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How Should Economists Model Climate? Tipping Points and Nonlinear Dynamics of Carbon Dioxide Concentrations*

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Abstract

Economists modeling climate policy face an array of choices when modeling climate change, including the role of uncertainty/ambiguity, irreversibility, and tipping points. After filtering out estimated cycles due to orbital climate forcing, we use a threshold quantile autoregressive model to characterize anomalies in atmospheric CO_2 concentrations. We then test for local instability and tipping points, and we characterize the stationary distribution of anomalies. We find evidence of nonlinear dynamics, tipping points and a non-normal stationary distribution.

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