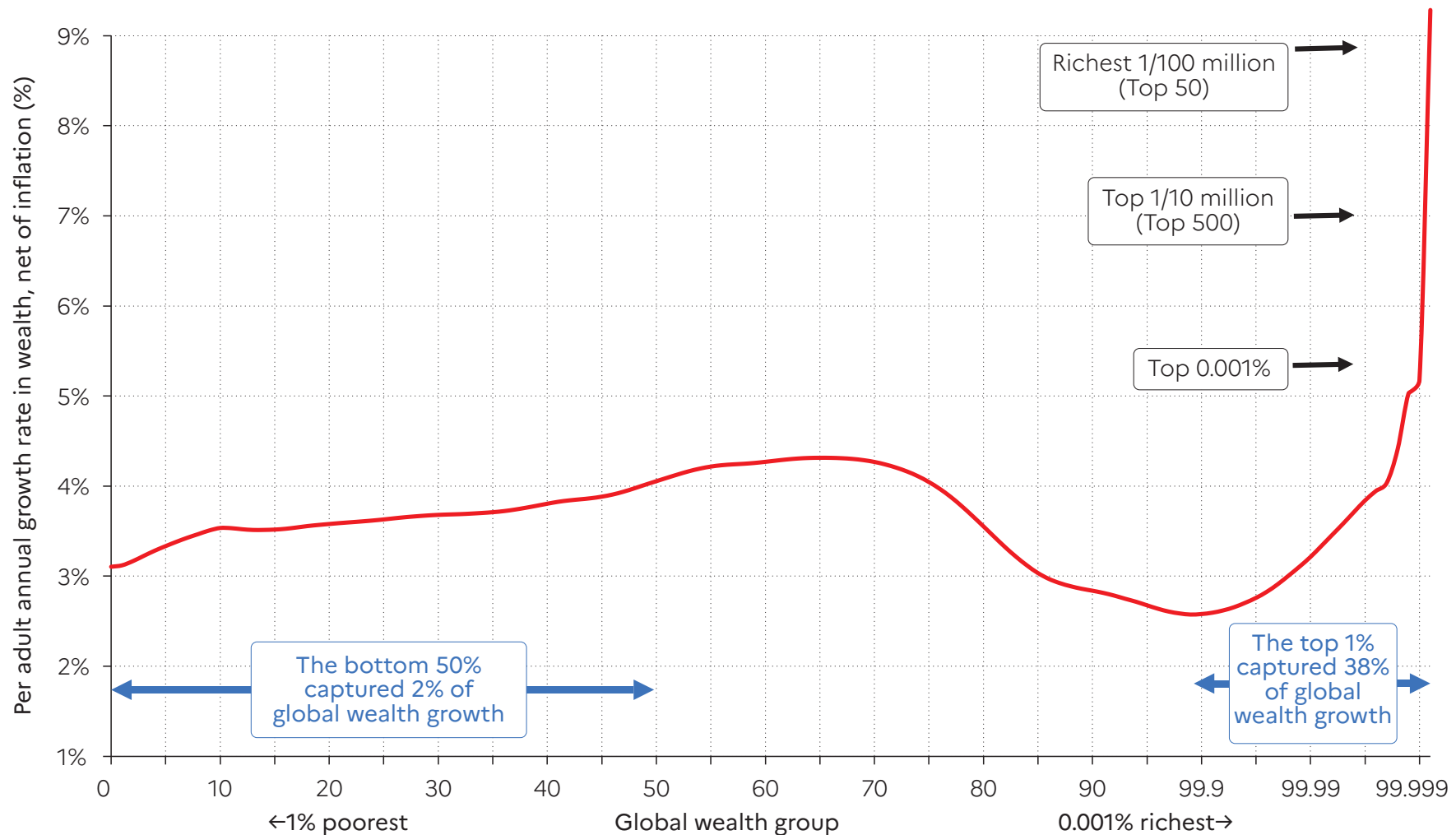
Top 10% national income share across the world (1980-2021)



Interpretation: The top 10% share rose from around 28% in China in 1980 to 42% in 2021. **Sources and series:** wid.world/wir2022

Global wealth inequality since 1995: the top 1% captured 38% of total wealth growth, the bottom 50% got 2%.

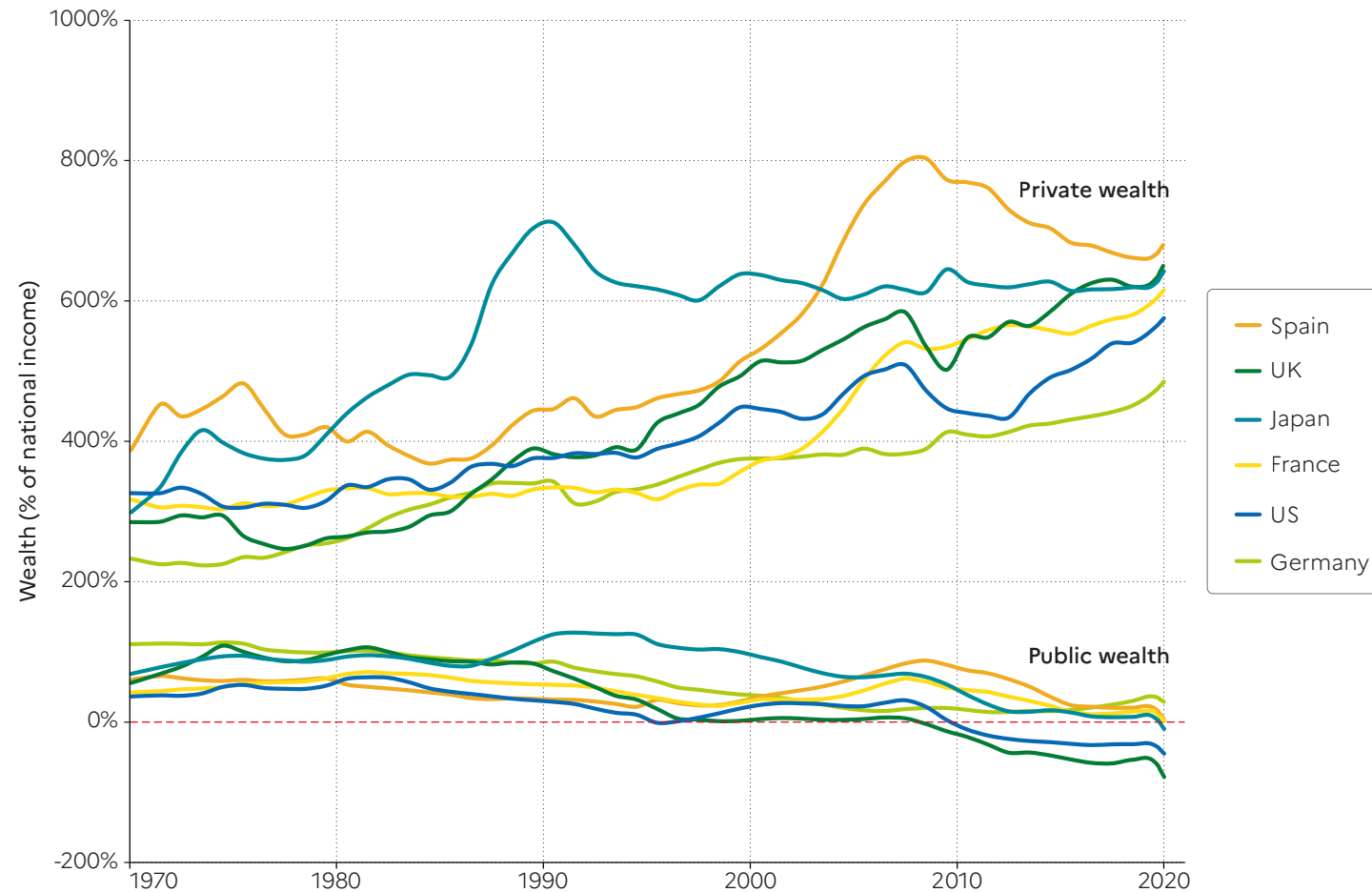
Figure 9 Average annual wealth growth rate, 1995-2021



Interpretation: Growth rates among the poorest half of the population were between 3% and 4% per year, between 1995 and 2021. Since this group started from very low wealth levels, its absolute levels of growth remained very low. The poorest half of the world population only captured 2.3% of overall wealth growth since 1995. The top 1% benefited from high growth rates (3% to 9% per year). This group captured 38% of total wealth growth between 1995 and 2021. Net household wealth is equal to the sum of financial assets (e.g. equity or bonds) and non-financial assets (e.g. housing or land) owned by individuals, net of their debts. **Sources and series:** wir2022.wid.world/methodology.

Nations have become richer, governments have become poor

Figure 3.2 The rise of private wealth and the decline of public wealth in rich countries, 1970-2020



Interpretation: In UK, public wealth dropped from 60% of national income in 1970 to -106% in 2020. Public wealth is the sum of all financial and non-financial assets, net of debts, held by governments. **Sources and series:** wir2022.wid.world/methodology, Bauluz et al. (2021) and updates.

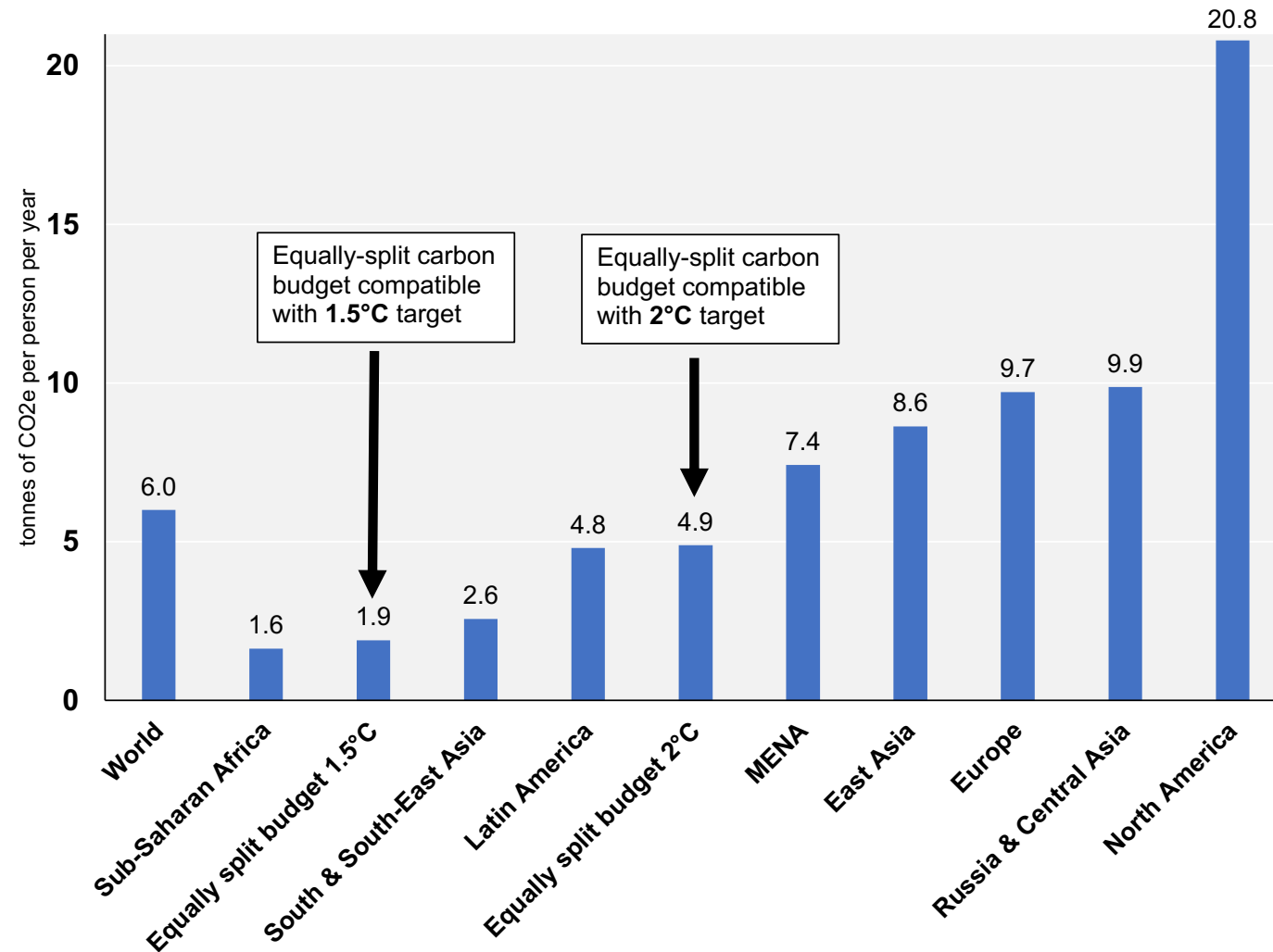
This presentation

What have we learned from recent research on global income & wealth dynamics?

Exploring the new frontiers of global inequality research : carbon injustices

Substantial inequalities in per capita emissions between regions: <2t/cap (Sub Sah. Africa) vs. 21t/cap (North America)

Per capita emissions by regions, 2019



Interpretation: Sharing the remaining carbon budget to have 83% chances to stay below 1.5°C global temperature increase implies an annual per capita emissions level of 1.1 tonnes per person per year between 2021 and 2050 (and zero afterwards). Emission levels present regional per capita emissions and include all emissions from domestic consumption, public and private investments as well as imports and exports of carbon embedded in goods and services traded with the rest of the world (LULUCF emissions are excluded). *Source and series:* Chancel 2022, see Methods and Supplementary Information.

What is the per capita carbon footprint of a DC-Paris flight (return)?



Cntraveler.com

What is the per capita carbon footprint of a DC-Paris flight (return)? *circa* 1.5tCO₂e



Cntraveler.com

The per capita carbon footprint of a leisure trip to space?



Nbcnews.com

The per capita carbon footprint of a leisure trip to space? Probably 100-200 tonnes CO₂e



Nbcnews.com

Poorest half of the world population emits 1.6t/cap vs. 110t/cap for the top 1%

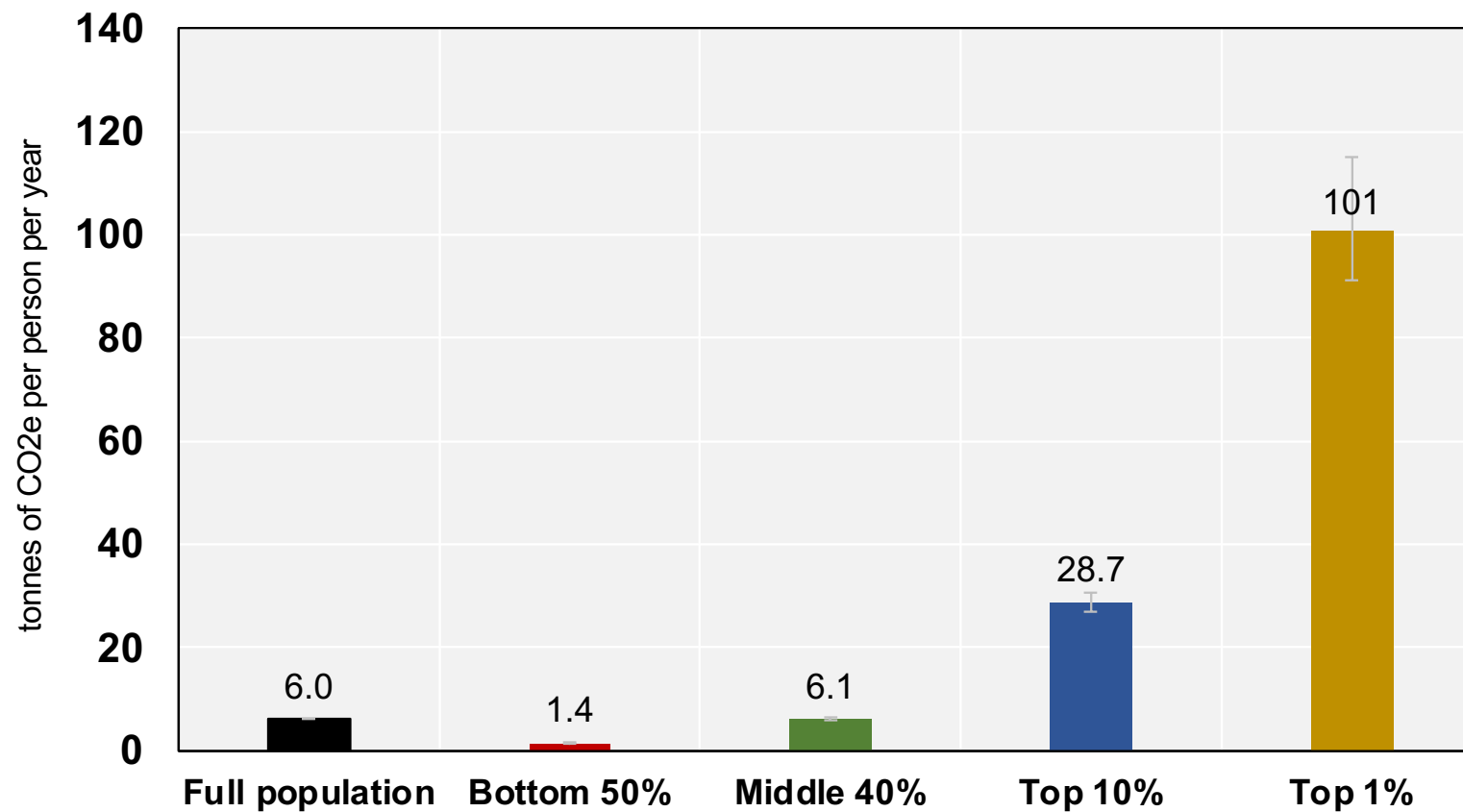
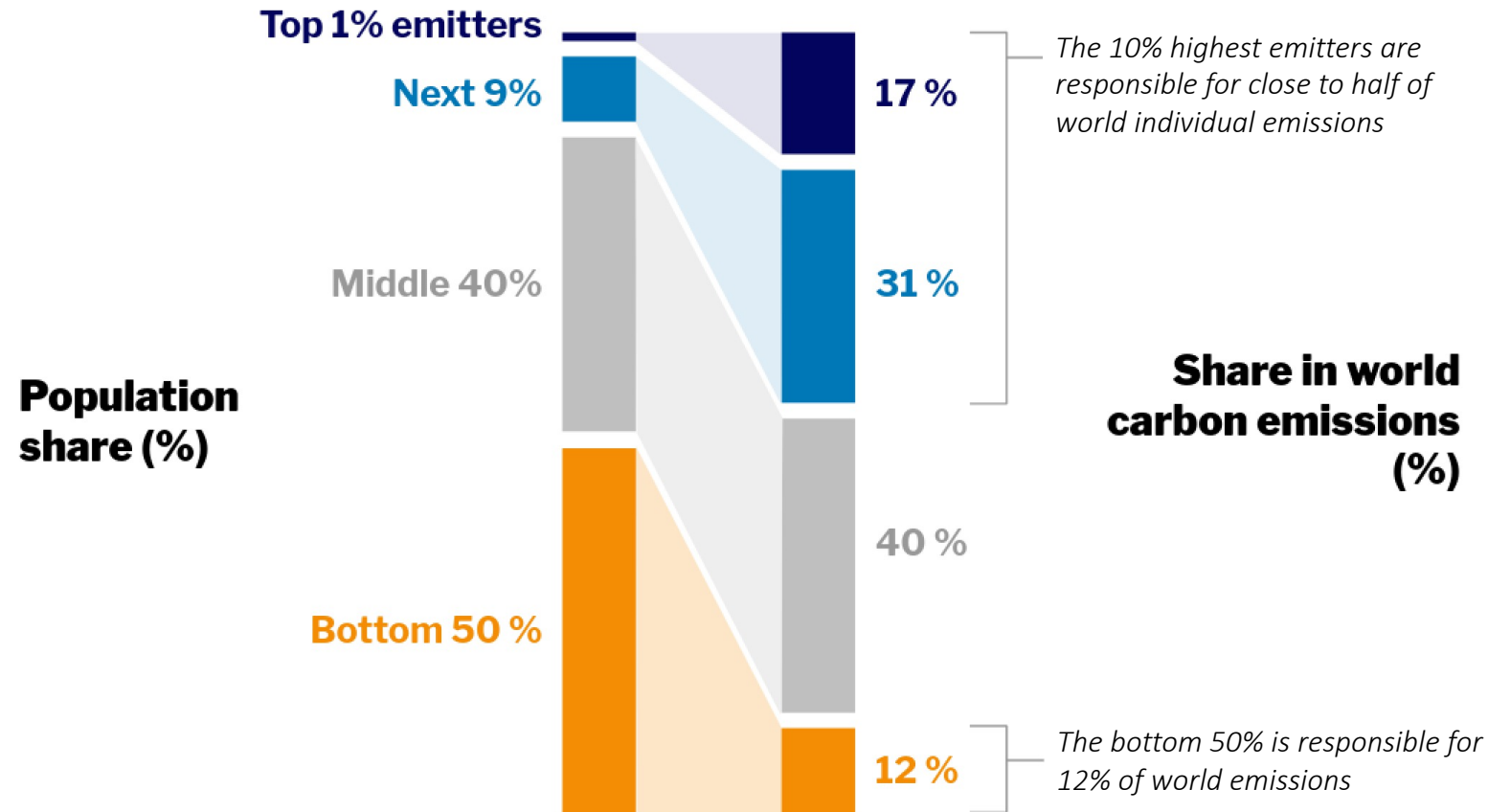


Figure 3A. GHG footprints by global emitter group, 2019
(tCO₂e per capita)

Global top 10% emits close to half of all emissions

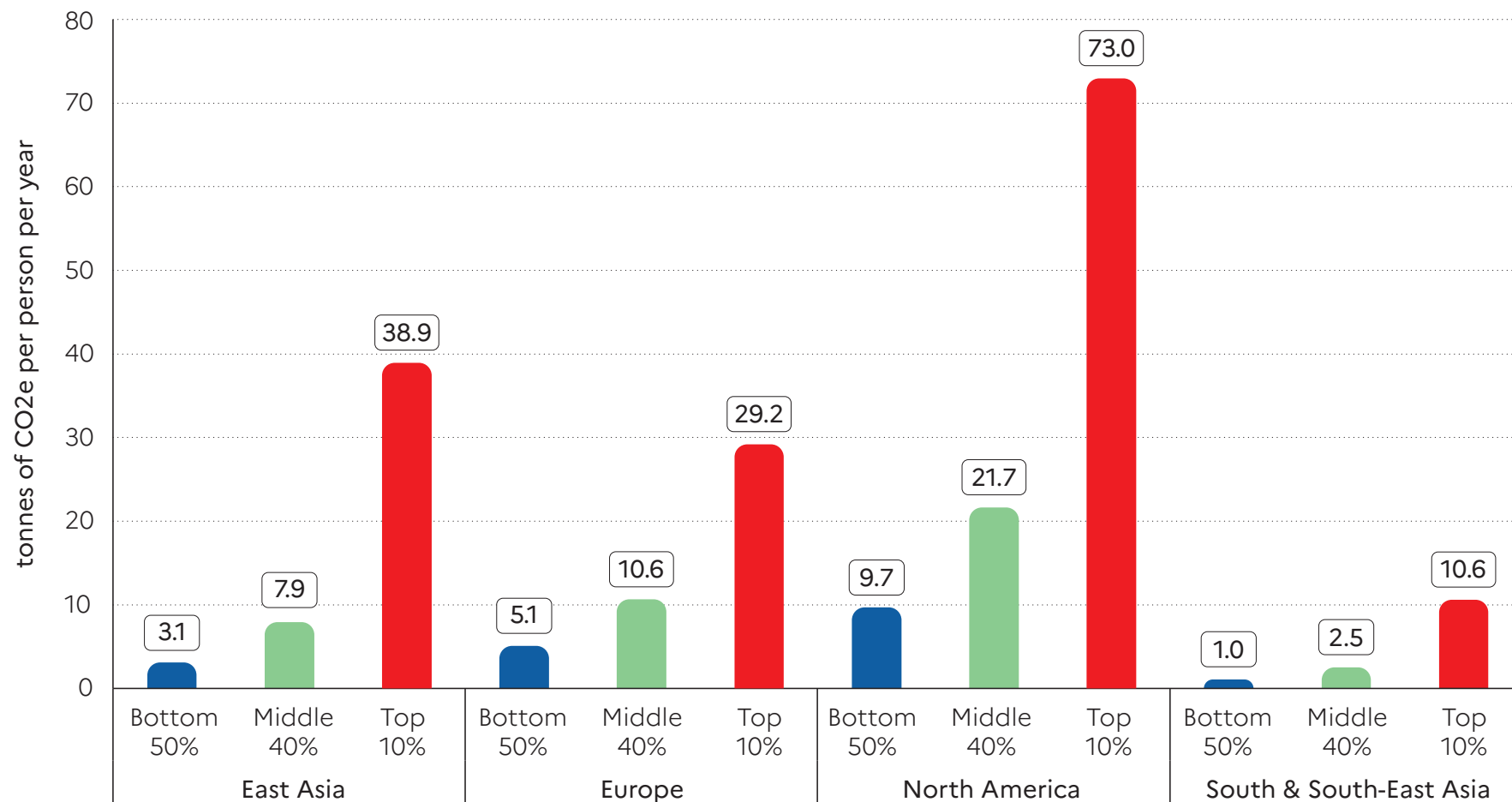
Figure A. Global carbon inequality in 2019



Sources and series: Chancel (2021)

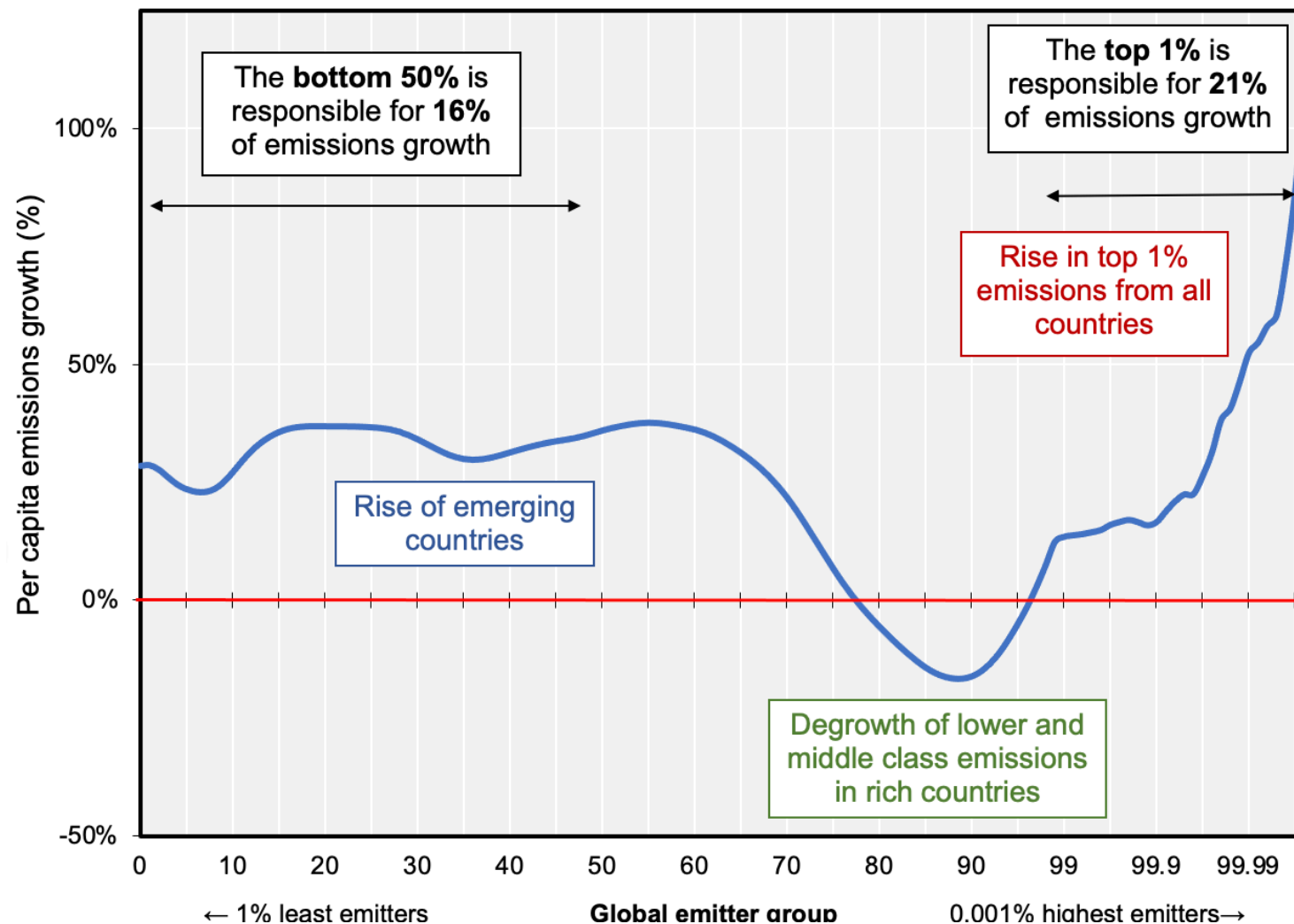
Carbon inequality is not just a rich vs. poor country issue

Figure 15 Per capita emissions across the world, 2019



Interpretation: Personal carbon footprints include emissions from domestic consumption, public and private investments as well as imports and exports of carbon embedded in goods and services traded with the rest of the world. Modeled estimates based on the systematic combination of tax data, household surveys and input-output tables. Emissions split equally within households. **Sources and series:** wir2022.wid.world/methodology and Chancel (2021).

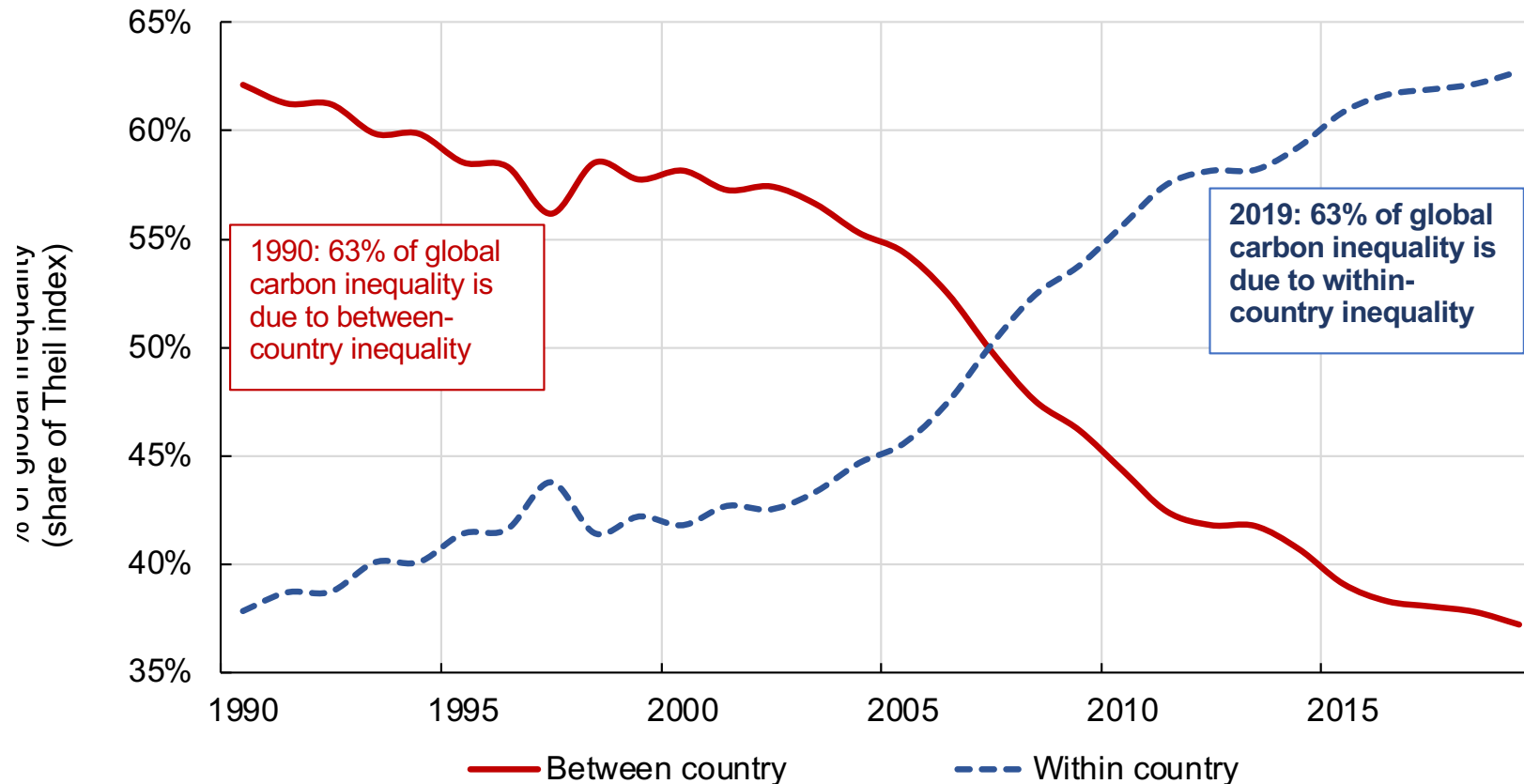
Some groups have reduced their per capita footprints since 1990 – not all



Interpretation. Emissions of the global bottom 50% rose by around 20-40% between 1990 and 2019. Emissions notably declined among groups above the bottom 80% and below the top 5% of the global distribution, these groups mainly correspond to lower and middle income groups in rich countries. Emissions of the global top 1% and richer groups rose substantially. Personal carbon footprints include emissions from domestic consumption, public and private investments as well as imports and exports of carbon embedded in goods and services traded with the rest of the world. Modeled estimates based on the systematic combination of tax data, household surveys and input-output tables. Emissions split equally within households. **Source and series:** Chancel (2021)

Bring climate negotiations home: there's now more emissions inequality within countries than between countries.

Figure 8. Global carbon inequalities are mainly due to inequality within countries, 1990-2019
(Theil index decomposition of global carbon inequality)



Interpretation: 37% of global carbon inequality between individuals is due to differences in emissions levels between countries while 63% is explained by inequality within countries in 2019.
Sources and series: Chancel (2021)

Climate change has already exacerbated inequalities between and within countries and will continue to do so in the future

Previous results show large inequality in contributions to climate change between and even more so within countries.

Latest IPCC report & recent research also show that poorest countries and poorest income groups are also hit hardest by climate change:

- (Burke et al. 2015: observed temperature increases have reduced GDP of poor countries more than that of rich nations since 1960, mainly via agricultural productivity losses
- Hallegate et al. 2016: low-income groups are more exposed to increased climate risks (floods, heatwaves) and more vulnerable to them.

A flat tax on carbon?

A flat tax on carbon?



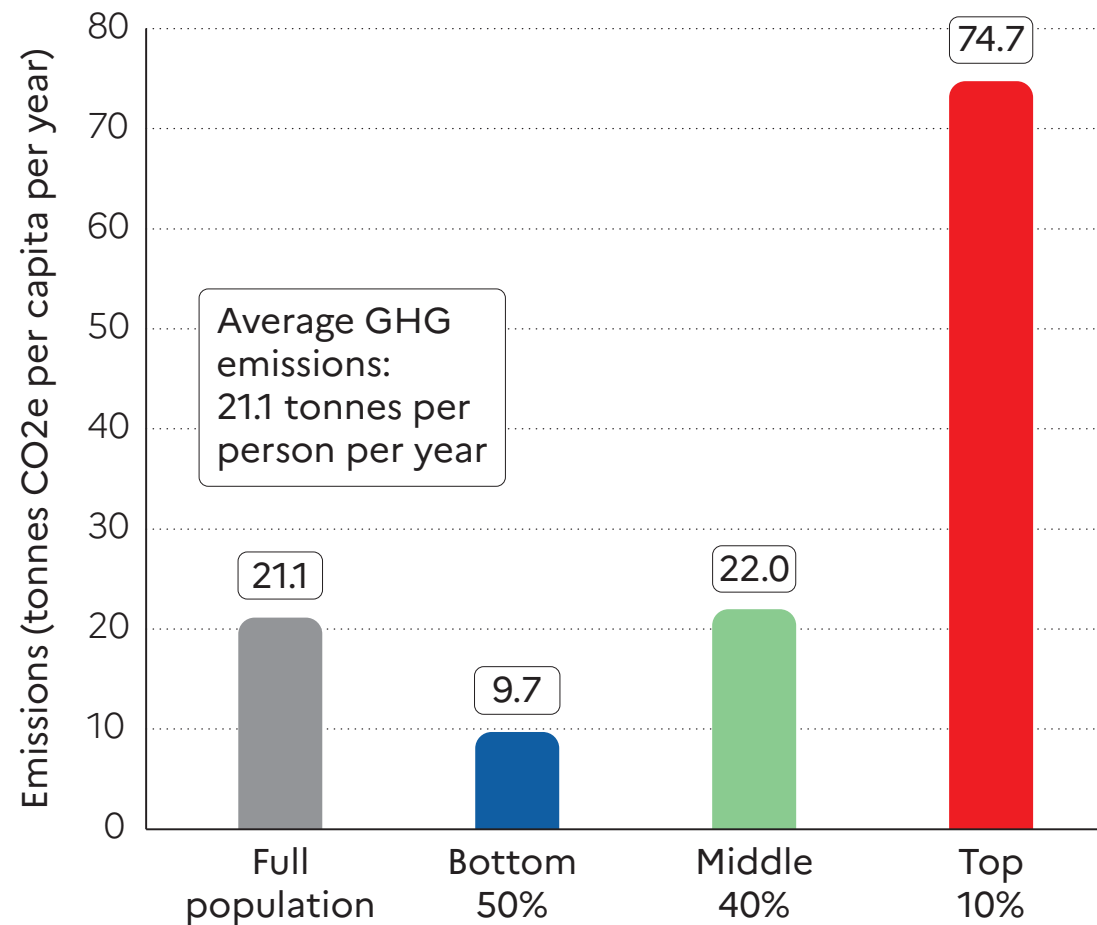
Carbon taxation is often regressive and targetted at consumers w/o alternatives (yellow vests)



Yellow vests, 2018. Credit: lepharedunkerquois

Bottom groups in rich countries already near 2030 climate targets: US

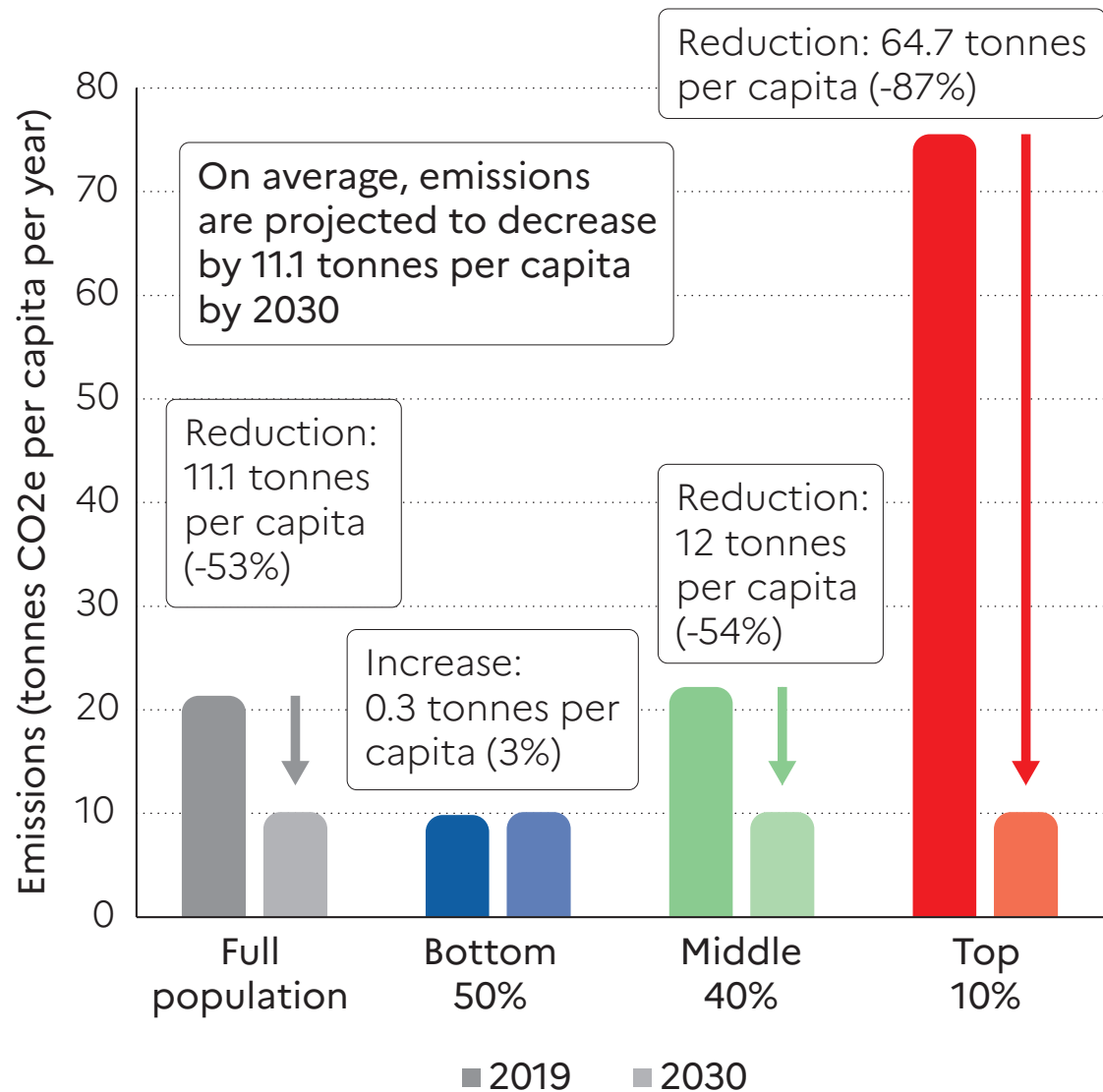
Per capita emissions by income group in the US, 2019 estimates



Interpretation: Individual carbon footprints include emissions from all greenhouse gases stemming from domestic consumption, public and private investments as well as imports and exports of carbon embedded in goods and services traded with the rest of the world. Modeled estimates based on the systematic combination of national accounts, tax and survey data, input-output models and energy datasets. Emissions are split equally within households. The 2030 target corresponds to the overall emissions budget announced by governments for 2030, divided by the total population of the country in 2030. **Sources and series:** wir2022.wid.world/methodology and Chancel (2021).

Bottom groups in rich countries already near 2030 climate targets: US

Emissions reduction requirement to meet Paris Agreement 2030 targets in the US



Factoring-in inequality at the heart of climate policy design

Table 7. An inequality-check for climate policies

		What kind of climate policy?		
		Decarbonize green energy supply	Decarbonize green energy access	Switch in energy end-uses (building, transport, industry)
Which social group is targetted?	Bottom 50%			
	Middle 40%			
	Top 10 % & Top 1%			

Factoring-in inequality at the heart of climate policy design

Table 7. An inequality-check for climate policies

		What kind of climate policy?		
		Decarbonize green energy supply	Decarbonize green energy access	Switch in energy end-uses (building, transport, industry)
Which social group is targeted?	Bottom 50%	Industrial policy: public investments in renewables (off or on-grid); Social protection: increase transfers to workers in industries affected by the transition	Public investments in green energy access (e.g. clean cookstoves; construction of new zero carbon social housing)	Develop public transport systems: low-carbon bus, rail, car-sharing strategies; energy retrofitting in social housing; cash-transfers to compensate increase in fossil energy prices
	Middle 40%	Same as above + Financial incentives to encourage middle-class investments in green energy. Bans on new fossil investments	Subsidies for green housing construction; Buildings regulations; penalty and bans on sales of inefficient housing	Same as above; Stricter regulations & taxes on polluting purchases (SUVs, air tickets); Subsidies on green alternatives (elec. vehicles)
	Top 10 % & Top 1%	Wealth or corporate taxes with pollution top-up to finance the above & accelerate divestment from fossils; Bans on new fossil investments	Wealth or corporate taxes with pollution top-up (see left); Fossil fuel subsidy removal*	Strict regulations on polluting purchases (SUVs, air tickets); Wealth or corporate taxes with pollution top-up (see left); Carbon cards to track high personal carbon footprints & cap them

Key dimension: time. In some countries, window of opportunity to tax pollution before poorest groups adopt polluting lifestyles



Wrapping up: inequality as a political choice

- **Inequality varies a lot across countries and over time**
Tied to social organization rather than “natural” economic laws.
- **Low inequality is possible with high economic prosperity**
Rich countries post-WW2: low pretax and post-tax inequality and social state growth thanks to highly progressive taxes *and* strong predistribution
- **High wealth inequality closely tied to other forms of social injustices including environmental injustices**

Wrapping up: no deep decarbonization without significant redistribution

- **High inequality makes climate protection more difficult**
Need to cushion the worse-off, not ex-post, but in the very design of social and climate policies
- **Risk is repeating mistakes with trade policies of the 1990-2000s** : too little, too late realization of the need to acknowledge losers and truly accompany them
- **Significant efforts from large and wealthy polluters to finance green investments for all likely to be key**

More resources online!

- All our data is accessible online along with codes & methodologies: visit wir2022.wid.world
- Report based on the work of 100+ researchers on all continents affiliated to the World Inequality Database.
- First systematic assessment of global **income, wealth, gender** and **carbon** inequalities over 30 years
- Diverging inequality levels & trajectories across countries reveal the importance of social policies rather than deterministic forces driving inequality

