

Inequality and poverty along different emissions pathways



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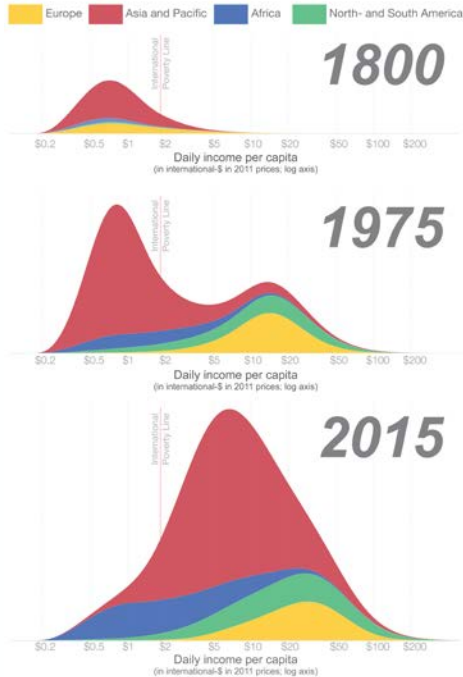
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Climate Change Impacts and Policies
in Heterogeneous Societies

Motivation

Global income distribution in 1800, 1975, and 2015 Our World in Data

Income is measured by adjusting for price changes over time (inflation) and for price differences between countries (purchasing power parity (PPP) adjustment). These estimates are based on reconstructed National Accounts and within-country inequality measures. Non-market income (e.g. through home production such as subsistence farming) is taken into account. The International Poverty Line is set by the United Nations and is the poverty line that defines extreme poverty.

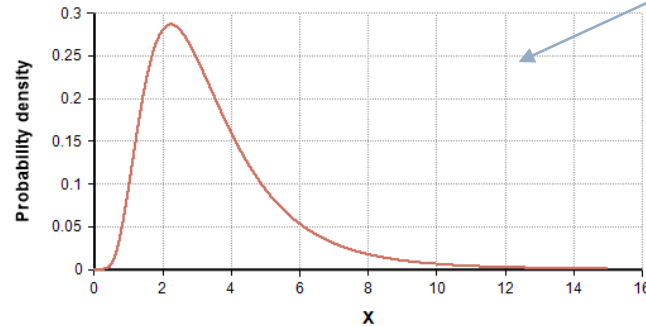


- How will inequality and poverty evolve in the 21st century?
- How much does climate policy will affect these trends?

Methods

**Future distribution
of income**

*GDP, Education,
Technology, Public
spending...*



Food
expenditures



Tax revenues



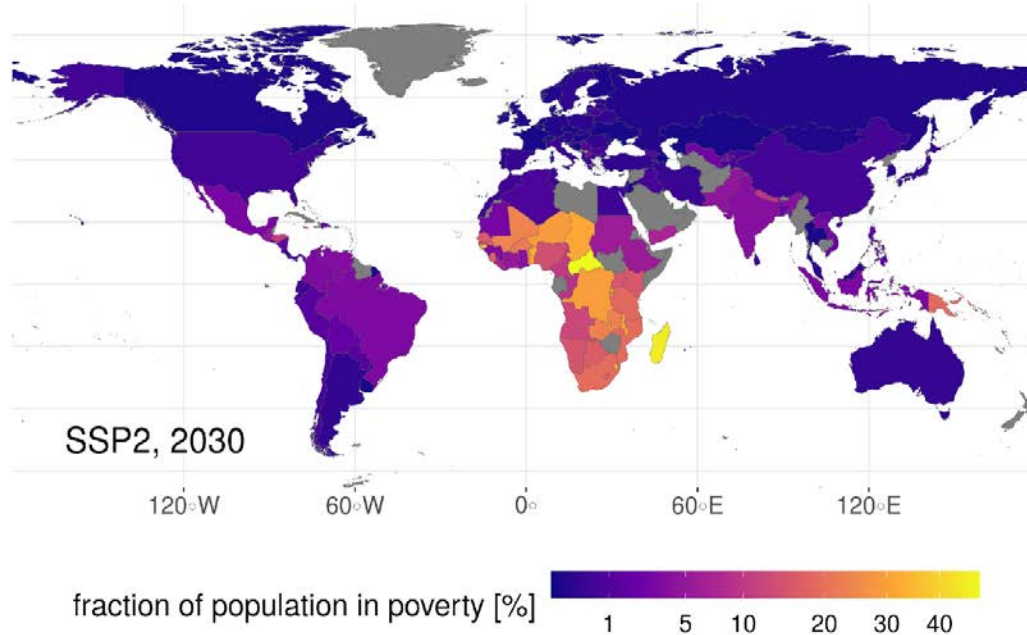
Growth



Energy expenditures

Baseline projections: poverty

- 350 million in extreme poverty by 2030

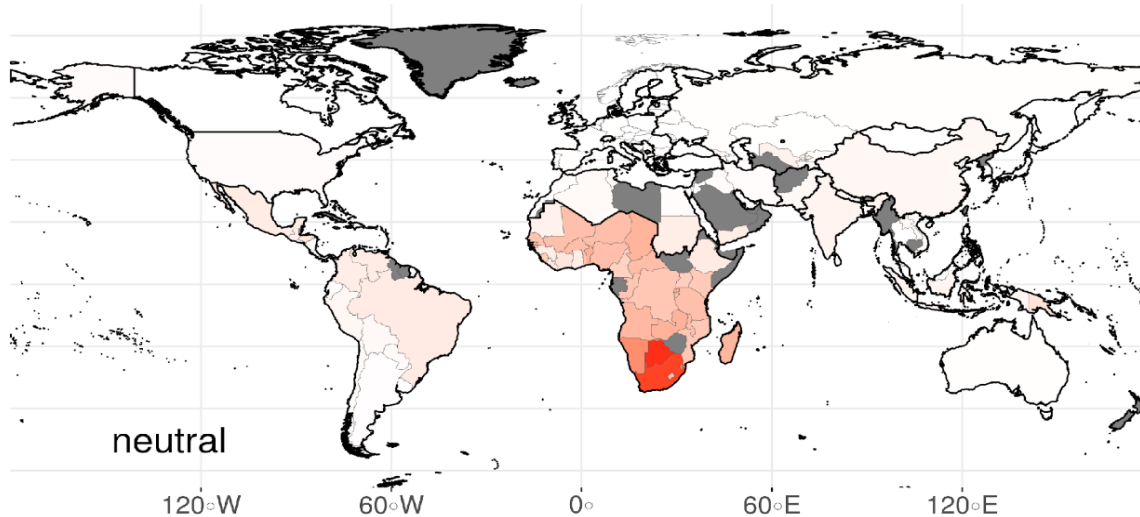


Effect of climate policies (no redistribution)



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Ambitious mitigation scenario (1.5°C):

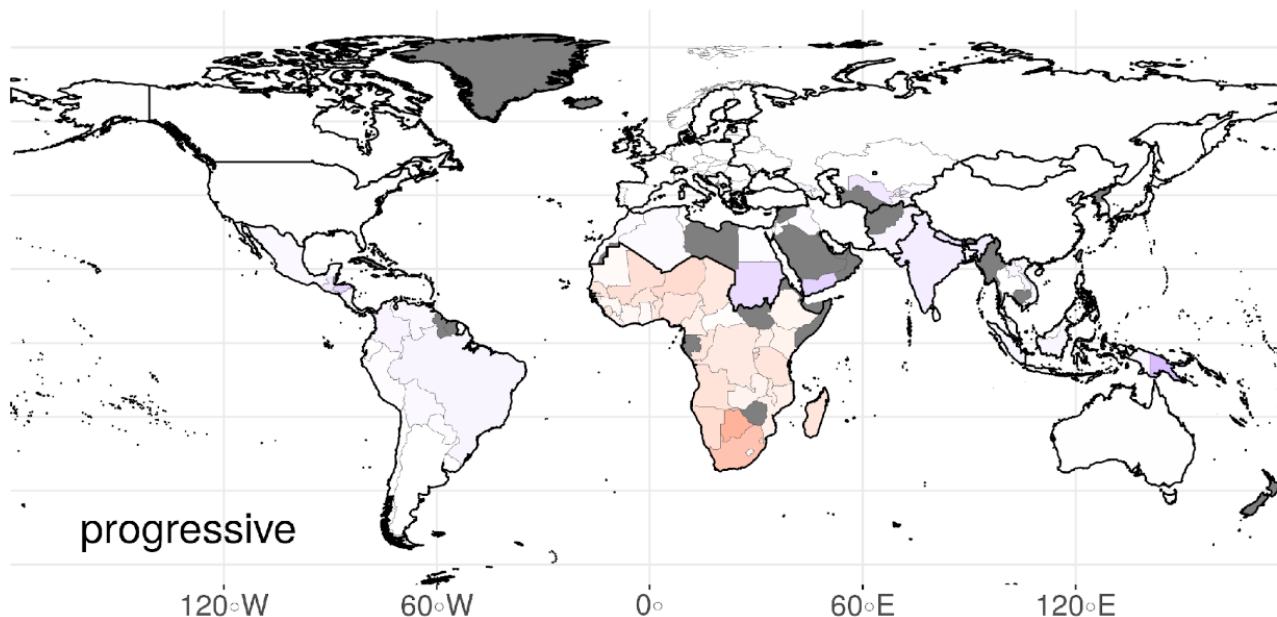
→ **global poverty increased by 50 million people in 2030 (largest effect in SSA)**

Effect of climate policies & national redistribution

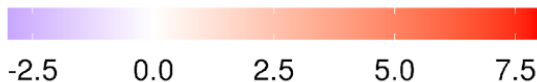


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change in poverty rate [percentage points]



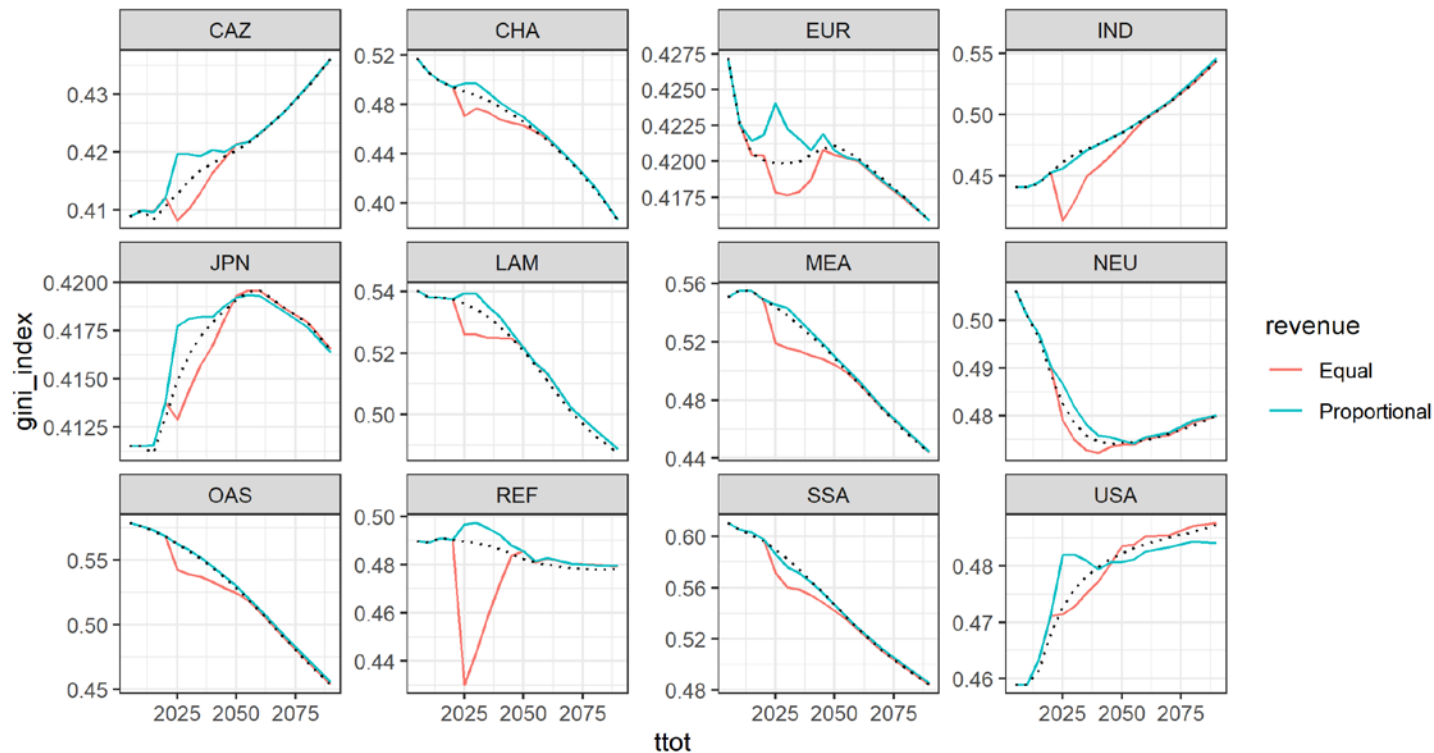
Ambitious mitigation scenario (1.5°C):

→ equal per capita redistribution of *national* revenues

→ **effect largely compensated**, global poverty similar to reference case

→ **residual poverty increase remains in SSA**

Regional Gini projections

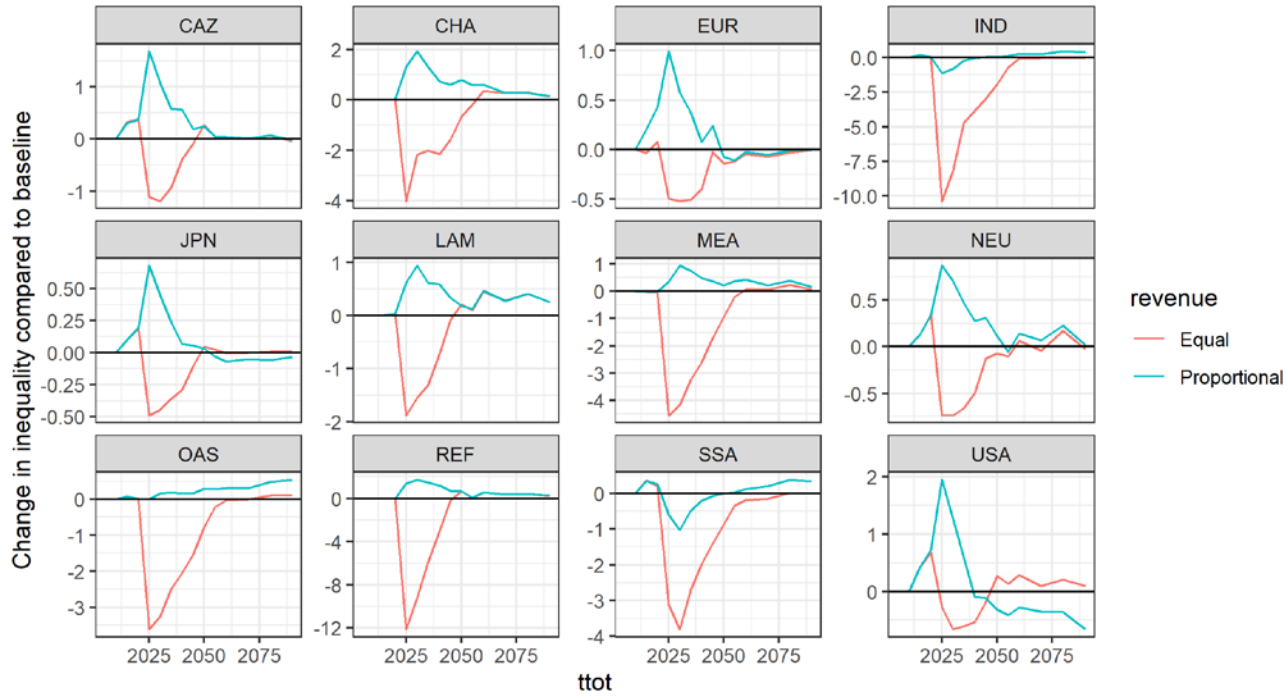




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Regional Gini projections



Balance between:

- Direct effect: high energy costs, high income (US, Europe...)
- Revenue: residual emissions generating revenues.

Conclusion

- Projection of future inequality and poverty.
 - How is it affected by climate policy?
 - Extensions: other climate target, international transfers, SSPs, ...
- **Direct negative effect** on inequality and poverty.
- Effect on inequality **compensated by equal per capita revenue redistribution.**
- However, **not enough to compensate poor people in Sub-Saharan Africa:**
 - Lower growth + food prices
 - Need for additional policy/transfers.

Acknowledgements

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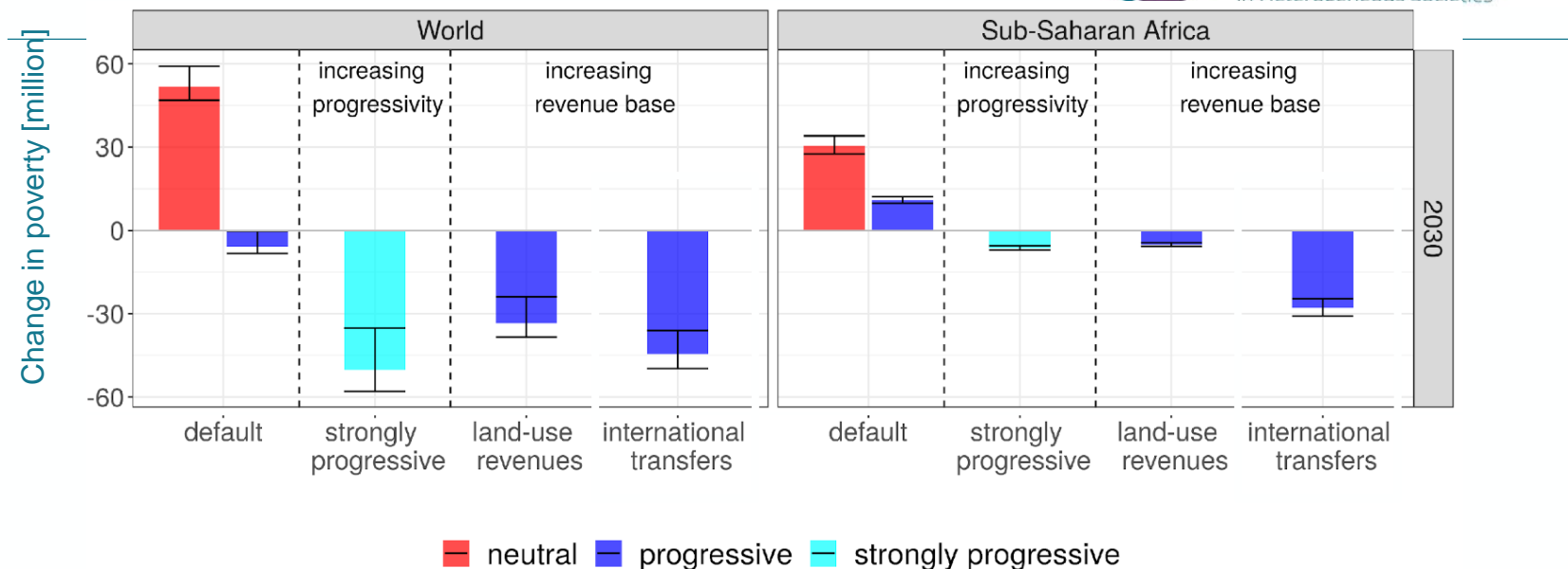


How to generate poverty co-benefits of mitigation



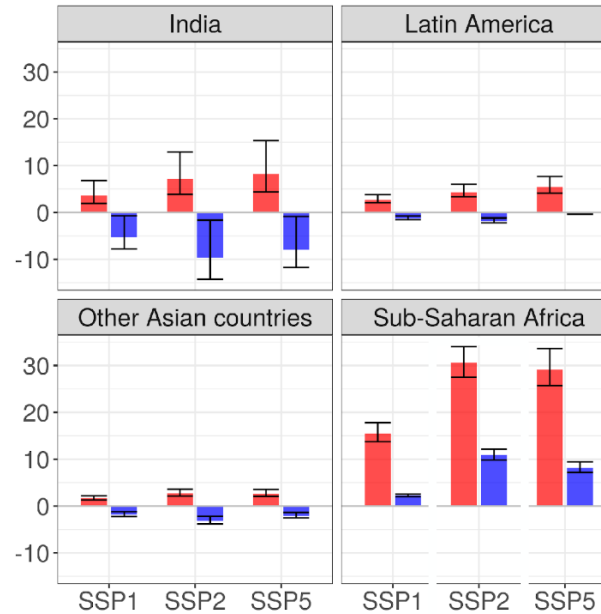
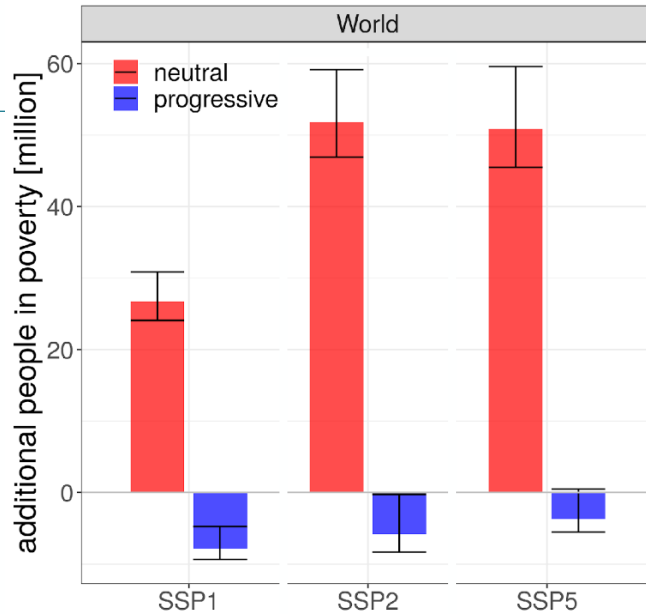
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**International climate finance (stylized scheme) + progressive redistribution
=> net reduction of poverty headcount**

Effect of mitigation on poverty: regions & SSPs



Impacts and Policies
Societies

- All regions except for SSA can compensate **poverty side effect** from **domestic revenues**.
(Robust over different socio-economic assumptions)

Motivation

- Climate policy can affect households income :



Growth



Energy prices



Food prices

- Climate policies also generate revenues that can be redistributed

