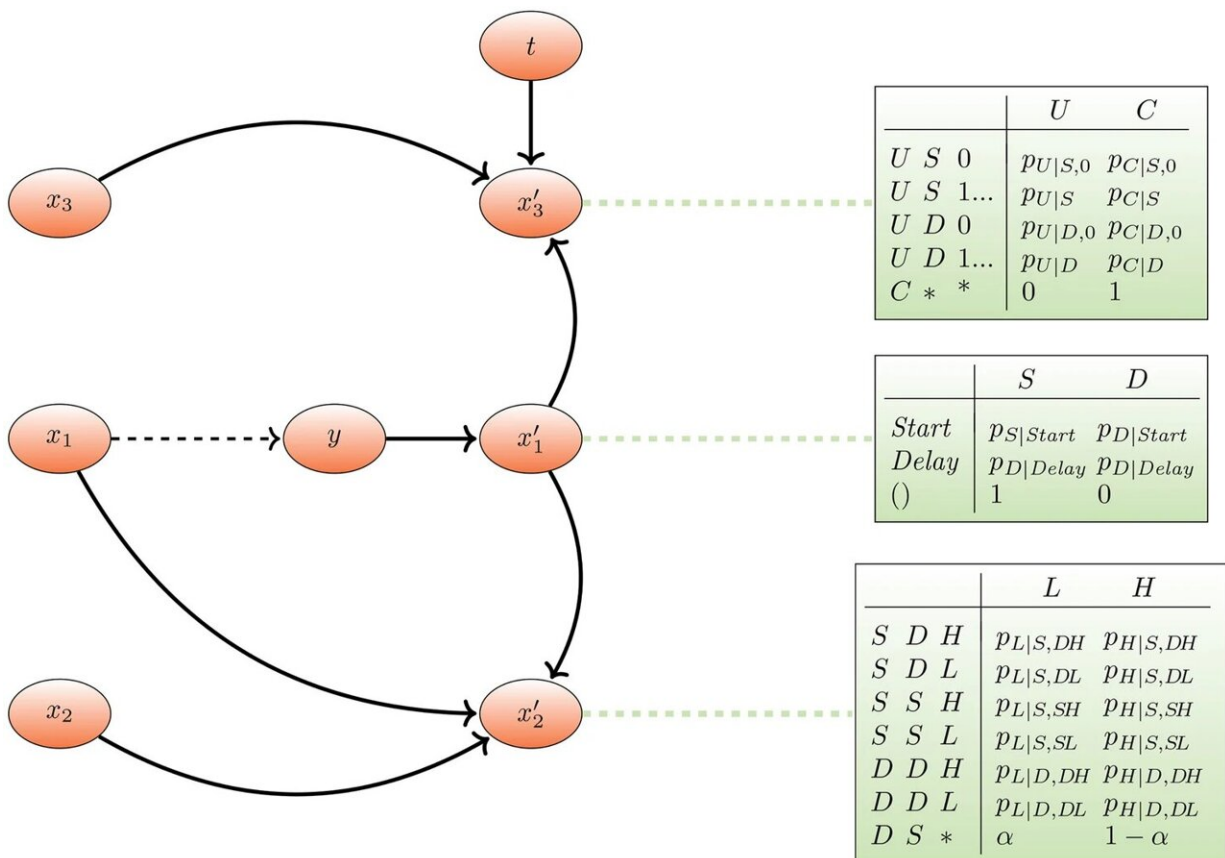


Going for an immediate transition to a green economy pays off, even if such a transition is very unlikely to happen

February 6 2023



Stylized decision process as a Bayesian network. Credit: *Environmental Modeling & Assessment* (2023). DOI: 10.1007/s10666-022-09867-w

Nicola Botta of PIK Potsdam, Germany, and colleagues have developed a new method for assessing how much decisions matter in situations in which the consequences of such decisions are highly uncertain. Applying the method to a stylized greenhouse-gas emission problem reveals that opting for an early transition to a decarbonized society is rational even when the probability of actually realizing such a transition is very low.

The work "Responsibility under uncertainty: which [climate](#) decisions matter most?", published in *Environmental Modeling & Assessment* is part of the European TiPES project on tipping points in the Earth's system.

"We have discovered that it is almost always the case that best decisions are still best, even when the probability that they are actually implemented becomes very, very small," says Nicola Botta.

In the study, the group applied a verified theory of policy advice which makes it possible to compute "best" policies for problems in which decisions have to be taken step-by-step and under uncertainty.

These policies are then compared, at a given decision step, with the remaining options to evaluate how important it is to avoid a mistake when taking a decision at that step.

The method was then applied to a stylized greenhouse-gas emission problem in which the goal of decision making is twofold: 1) avoid unmanageable impacts from [climate change](#) and 2) avoid hurting the economy. The program now evaluated the consequences of two options: immediately start a transition to a [green economy](#) or postpone such a transition to avoid economical damage.

The analysis indicates that best decisions pay off even when the probability that such decisions are actually implemented becomes very

low, for example, because of political uncertainty or because of the inertia of legislation.

"At the first glance this seems surprising, as the common wisdom is that it's not worth betting on something that is not likely to happen," says Nicola Bottà.

"But, if you think twice, the result makes sense. It also provides a guideline to the discussion on whether it is worth to pursue climate targets (like the 1.5°C target) that are unlikely to actually be met: the answer is yes."

"More generally, the paper is a methodological contribution towards understanding which decisions under uncertainty matter most. Realizing that certain decisions are less important than others (or less important than expected) can be very helpful, for example in climate negotiations," explains Nicola Bottà.

More information: Nicola Bottà et al, Responsibility Under Uncertainty: Which Climate Decisions Matter Most?, *Environmental Modeling & Assessment* (2023). [DOI: 10.1007/s10666-022-09867-w](https://doi.org/10.1007/s10666-022-09867-w)

Provided by University of Copenhagen

Citation: Going for an immediate transition to a green economy pays off, even if such a transition is very unlikely to happen (2023, February 6) retrieved 20 July 2024 from <https://phys.org/news/2023-02-transition-green-economy-pays.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.