

# Climate models underestimate costs to future generations

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This is Thomas Sterner, professor of environmental economics at the University of Gothenburg. Credit: The University of Gothenburg

Future generations will have to pay more for today's carbon emissions than what governments across the world currently understand. The climate models used by policymakers around the world to estimate the economic and social costs of CO<sub>2</sub> emissions have to be improved

according to Thomas Sterner, professor of Environmental Economics at the School of Business, Economics and Law, University of Gothenburg, and six other scientists in the prestigious journal *Nature*.

The seven scientists behind the article, due to be published April 10, conclude that the reports by the UN [climate panel](#) serve an important function in setting the agenda for [climate research](#). Yet the most important role of the Intergovernmental Panel on Climate Change (IPCC) is to inform the global political discussion on how the harm caused by climate change should be handled.

Thomas Sterner, expert on policy instruments to reduce [greenhouse gas emissions](#), is a Coordinating Lead Author of one key chapter on policy instruments in the Working Group III of the Fifth Assessment Report of the UN (IPCC) [climate report](#) that is scheduled to be presented on Sunday 13 April in Berlin.

'Our purpose with this article in *Nature* is to discuss models that will enable us to calculate a necessary minimum level for the global environmental damage of emitting an additional ton of carbon dioxide. This cost is very relevant given the attempts of the White House to raise the so-called social cost of carbon in the U.S. to 37 dollars per ton. All U.S. authorities (such as the Departments of Energy or Transport) must take this cost into account in calculations of investments in roads and energy supply,' says Sterner.

The social cost of carbon correspond to the money saved when damages due to climate change are avoided as a result of the countries of the world undertaking policy that leads to reduced emissions of CO<sub>2</sub>.

'Sweden has already gone further than what the U.S. is discussing, since we have a CO<sub>2</sub> tax of about USD 150 per ton, or SEK 1 per kilo, of CO<sub>2</sub> emissions from transports and energy,' says Sterner.

The article in *Nature* is entitled Improve Economic Models of Climate Change. The authors point to several weaknesses of the most commonly used [climate models](#). However, they write that the models are useful, notwithstanding the significant uncertainties – since they do provide a minimum level and thus enable politicians to reduce the effects of climate change to some extent.

Also, the authors continue, modelers, economists and natural scientists must leave their ivory towers and cooperate with each other in order to identify research gaps and weaknesses, with a view to continuously improve their models. Economic climate models need to be updated more often to keep up with new research findings. If this is not done, the damage caused by CO<sub>2</sub> emissions will be underestimated also in the future, which means that political decision-making around the world will continue to underestimate the true economic effects of [climate change](#).

**More information:** [www.nature.com/news/global-war ... imate-change-1.14991](http://www.nature.com/news/global-war ... imate-change-1.14991)

Provided by University of Gothenburg

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