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Prof. Dr. Stefan Baumgärtner
Prof. Begüm Özkaynak, PhD
Co-Editors-in-Chief
*Ecological Economics*

Dear Professors Baumgärtner and Özkaynak,

We are delighted to submit an original research article entitled, "Systematically evaluating all European climate policies: a reverse causal analysis," for consideration by *Ecological Economics*. We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere.

Our article contributes to an ongoing discourse in *Ecological Economics* about the effectiveness of climate change policies. In 2024 alone, three particularly relevant articles have been published in the journal on this topic. Drews, Savin and van den Bergh (Vol. 218) demonstrate that there is still no consensus between climate policy experts on which instruments are most effective at mitigating climate change, with opinions differing based on experts' academic background. Liu et al. (Vol. 220) seek to identify synergies between climate policies, emphasising the importance of policy mixes rather than isolated policies - the traditional focus of policy evaluation. Ling et al. (Vol. 223) identify crowding out effects between carrot and stick climate policies, in terms of public support for such policies.

While each of these articles provides valuable insight into the effectiveness of climate policy, they also identify significant gaps: the first on the need for objective approaches to policy evaluation, the second on the importance of considering policy mixes, and the third on characterising the interactions between policies and the impact these have on achieving policy goals. We seek to directly address these gaps.

In this paper, we conduct a comprehensive analysis of *all* European climate policies from 1995-2022, across 23 greenhouse gases and 37 sectors. We use a novel reverse causal approach to policy evaluation to identify significant reductions in emissions (not accounted for by its usual determinants), and attribute these to the policies that likely caused them. While we focus on regional-level policies, we conduct a case study of Austria to demonstrate how national-level analyses can be conducted in any European country. Further, we provide lessons for policy makers to develop effective climate policies based on our analysis. Our analysis is objective, identifies the effects of both individual policies and policy mixes, and identifies which policy types tend to support each other in reducing emissions, directly responding to the gaps identified above.

We have no conflicts of interest to declare. In line with the journal's ethics in publishing guidelines, we would like to disclose that financial support was provided by B&C Privatstiftung and Michael Tojner, and that we have an employment relationship with The World Bank.

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Thank you for your consideration of this manuscript.

Sincerely,

Talis M. Tebecis