

# Supplementary Material

## Sceptic priors and climate consensus

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## Tables

### Sensitivity analysis

Table SM1: TCR efficacies used in “MEA” I and II sensitivity runs

Forcing agent	Mean	95% C.I.
Aerosols	1.55	(1.05, 2.05)
GHGs	1.17	(1.07, 1.28)
Land use	3.82	(-2.16, 9.80)
Ozone	0.66	(0.34, 0.98)
Solar	1.68	(-1.27, 4.63)
Volcanic	0.61	(0.33, 0.89)

Notes: Adapted from Table S1 of Marvel et al. [2016]. Confidence intervals on the sample means are constructed from a t distribution with 4 degrees of freedom.

### Future temperatures

Table SM2: Covariate vectors for 2100 predictions

	RCP 2.6	RCP 4.5	RCP 6.0	RCP 8.5
$RF_{2100}$	2.626	4.281	5.522	8.340
CO <sub>2</sub> component	85%	83%	86%	78%
Solar component	7%	4%	3%	2%
$\overline{VOLC}$	0.017	0.017	0.017	0.017
$\overline{SOI}$	-0.079	-0.079	-0.079	-0.079
$\overline{AMO}$	-0.002	-0.002	-0.002	-0.002

Notes: Covariates are used to predict the global mean surface temperature anomaly in the year 2100. The Representative Concentration Pathways (RCPs) are a family of forcing scenarios developed for the IPCC Van Vuuren et al. [2011]. Each RCP has a core component of atmospheric CO<sub>2</sub> concentrations, measured in parts per million volume (ppmv). With regard to the covariates in the regression model, total radiative forcing ( $RF$ ) and volcanic aerosols ( $VOLC$ ) are measured in  $Wm^{-2}$ . The Southern Oscillation Index ( $SOI$ ) and Atlantic Multidecadal Oscillation ( $AMO$ ) are measured as scaled indices. Future values for  $RF$  are taken from the RCP database. For the rest, historical mean values are used.

## Figures

### Sensitivity analysis

Figs. SM1 – SM8 provide additional context and information related to the various sensitivity analyses undertaken in Section 5.2 of the main text. In each case, the figure caption references against the key listed in first column of Table 4. The figures themselves are directly comparable with Fig. 1 and the same general notes apply (dashed lines denote TCR priors, solid lines denote TCR posteriors, etc.) Note that in some cases the x-axis has been truncated to preserve this direct comparability, even though the posterior distributions may extend beyond the  $-1\text{ }^{\circ}\text{C}$  to  $3\text{ }^{\circ}\text{C}$  range.

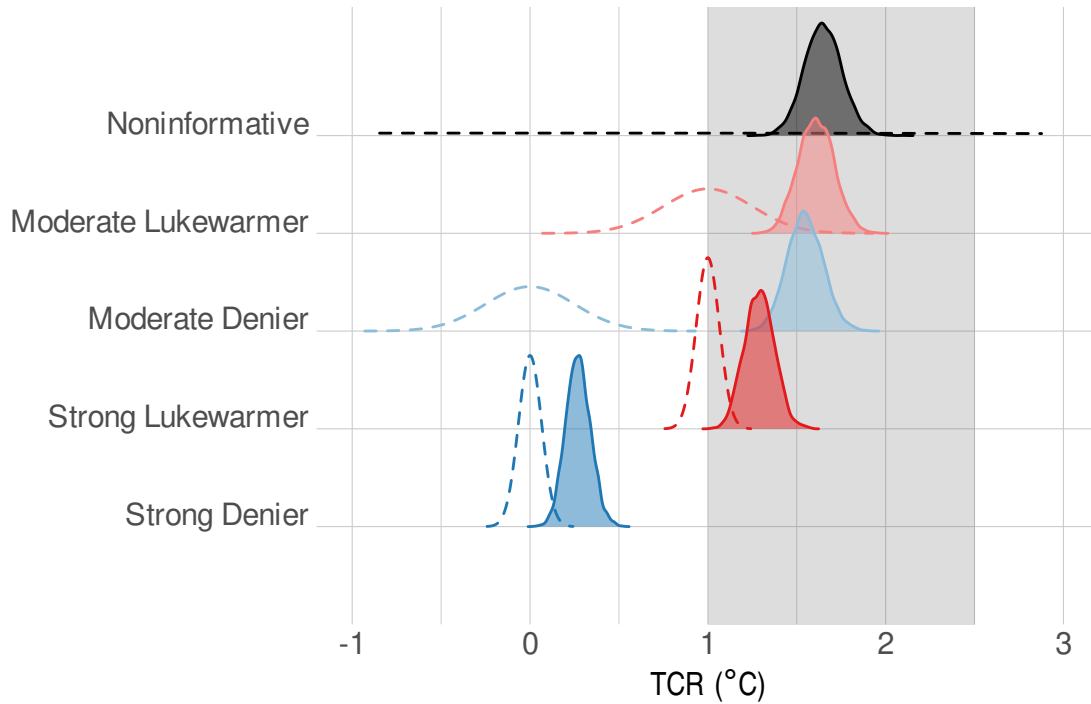


Figure SM1: TCR densities: "CW14" sensitivity run.

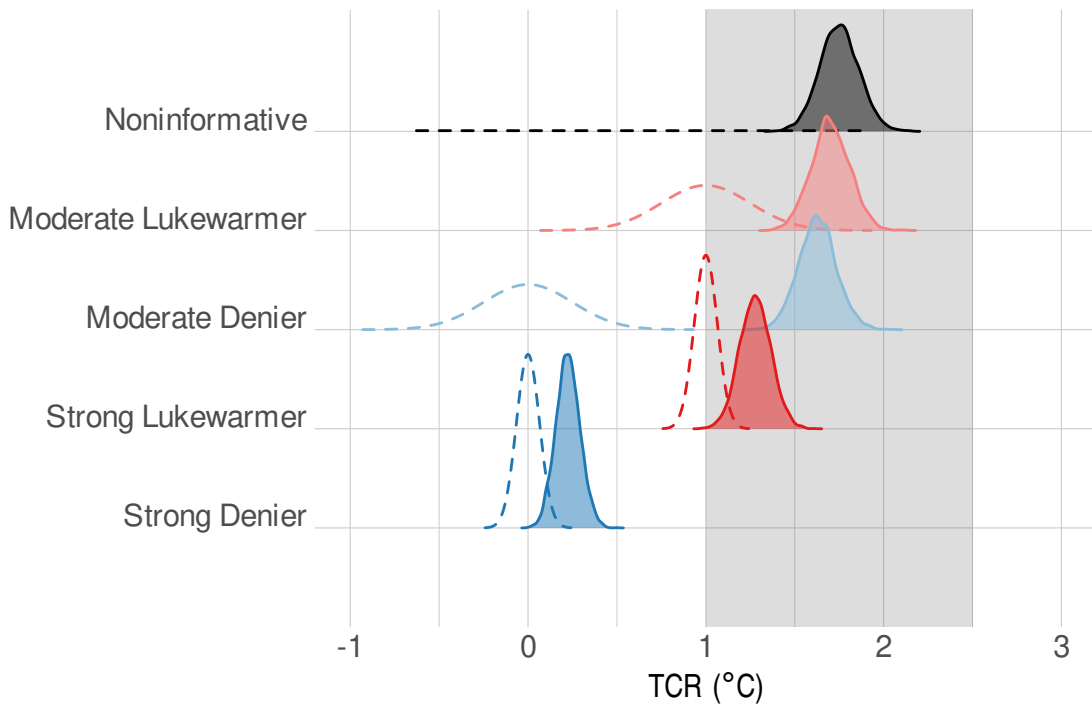


Figure SM2: TCR densities: "GISTEMP" sensitivity run.

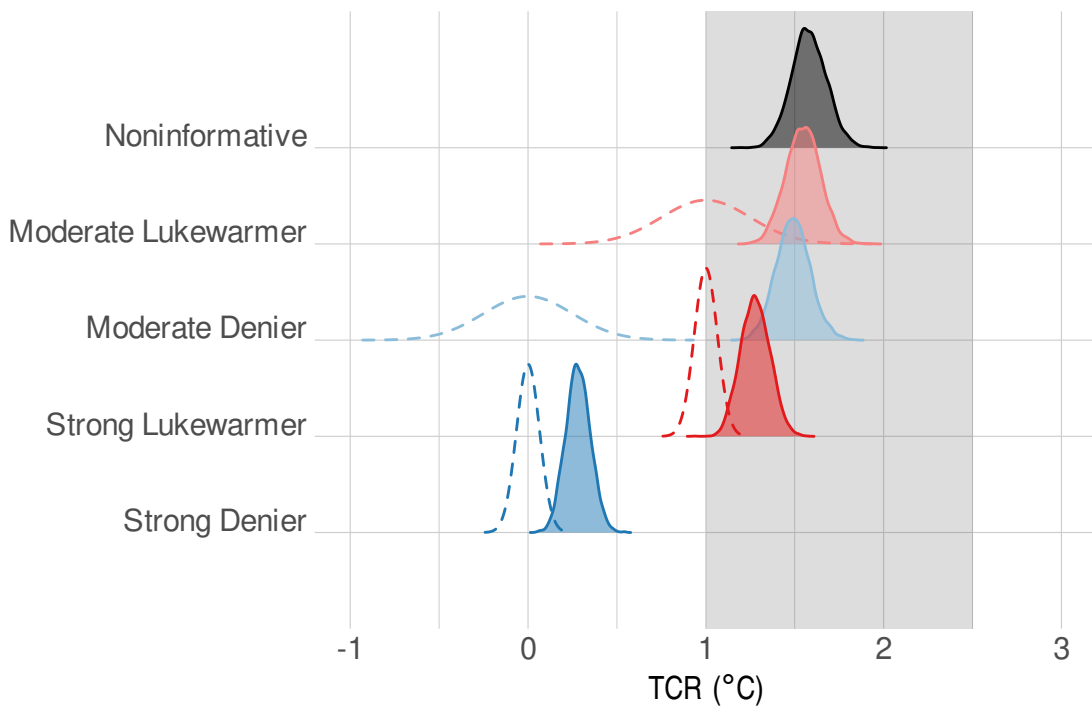


Figure SM3: TCR densities: "HadCRUT ME" sensitivity run.

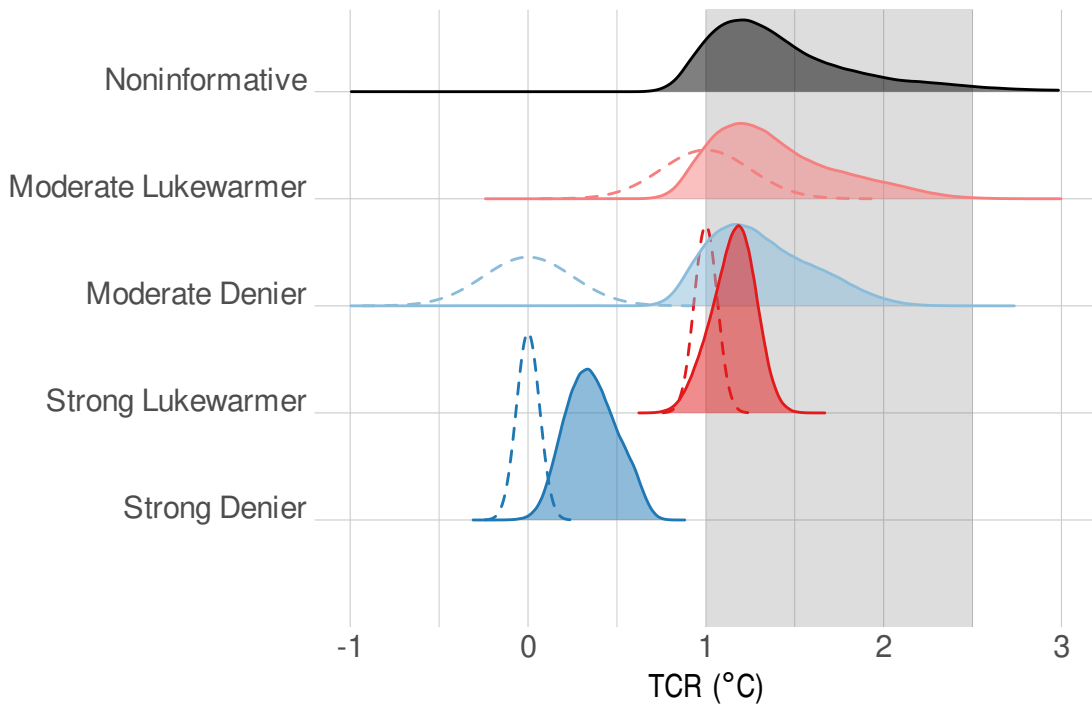


Figure SM4: TCR densities: "DF18" sensitivity run.

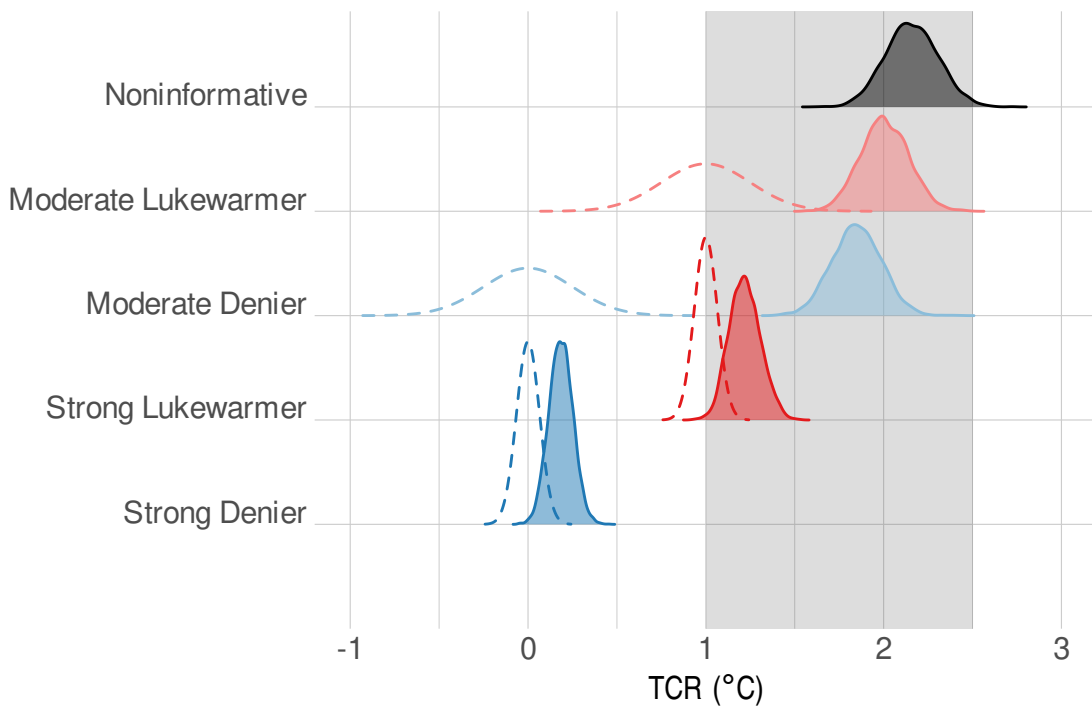


Figure SM5: TCR densities: "MEA I" sensitivity run.

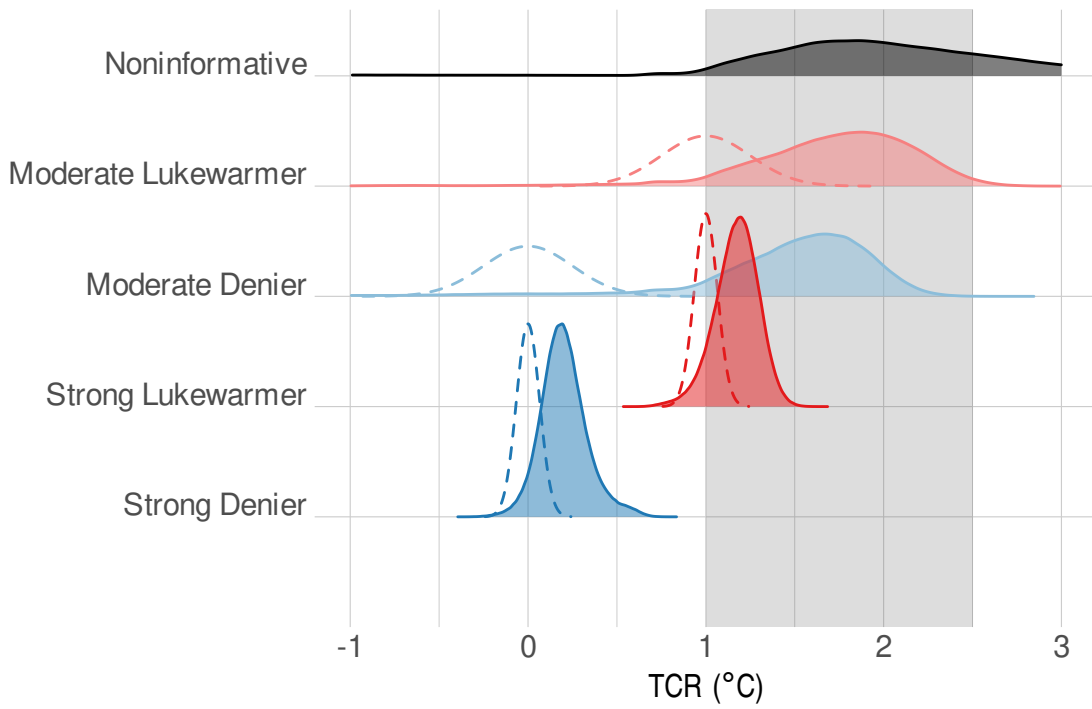


Figure SM6: TCR densities: "MEA II" sensitivity run.

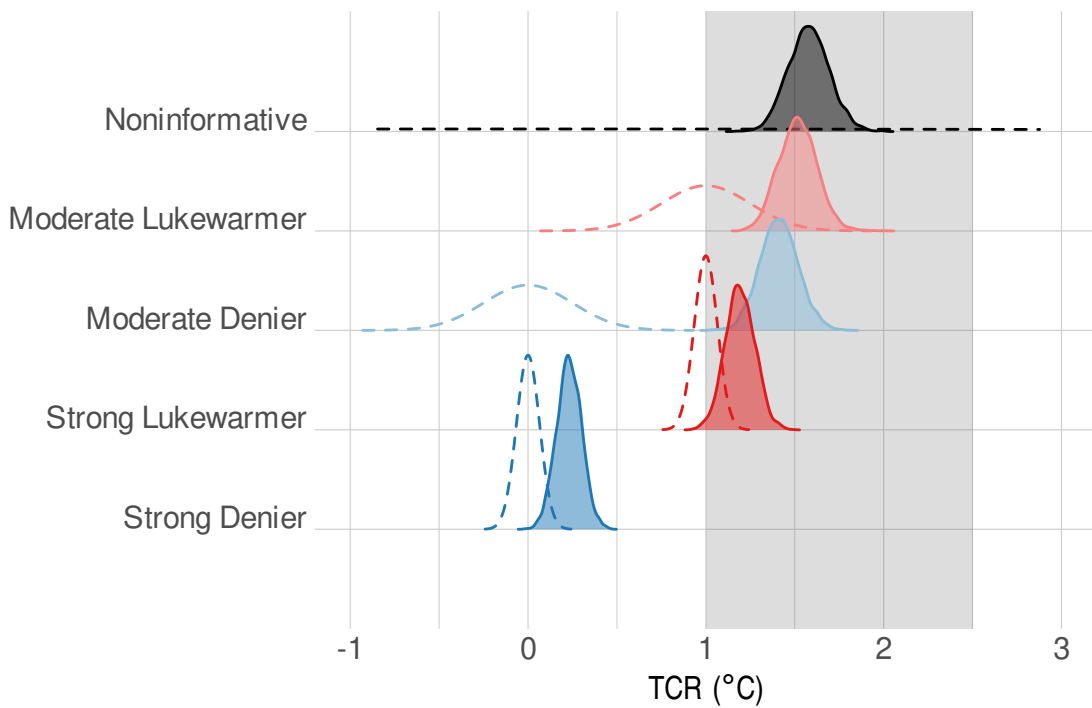


Figure SM7: TCR densities: "Anthro" sensitivity run.

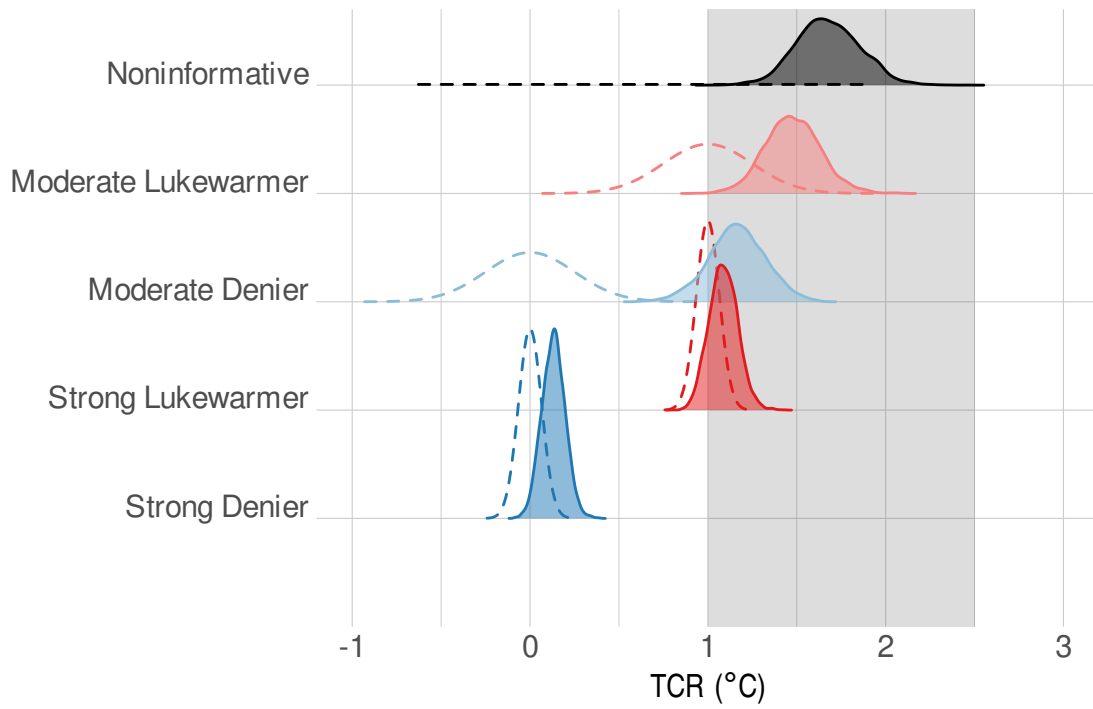


Figure SM8: TCR densities: "CO2" sensitivity run.

**Welfare implications and the social cost of carbon**

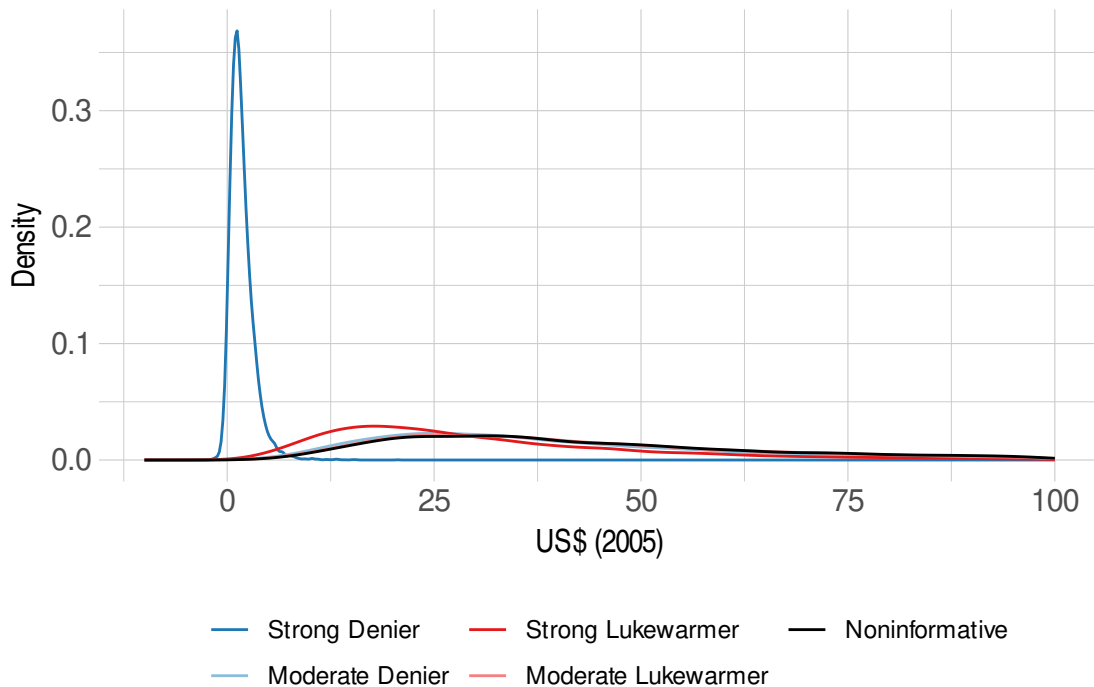


Figure SM9: Social cost of carbon (US\$2005 per ton). The results for each agent type are obtained from 10,000 simulation runs of PAGE Hope [2011]. Posterior TCR distributions serve as key inputs to the model, while the remaining parameters are set to the PAGE model defaults. The x-axis is truncated at 100 to aid visual inspection; the uppermost tails of the distributions being well in excess of the range given here.

## References

- Chris Hope. The PAGE09 Integrated Assessment Model: A Technical Description. Cambridge Judge Business School, Working Paper Series (4/2011). Available: [http://www.jbs.cam.ac.uk/fileadmin/user\\_upload/research/workingpapers/wp1104.pdf](http://www.jbs.cam.ac.uk/fileadmin/user_upload/research/workingpapers/wp1104.pdf), April 2011. URL [http://www.jbs.cam.ac.uk/fileadmin/user\\_upload/research/workingpapers/wp1104.pdf](http://www.jbs.cam.ac.uk/fileadmin/user_upload/research/workingpapers/wp1104.pdf).
- Kate Marvel, Gavin A. Schmidt, Ron L. Miller, and Larissa S. Nazarenko. Implications for climate sensitivity from the response to individual forcings. *Nature Climate Change*, 6(4):386–389, April 2016. doi: 10.1038/nclimate2888. URL <http://dx.doi.org/10.1038/nclimate2888>.
- Detlef P. Van Vuuren, Jae Edmonds, Mikiko Kainuma, Keywan Riahi, Allison Thomson, Kathy Hibbard, George C. Hurtt, Tom Kram, Volker Krey, Jean-Francois Lamarque, et al. The representative concentration pathways: an overview. *Climatic Change*, 109(1-2):5–31, 2011. doi: 10.1007/s10584-011-0148-z. URL <http://dx.doi.org/10.1007/s10584-011-0148-z>.