



# CLIMATE POLICY: SCENARIOS BEHIND PARIS AND 2030

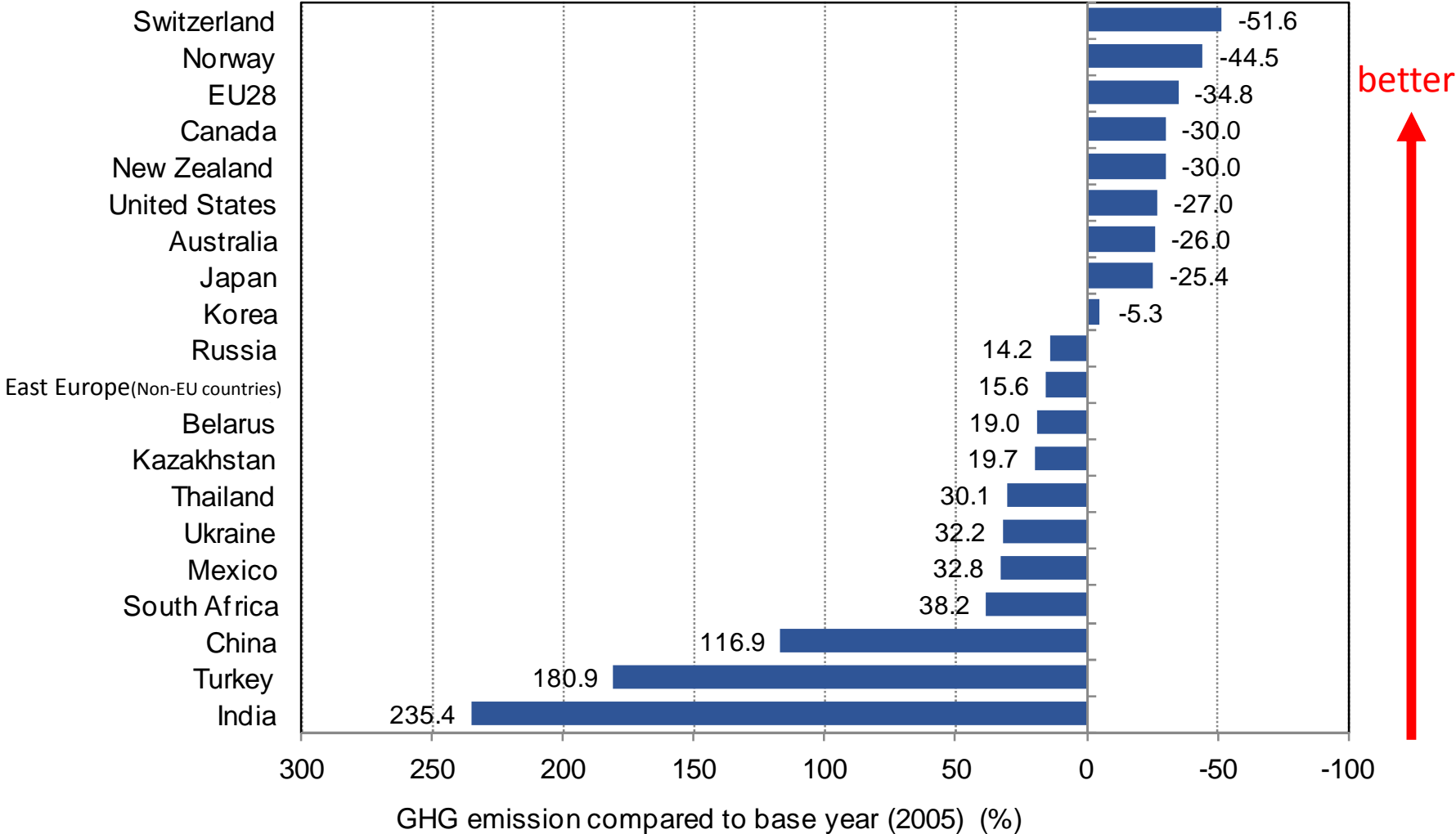
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# The Paris agreement

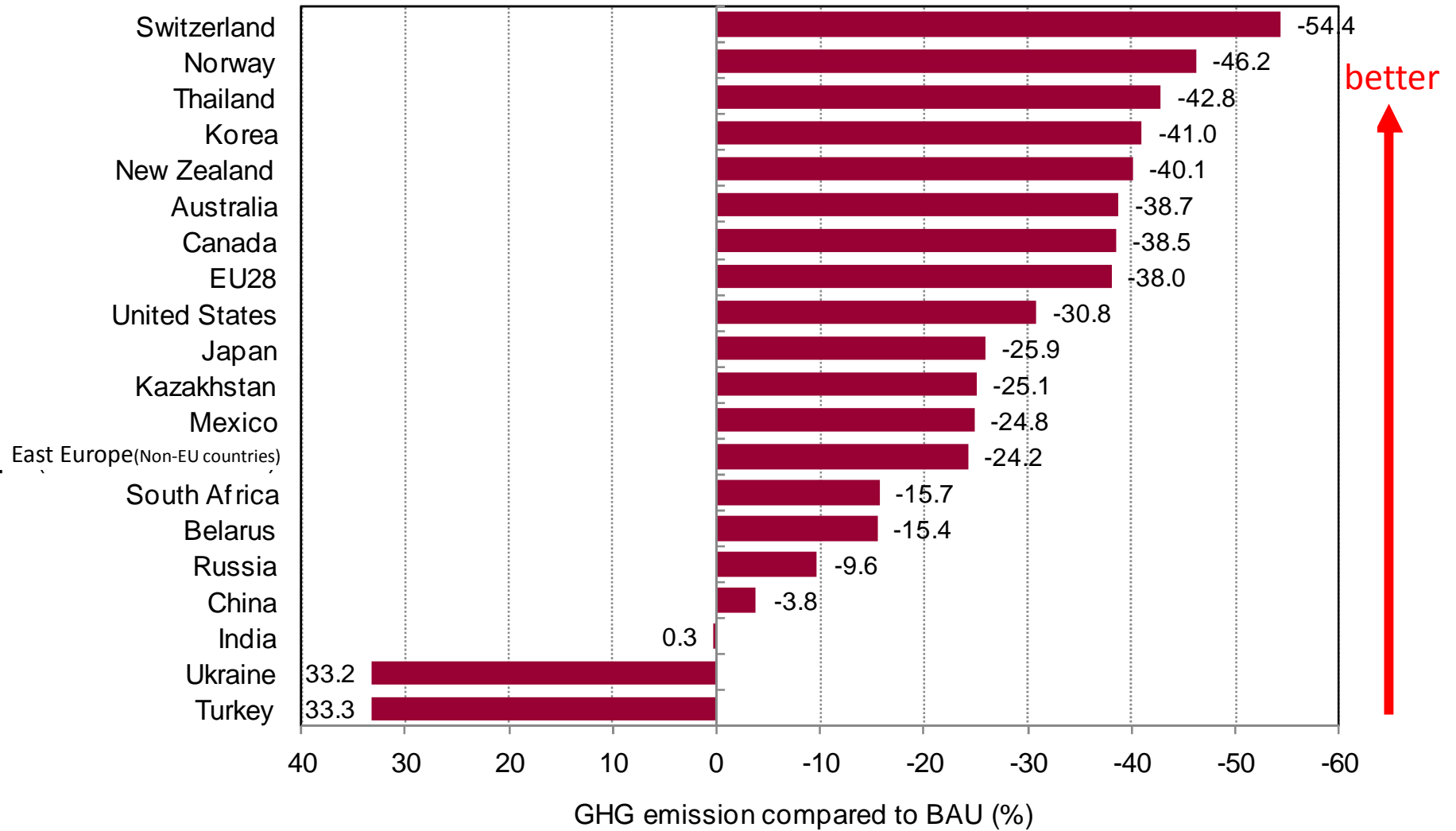
- Globally, INDCs constitute a turning point in climate policy, even though not yet on the right pathway to achieve the 2°C target
- Many world regions are on the right pathway, particularly OECD countries. Important steps forward in many emerging economies
- INDCs contain some degree of fairness: emission reductions increase with per capita income

# Emission reductions wrt 2005



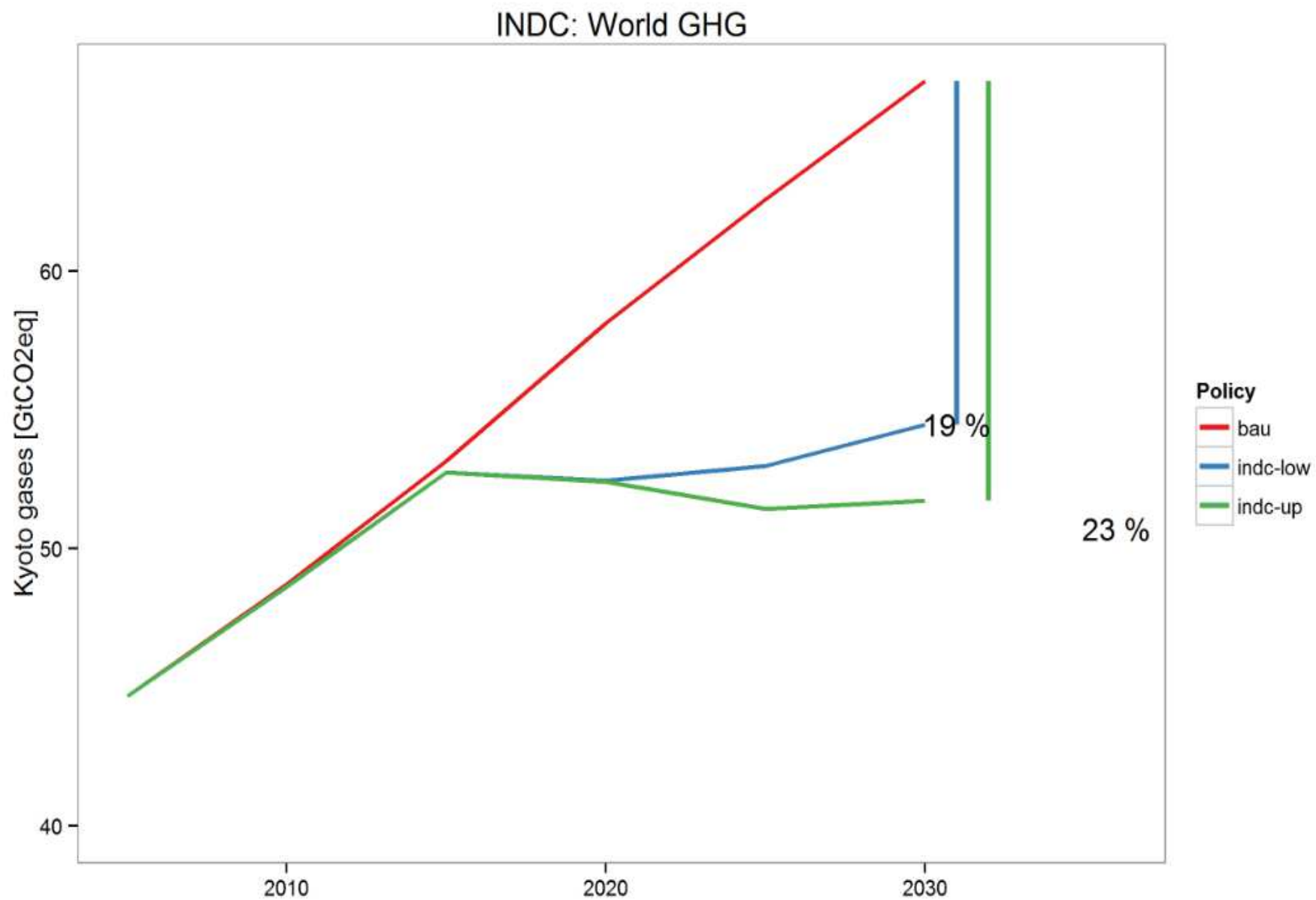
\* Average values are shown for countries that submitted their INDC with upper and lower values

# Emissions reduction wrt BAU

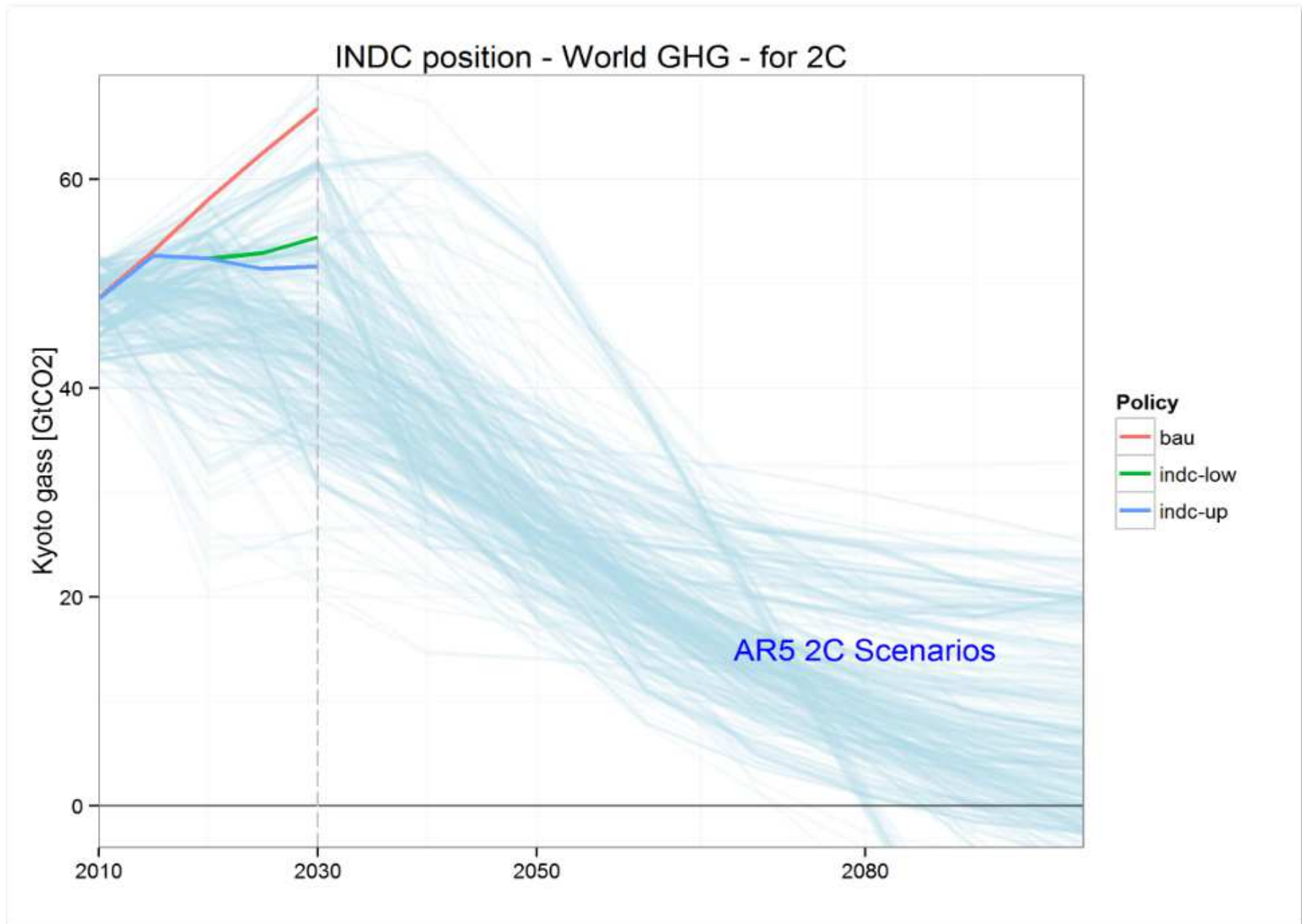


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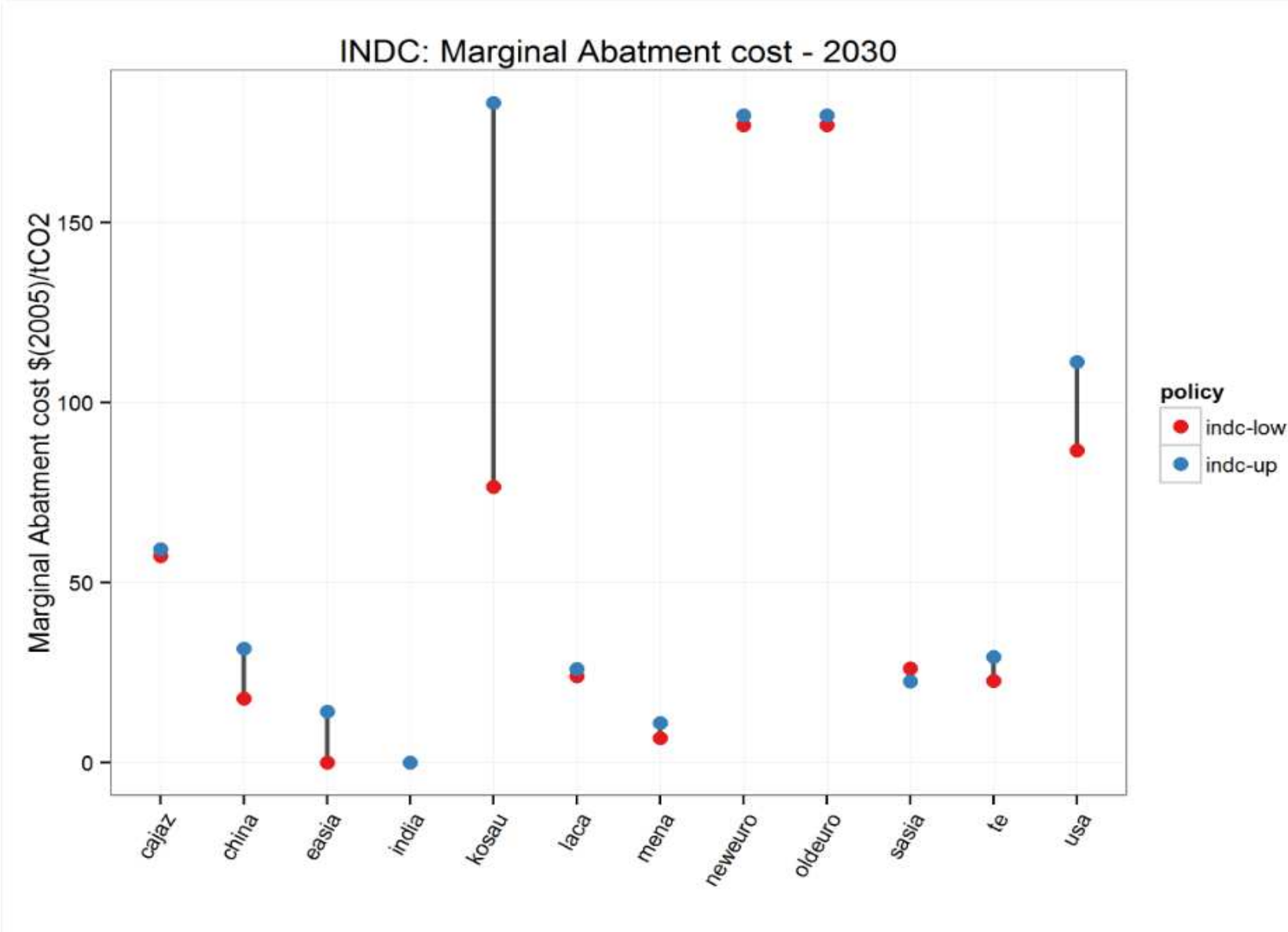
# GLOBAL GHG EMISSION REDUCTIONS



# CONSISTENCY WITH THE 2°C TRAJECTORY



# MARGINAL ABATEMENT COSTS IN 2030: EFFICIENCY GAINS ARE FEASIBLE



# INDCs are inefficient

High degree of inefficiency of INDCs calls for **pricing carbon**:

- Only domestically, possibly through a reference price
- Internationally, via linked trading schemes
- Internationally, through a global carbon tax



# What reference price for carbon?

The answer depends on:

- Technology availability
- Timing of actions
- Architecture of the agreement
- Distributional implications

## Data sources

IPCC WGIII AR5 data base, publicly available at

<https://secure.iiasa.ac.at/webapps/ene/AR5DB/dsd?Action=htmlpage&page=about>

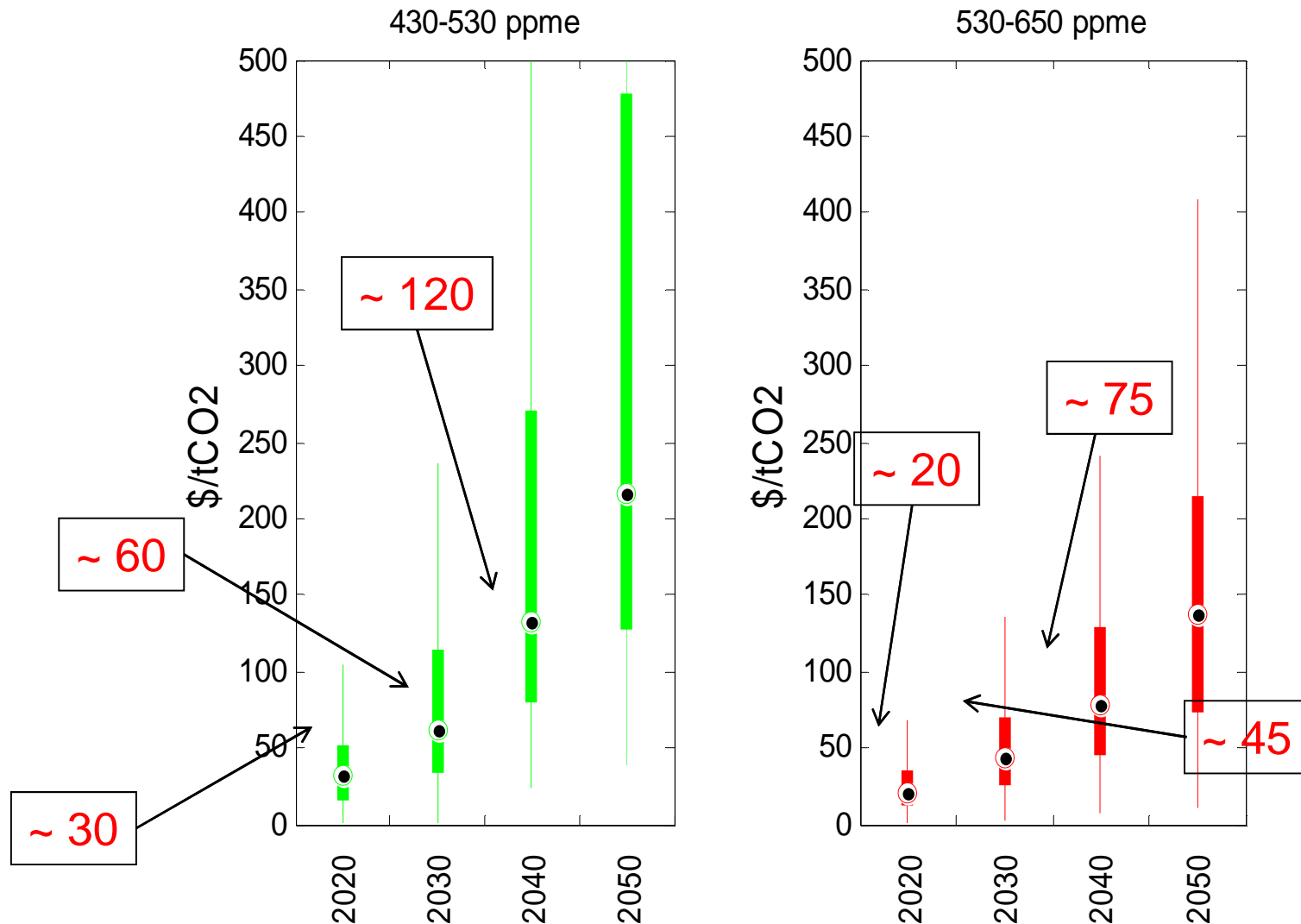
- 15 IAMs
- 1000 scenarios, spanning different climate targets and different policy architectures, and technological availability

LIMITS MIP (Tavoni et. al, Nature Climate 2015)

- 6 IAMs
- 2 non cooperative scenarios with different pledges (mimicking INDCs)
- 2 fully cooperative scenarios (450 and 500 ppm eq)
- 3 burden sharing schemes (tax, per capita convergence, equal costs)

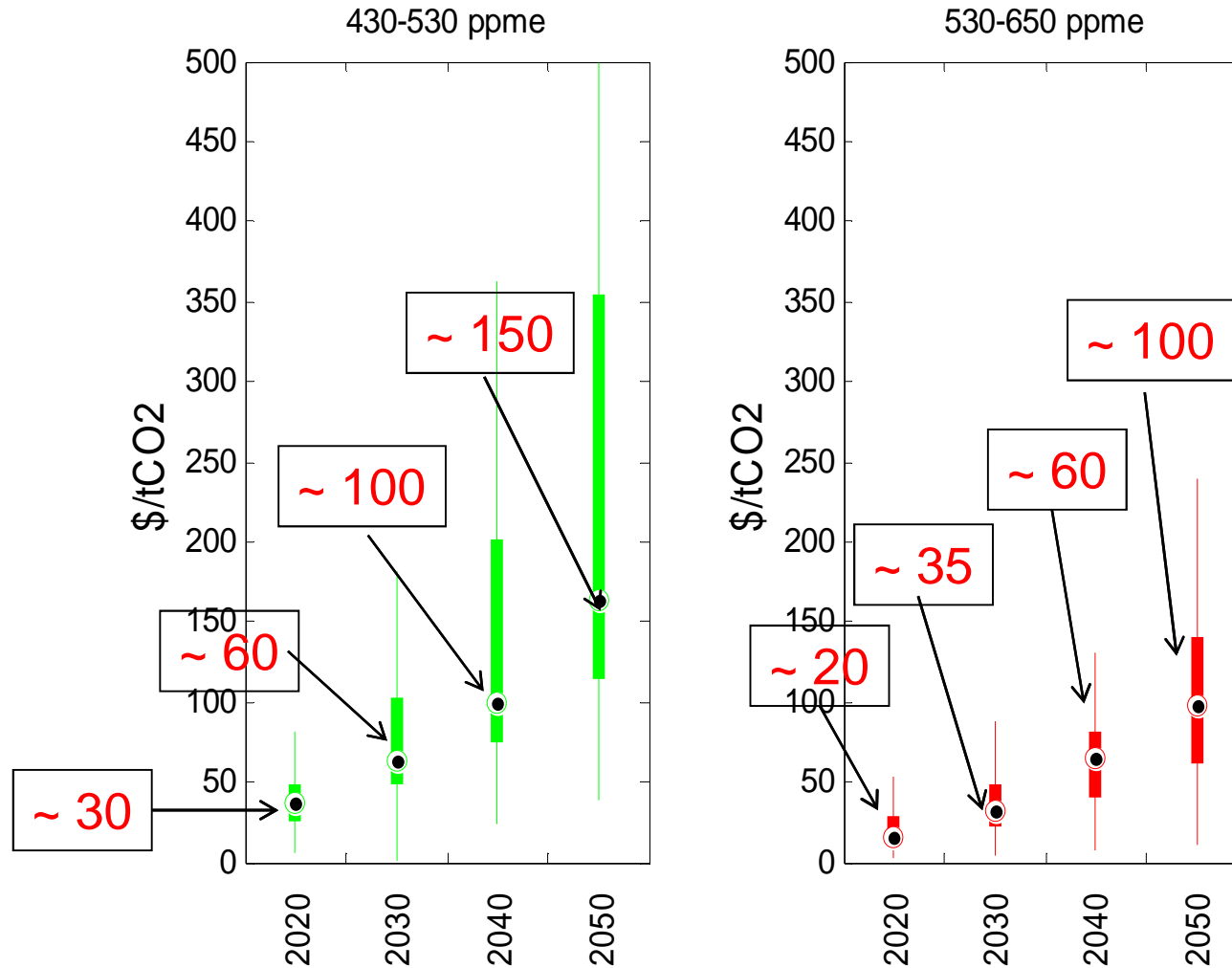
All data publicly available

# Global carbon prices for different climate objectives

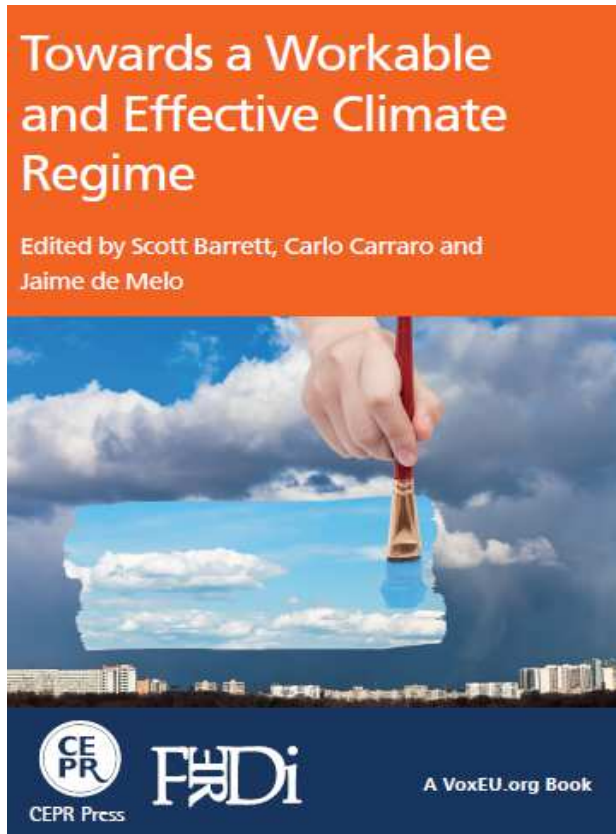


Boxplots of model results: the central mark is the median, the edges of the box are the 25th and 75th percentiles, the whiskers extend to approx 5-95%

# Global carbon prices: first best scenarios



Boxplots of model results: the central mark is the median, the edges of the box are the 25th and 75th percentiles, the whiskers extend to approx 5-95%



**Thank you !**  
**[www.carlocarraro.org](http://www.carlocarraro.org)**