Inequalities and carbon pricing

Marc Fleurbaey

A tension (the Green New Deal dilemma)

- Priority for the worse-off vs. caring for the environment
- The two principles clash when
  - the future is richer
  - environmental policy benefits the future

- Reducing the tension:
  - inequalities in the future
  - fair burden sharing now
  - co-benefits

Inequality, climate impacts on the future poor, and carbon prices

Francis Dennig[a,1], Mark B. Budolfson[a], Marc Fleurbaey[a], Asher Siebert[b], and Robert H. Socolow[c]

[a]Woodrow Wilson School of Public and International Affairs-University Center for Human Values, Princeton University, Princeton, NJ 08
Environmental Institute (PEI), Princeton University, Princeton, NJ 08544; and [c]Mechanical and Aerospace Engineering-PEI, Princeton Uni
NJ 08544

Edited by Kenneth J. Arrow, Stanford University, Stanford, CA, and approved November 04, 2015 (received for review July 19, 2015)

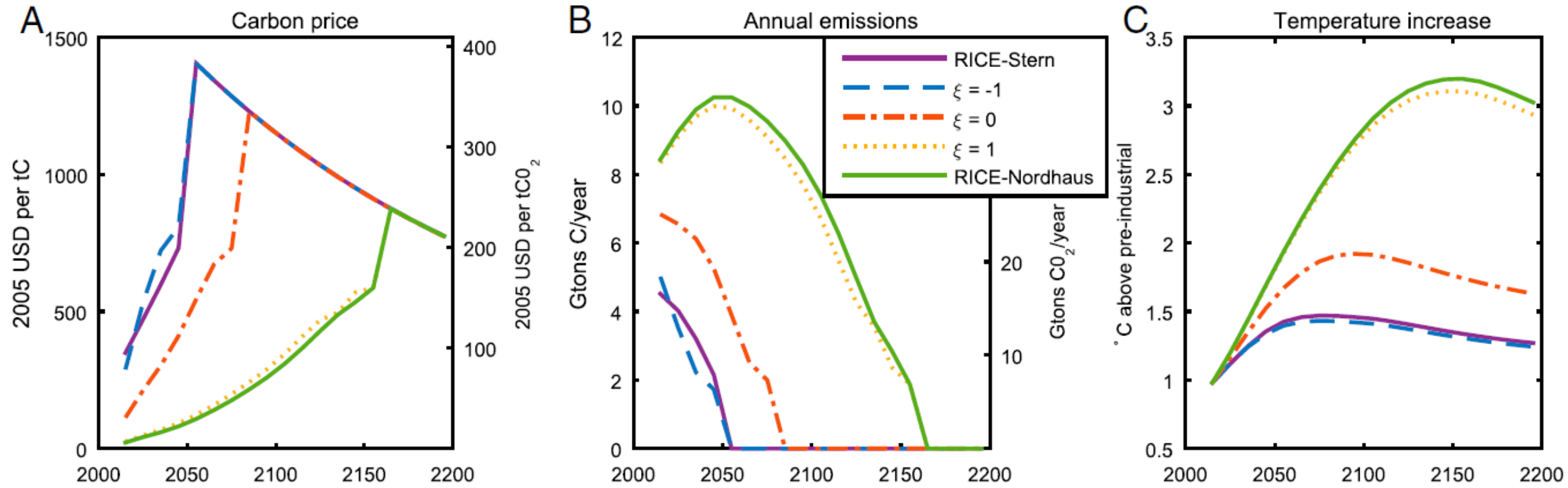
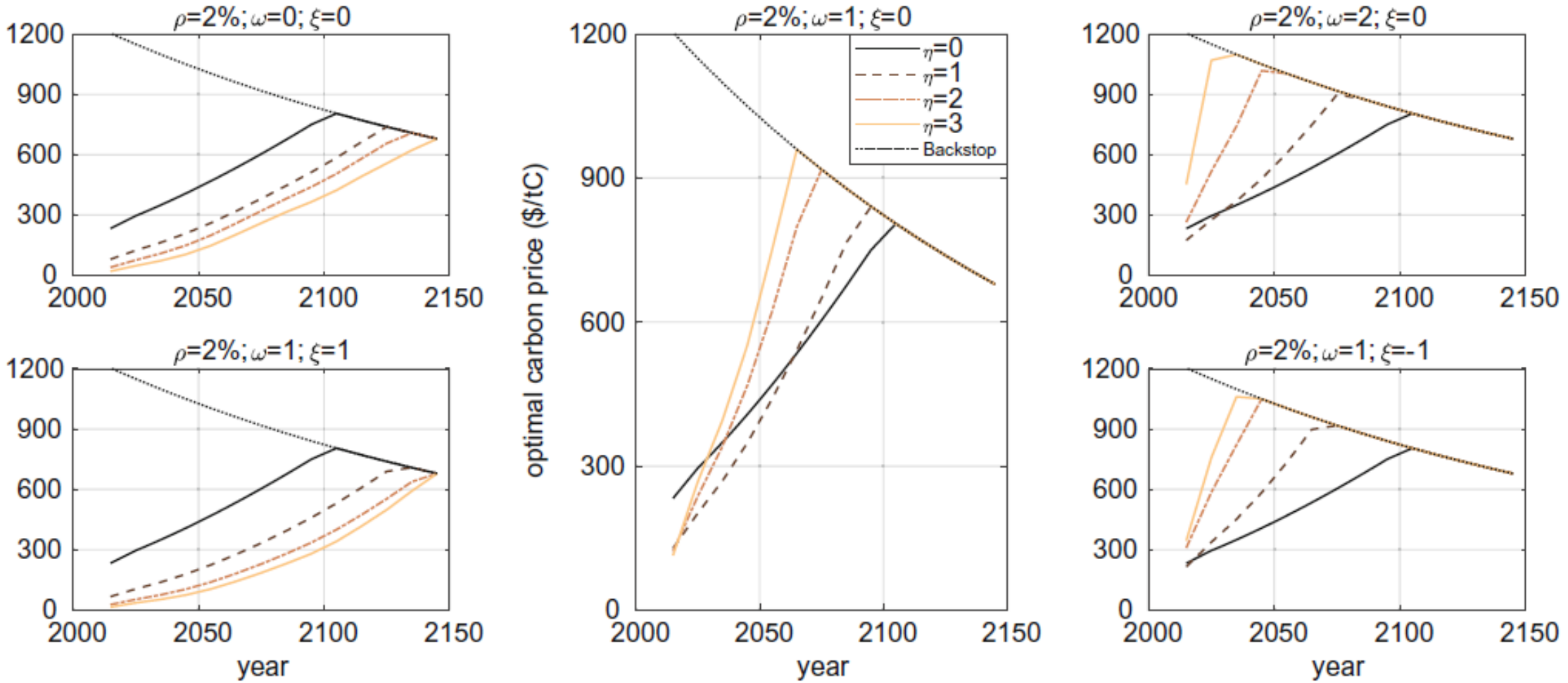


Fig. 1. The three panels plot model outcomes in NICE for different values of the income elasticity of damage: $\xi = 1, 0,$ and -1. Also shown are the optimal policies in our implementation of RICE for the (different) specific assumptions about discounting endorsed by Nordhaus vs. Stern. RICE-Nordhaus and $\xi = 1$ are similar, as are RICE-Stern and $\xi = -1$. (*A*) Optimal policy (carbon price trajectories). The descending line eventually joined by all price trajectories is the assumed trajectory of the maximum of the regional backstop prices. (*B*) The total emission rates for these policies. (*C*) The corresponding atmospheric temperatures.

Climatic Change (2017) 145:481–494
https://doi.org/10.1007/s10584-017-2094-x

The comparative importance for optimal climate policy of discounting, inequalities and catastrophes

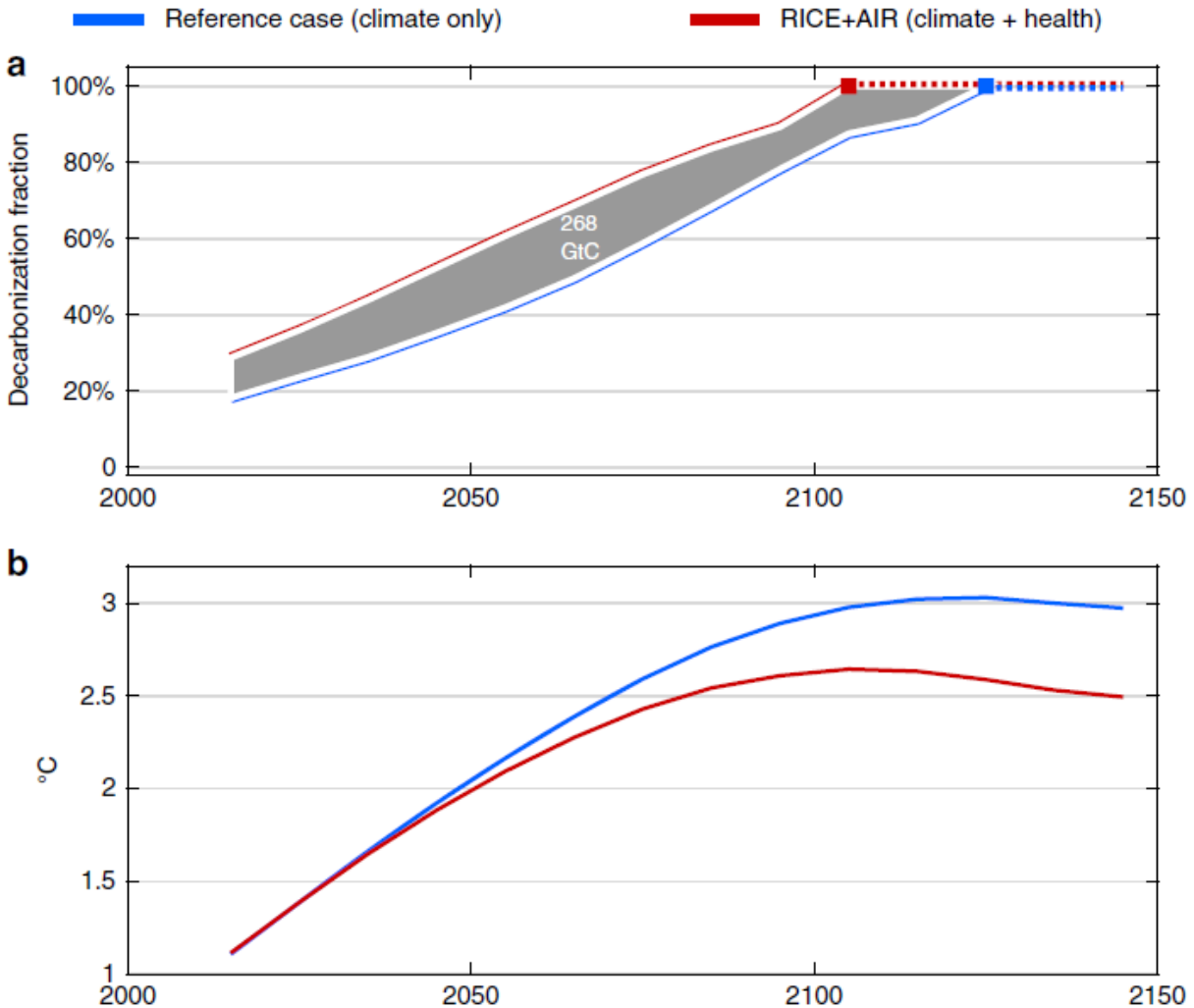
Mark Budolfson [1] · Francis Dennig [2] · Marc Fleurbaey [3] · Asher Siebert [4] · Robert H. Socolow [5]

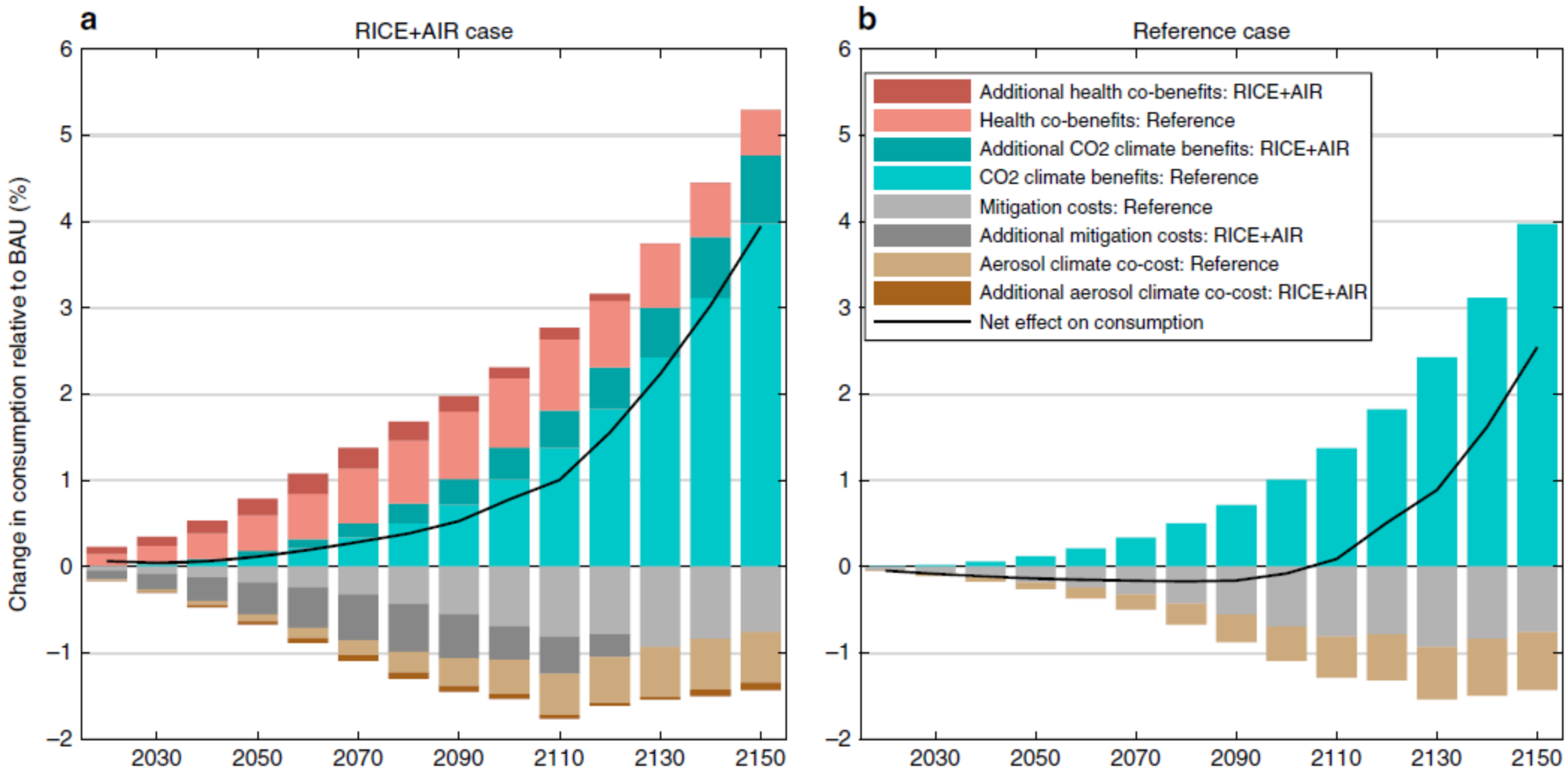


nature COMMUNICATIONS

The impact of human health co-benefits on evaluations of global climate policy

Noah Scovronick[1,2,17], Mark Budolfson[3,4,17], Francis Dennig[5,6,17], Frank Errickson[7,17], Marc Fleurbaey[2,8], Wei Peng[9], Robert H. Socolow[10], Dean Spears[11,12,13,14] & Fabian Wagner[2,15,16,17]

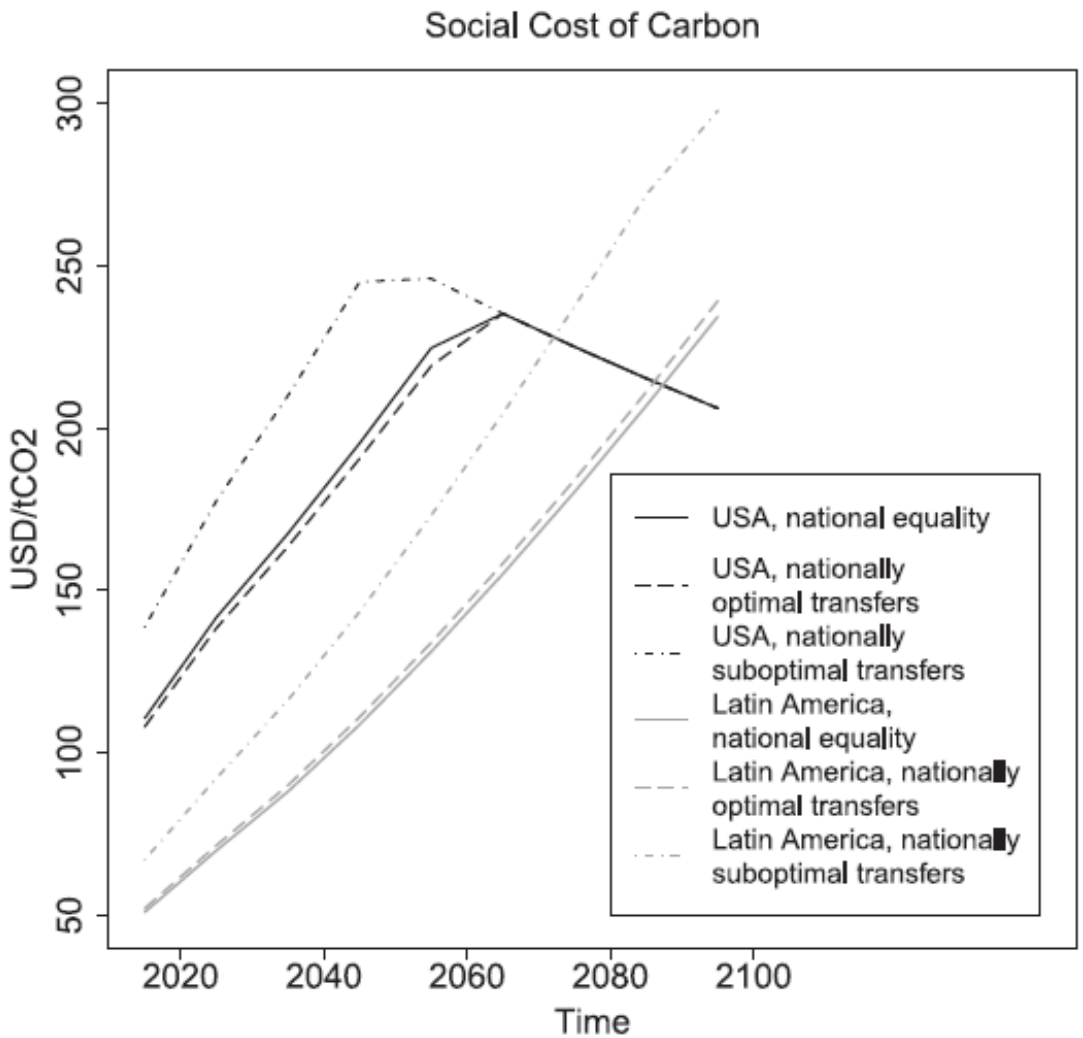



a
RICE+AIR case
b
Reference case
Change in consumption relative to BAU (%)
6
5
4
3
2
1
0
−1
−2
2030
2050
2070
2090
2110
2130
2150
Additional health co-benefits: RICE+AIR
Health co-benefits: Reference
Additional CO2 climate benefits: RICE+AIR
CO2 climate benefits: Reference
Mitigation costs: Reference
Additional mitigation costs: RICE+AIR
Aerosol climate co-cost: Reference
Additional aerosol climate co-cost: RICE+AIR
Net effect on consumption

Journal of Environmental Economics and Management 107 (2021) 102450

The social cost of carbon and inequality: When local redistribution shapes global carbon prices

Ulrike Kornek [a,b,*], David Klenert [c], Ottmar Edenhofer [a,d,e], Marc Fleurbaey [f]



nature climate change

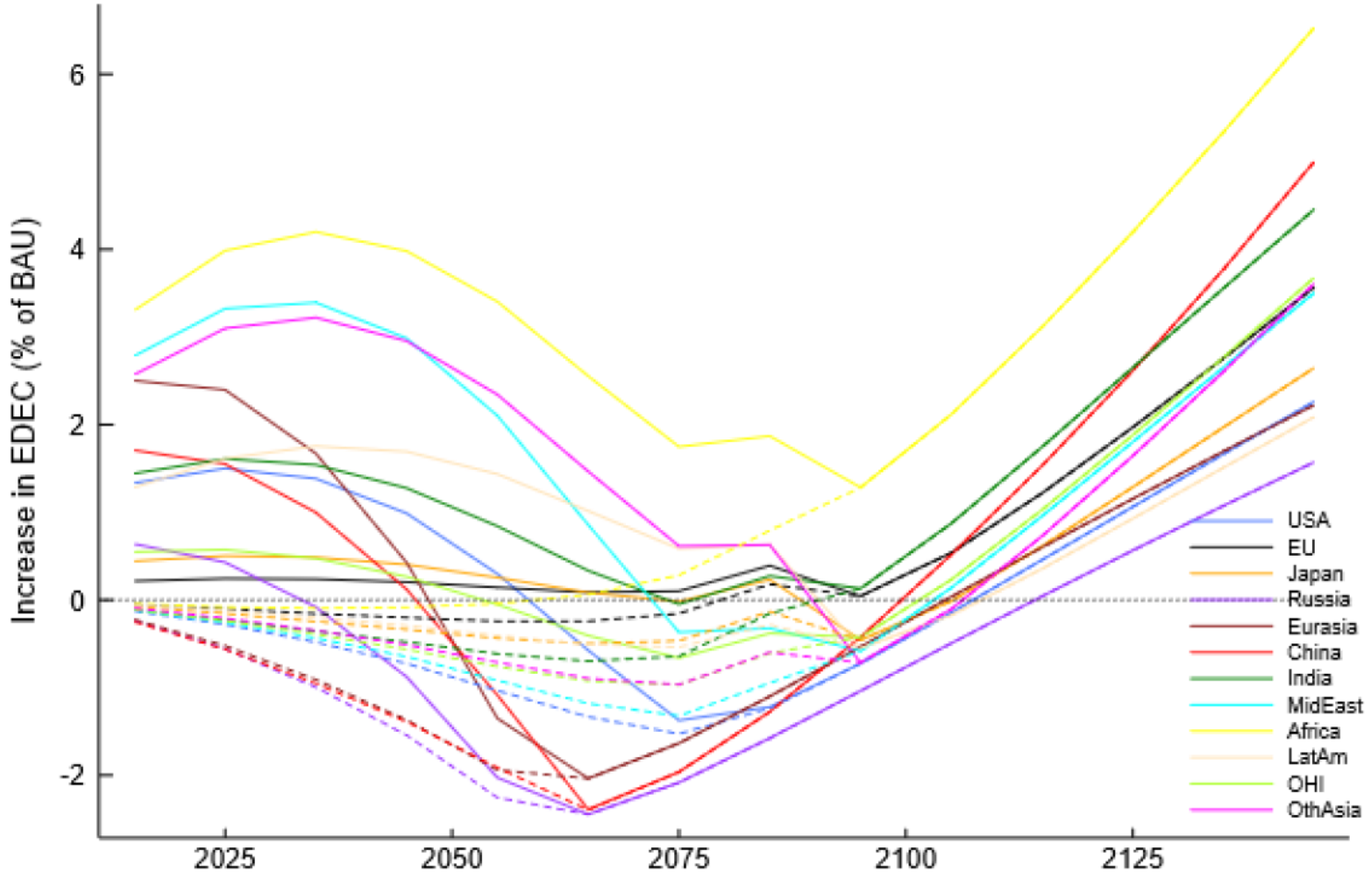
ANALYSIS

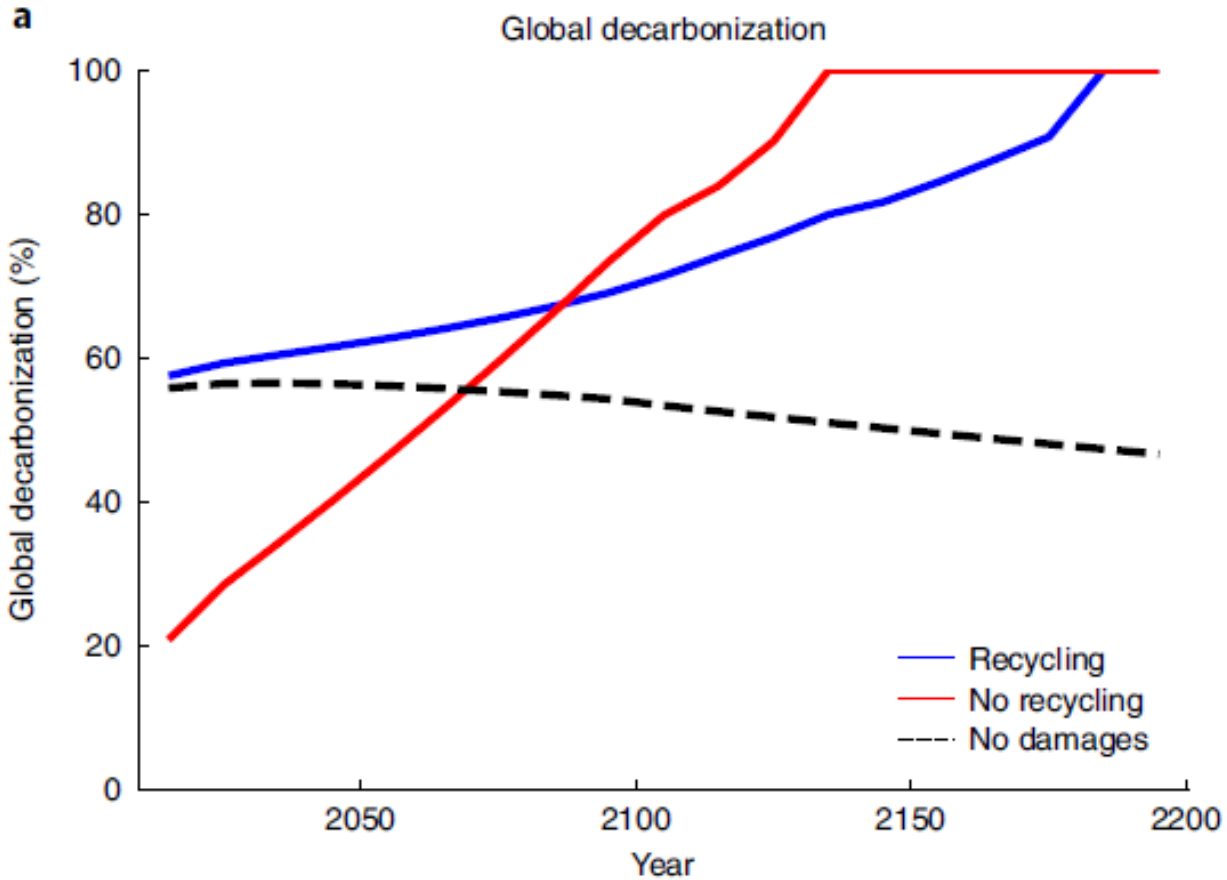
https://doi.org/10.1038/s41558-021-01217-0

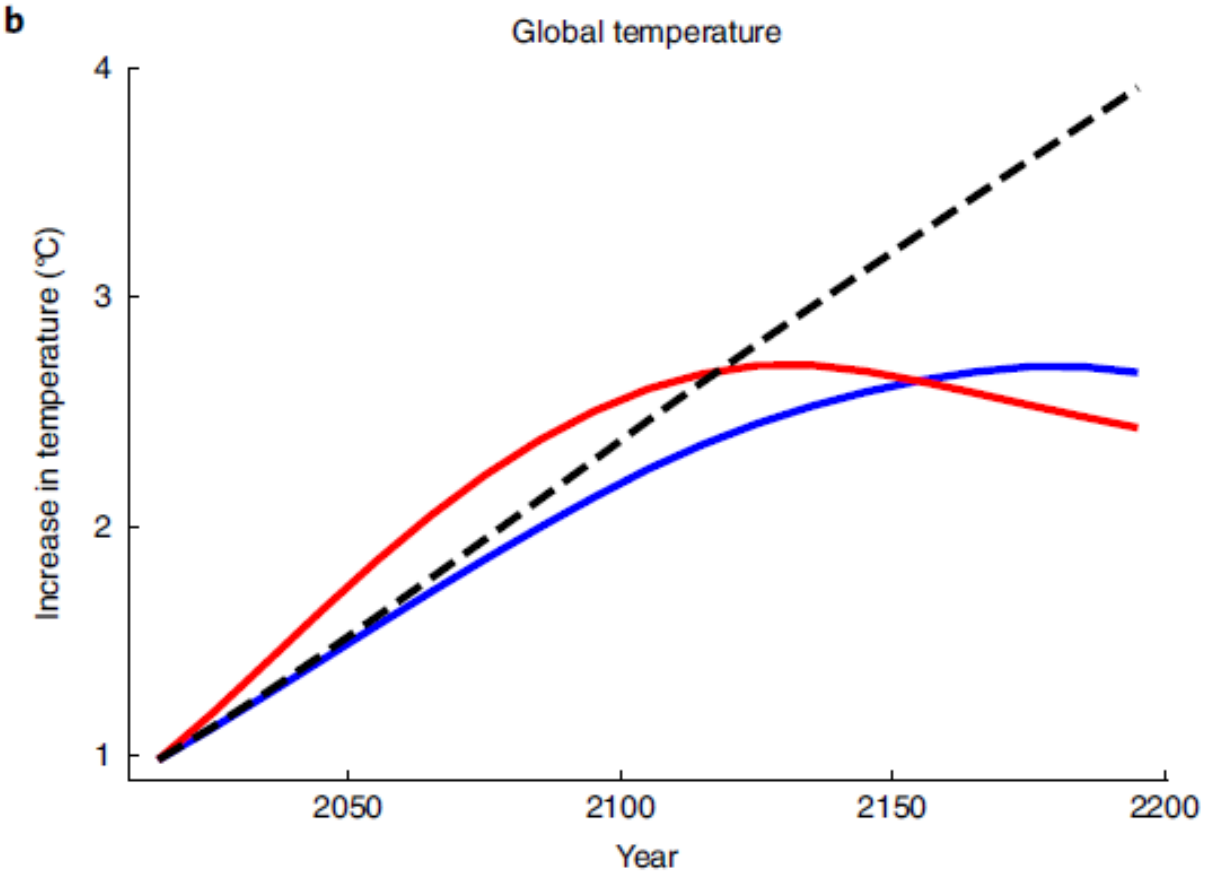
Check for updates

Climate action with revenue recycling has benefits for poverty, inequality and well-being

Mark Budolfson[1] ✉, Francis Dennig[2], Frank Errickson[3,4], Simon Feindt[5,6], Maddalena Ferranna[7], Marc Fleurbaey[8], David Klenert[9], Ulrike Kornek[5,10], Kevin Kuruc[11], Aurélie Méjean[12], Wei Peng[13], Noah Scovronick[14], Dean Spears[15], Fabian Wagner[16] and Stéphane Zuber[17]



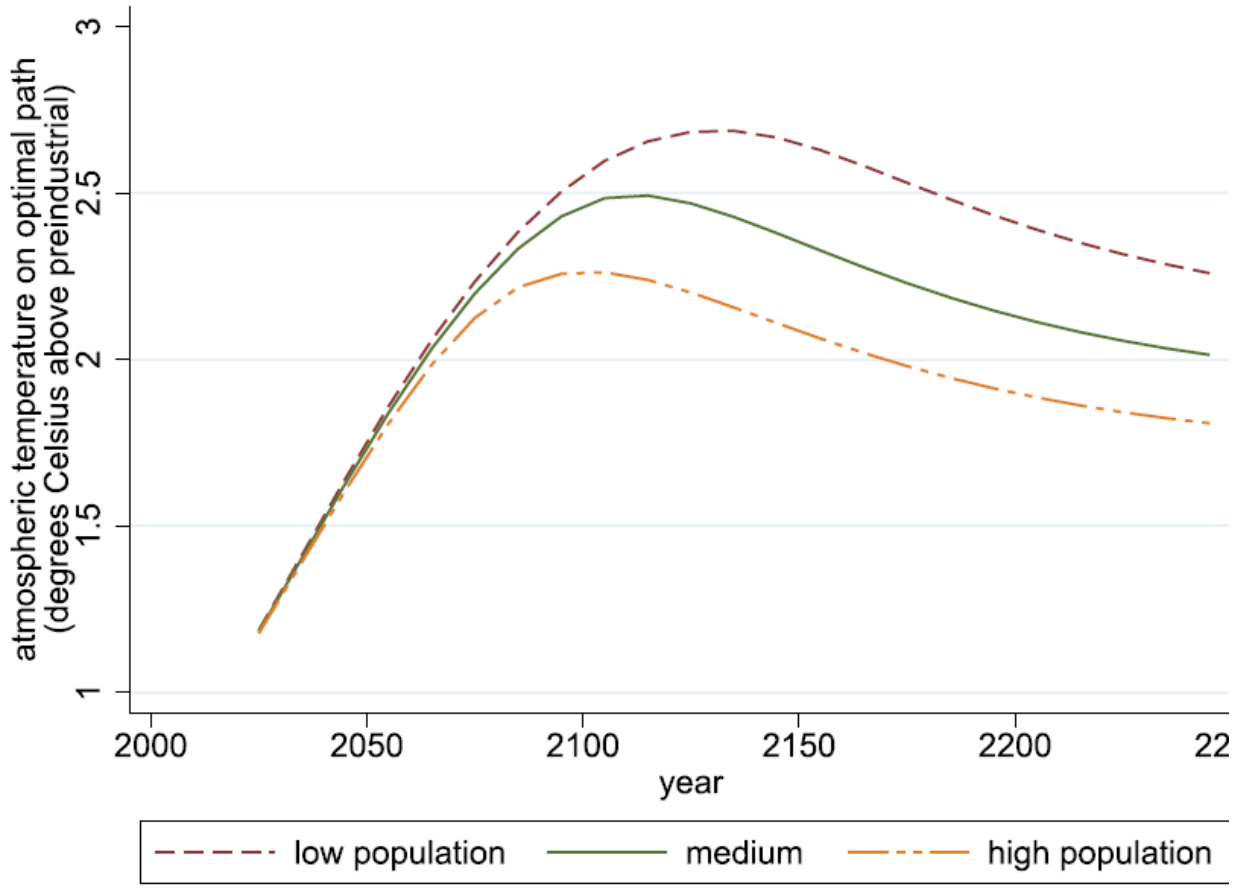

a
Global decarbonization
Global decarbonization (%)
100
80
60
40
20
0
2050
2100
2150
2200
Year
Recycling
No recycling
No damages

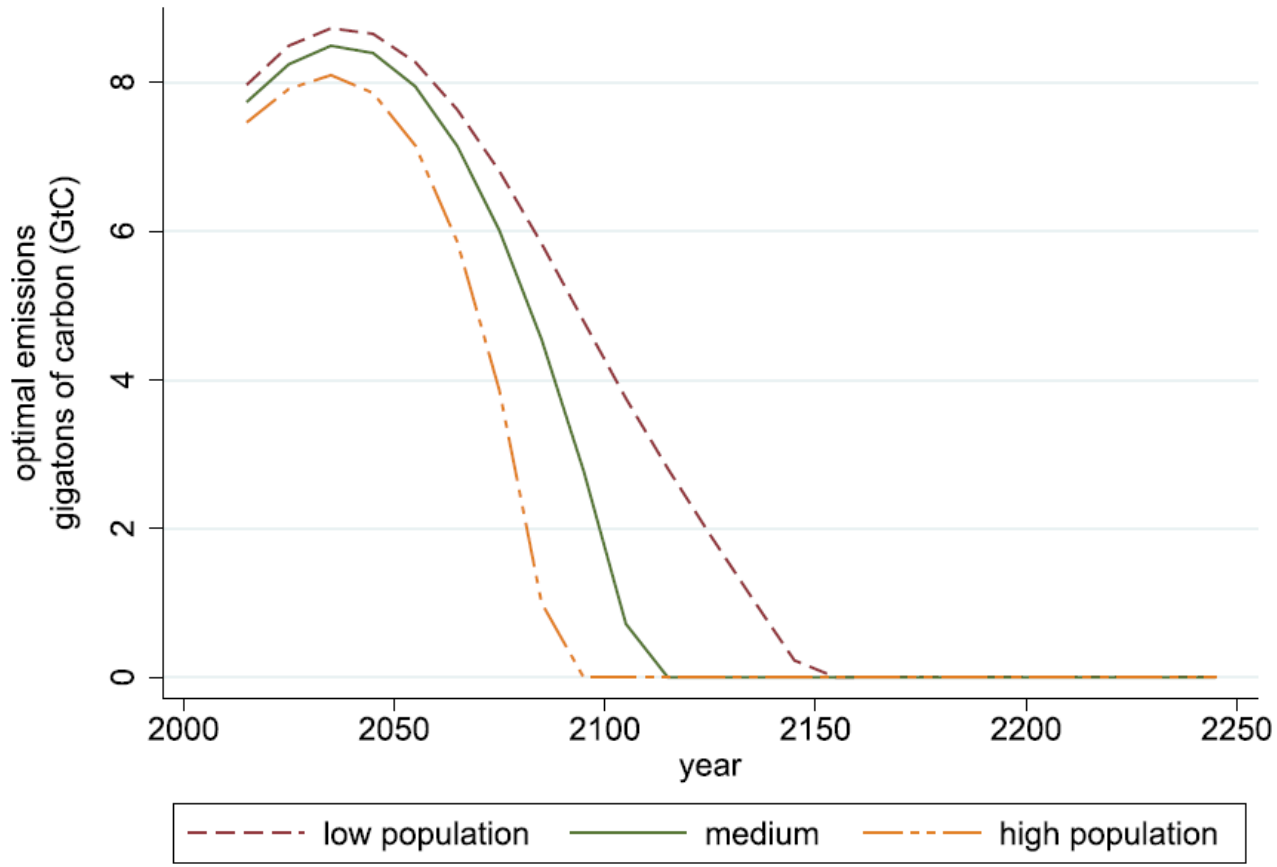

b
Global temperature
Increase in temperature (°C)
4
3
2
1
2050
2100
2150
2200
Year

The World Bank Economic Review, 33(1), 2019, 21–40

Optimal Climate Policy and the Future of World Economic Development

Mark Budolfson, Francis Dennig, Marc Fleurbaey, Noah Scovronick, Asher Siebert, Dean Spears, and Fabian Wagner





Climatic Change
https://doi.org/10.1007/s10584-020-02899-9

Catastrophic climate change, population ethics and intergenerational equity

Aurélie Méjean[1] · Antonin Pottier[2] · Marc Fleurbaey[3] · Stéphane Zuber[3]

	η									b (per $^\circ C$)
0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	
2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	$[10^{-2}; 10^{-1}]$
2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	10^{-3}
2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	10^{-4}
2°C	2°C	2°C	3°C	3°C	3°C	3°C	3°C	3°C	3°C	10^{-5}
2°C	2°C	3°C	3°C	3°C	3°C	3°C	3°C	3°C	3°C	$[8.10^{-6}; 9.10^{-6}]$
2°C	2°C	3°C	3°C	3°C	3°C	3°C	3°C	3°C	3°C	$[4.10^{-6}; 7.10^{-6}]$
2°C	2°C	3°C	3°C	3°C	3°C	3°C	3°C	3°C	3°C	3.10^{-6}
2°C	2°C	3°C	3°C	3°C	3°C	3°C	BAU	BAU	BAU	2.10^{-6}
2°C	2°C	3°C	3°C	3°C	BAU	BAU	BAU	BAU	BAU	10^{-6}
2°C	2°C	3°C	3°C	3°C	BAU	BAU	BAU	BAU	BAU	10^{-7}
2°C	2°C	3°C	3°C	3°C	BAU	BAU	BAU	BAU	BAU	0

(a) $\beta = 0$

η										b (per $^\circ C$)
0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	
2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	$[10^{-2}; 10^{-1}]$
2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	$[4.10^{-6}; 10^{-3}]$
2°C	2°C	3°C	3°C	2°C	2°C	2°C	2°C	2°C	2°C	3.10^{-6}
2°C	2°C	3°C	3°C	3°C	2°C	2°C	2°C	2°C	2°C	2.10^{-6}
2°C	2°C	3°C	3°C	3°C	2°C	2°C	2°C	2°C	2°C	10^{-6}
2°C	2°C	3°C	3°C	3°C	3 °C	3 °C	3°C	2°C	2°C	10^{-7}
2°C	2°C	3°C	3°C	3°C	BAU	BAU	BAU	BAU	BAU	0

(b) $\beta = 0.1$

η										b (per $^\circ C$)
0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	
2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	$[10^{-2}; 10^{-1}]$
2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	$[10^{-6}; 10^{-3}]$
2°C	2°C	3°C	3°C	2°C	2°C	2°C	2°C	2°C	2°C	10^{-7}
2°C	2°C	3°C	3°C	3°C	BAU	BAU	BAU	BAU	BAU	0

(c) $\beta = 1.0$

social outcome preferred due to higher consumption

social outcome preferred due to lower risk

social outcome preferred due to higher consumption and lower risk