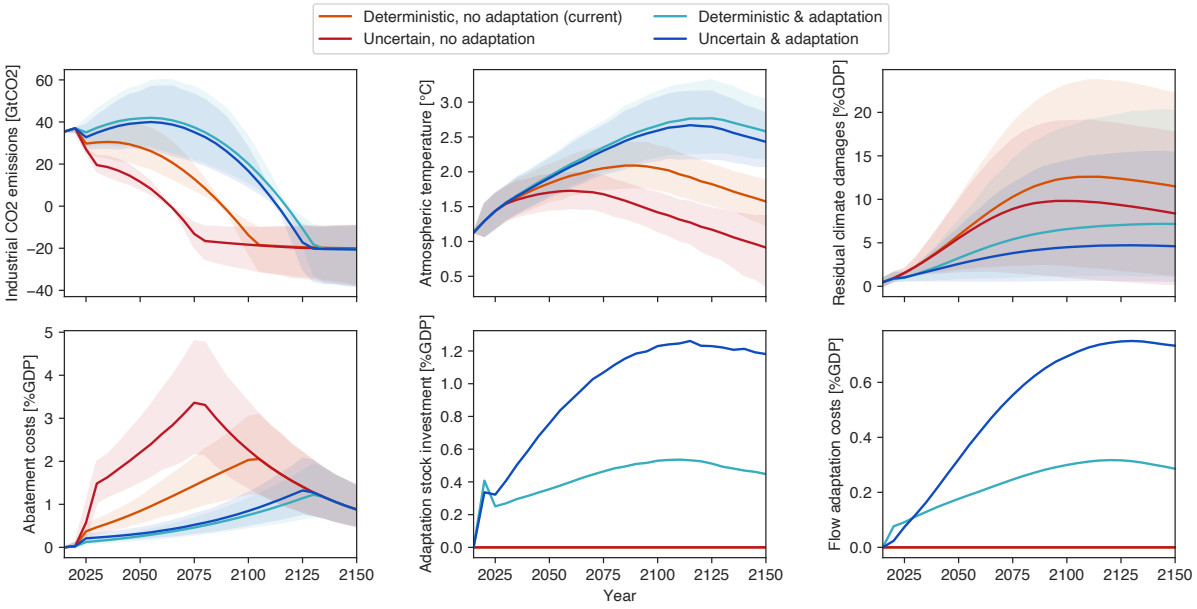
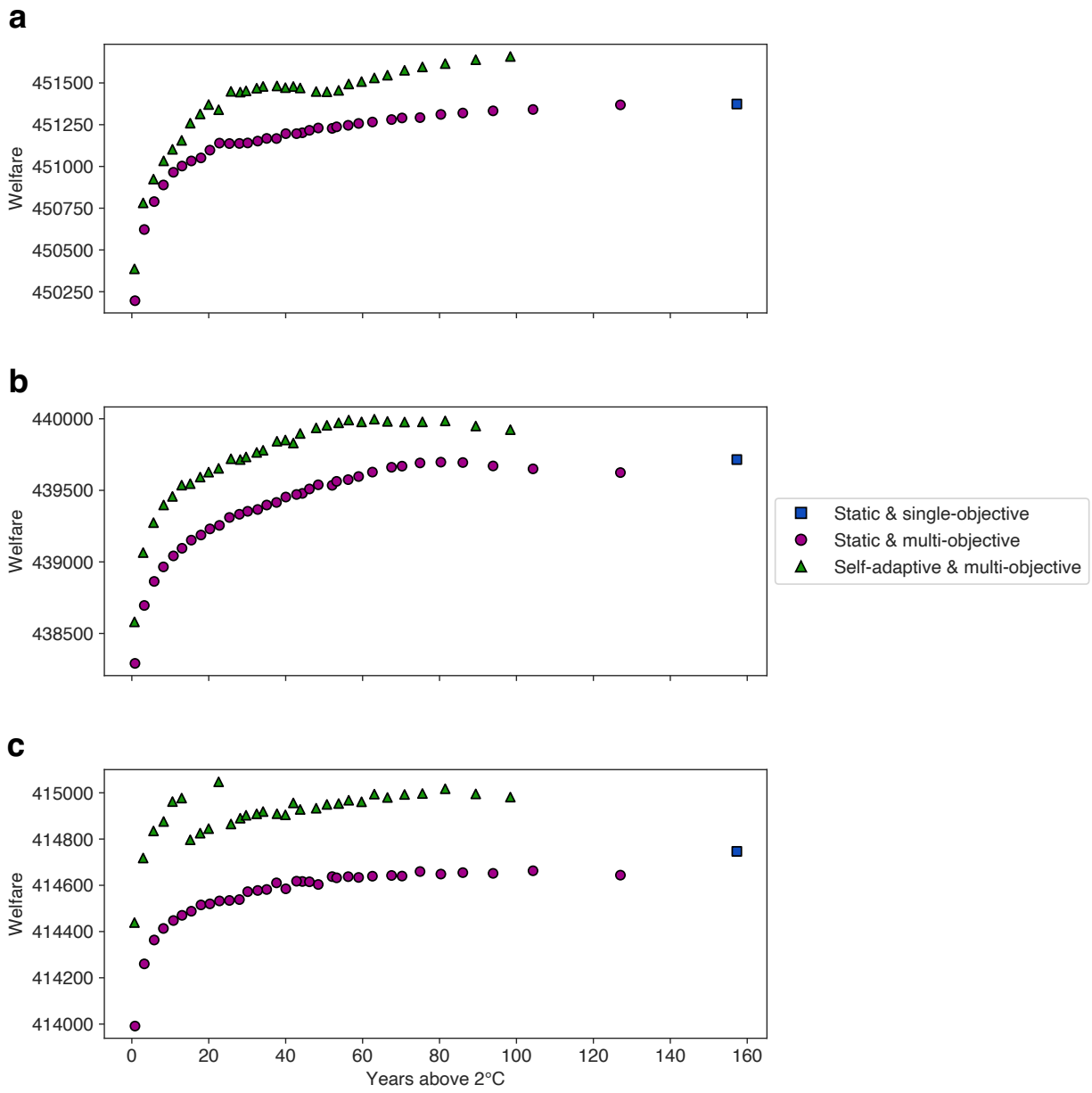
# Supplementary Information

## Static decision making model trajectories under different modelling assumptions



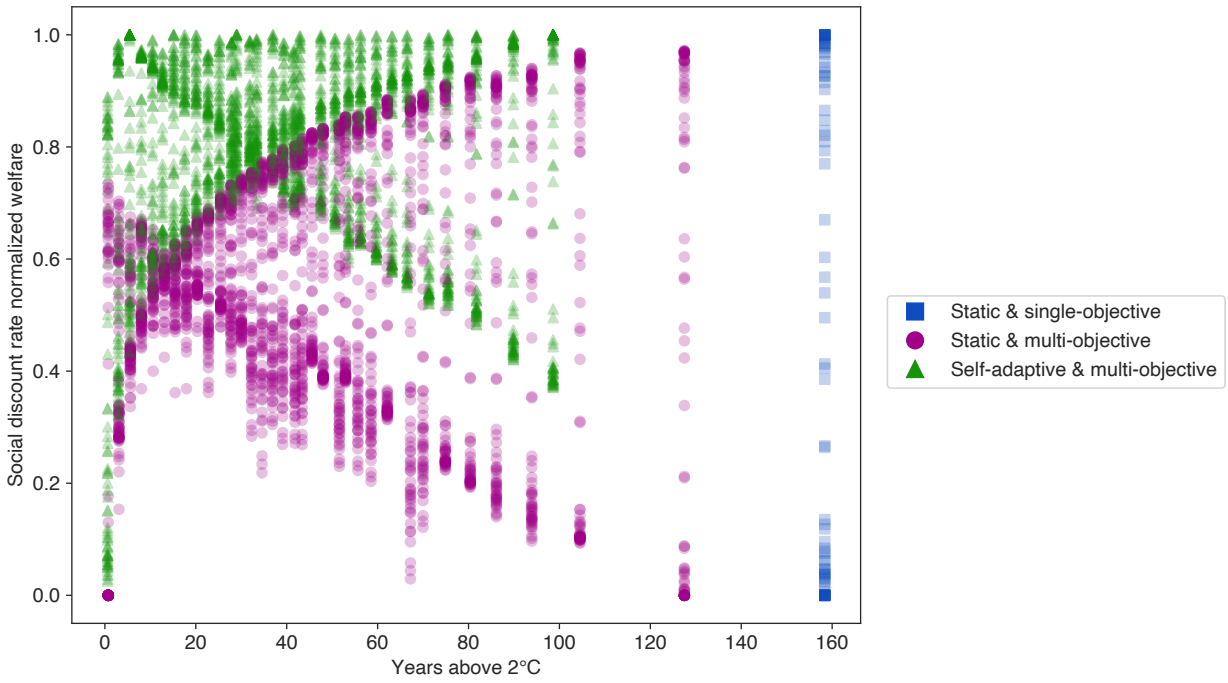

Supplementary Figure S1: Relevant trajectories for static single-objective decision making models: without explicit adaptation more mitigation effort is optimal under uncertainty resulting in lower emissions and temperatures. When adaptation is explicitly modelled, the mitigation effort is reduced; under uncertainty, adaptation investments increase much more significantly than mitigation to reduce the effect of dangerous climate change. The line represents the mean while the bounds cover from 10th to 90th percentile.

**Robustness of results under risk-management formulation of the economic objective**



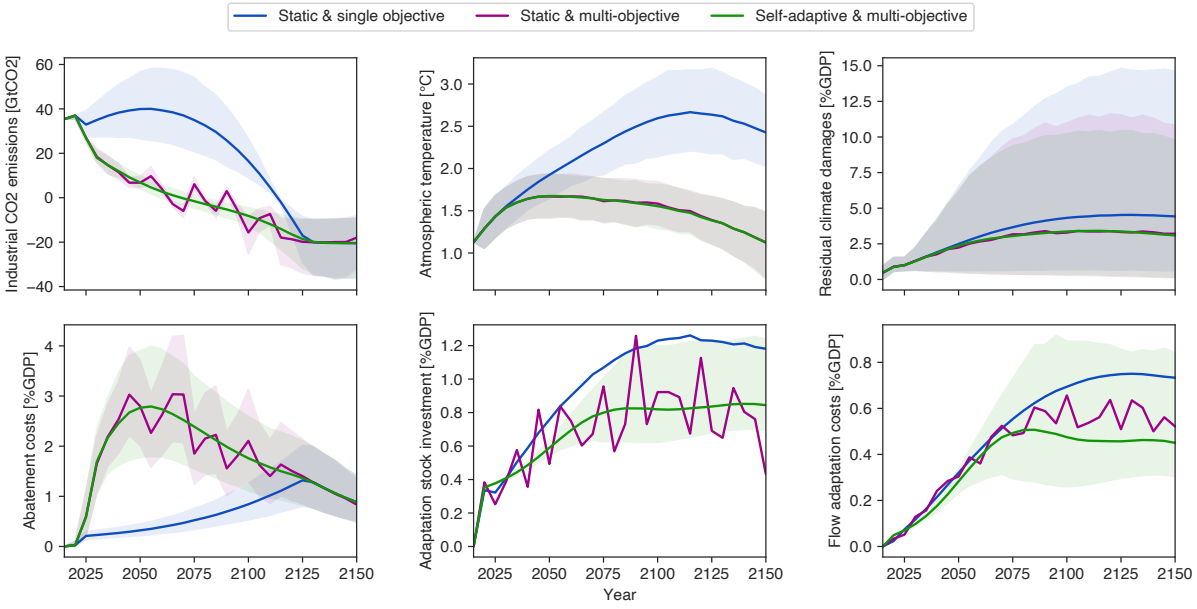

Supplementary Figure S2: Models' reevaluation under a risk management formulation based on the 90% (a), 95% (b), and 99% (c) conditional value at risk of welfare.

**Simulation under social discount rate parameters from [73]**



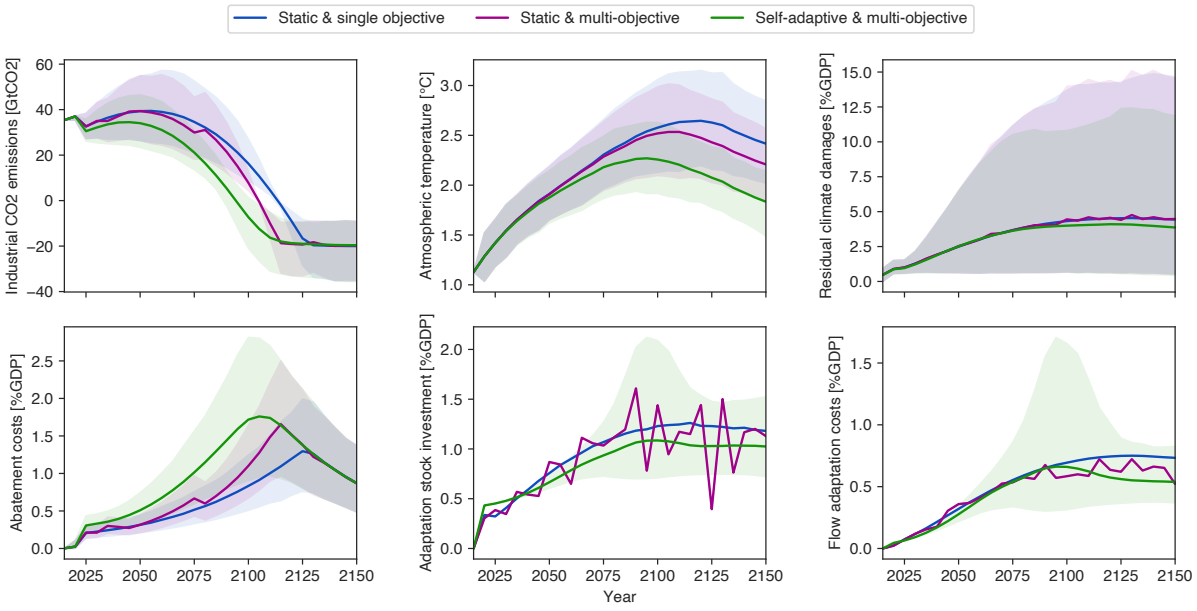

Supplementary Figure S3: Models' reevaluation under 173 social discount rate parameters elicited from experts [73]. Since values of welfare are varying significantly under new social discount rate parametrizations, for each pair of elasticity of marginal utility and rate of social pure time preference, the welfare is normalized using the worst and best performing solution. The presence of conflicts and their strength varies significantly across different welfare formulations. Yet, self-adaptive climate policies are more robust to changes in this parameter as they attain higher levels of normalized welfare.

**Minimizing 2C overshoot**




Supplementary Figure S4: Trajectories of selected variables of the socio-climatic system: single objective solution against solutions minimizing 2°C overshoot using static optimization or control policies. The line represents the mean, while the area covers a symmetric 90% confidence interval.

**Focusing on welfare**




Supplementary Figure S5: Trajectories of selected variables of the socio-climatic system: single objective solution against solutions providing similar welfare while reducing 2°C overshoot using static optimization or control policies.The line represents the mean, while the area covers a symmetric 90% confidence interval.