

Adaptation Funding and Greenhouse Gas Emissions: Halo Effect or Complacency?

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The debate surrounding climate change on the choice of appropriate policy tools to address the impacts of greenhouse gases (GHGs) is ongoing. The two main tools are abatement of emissions and adaptation to climate change. In this context, the option to adapt raises the potential for complacency with regards to emission abatement efforts by countries that might adapt or over-adapt. This concern is widely discussed by both policy makers and the nascent theoretical literature on the adaptation-abatement nexus. As it stands, there is no clear consensus about the impact of adaptation efforts on emission abatement. While some papers find that adaptation and emission abatement are substitutes, others imply that they are complements.

Using data from the World Development Indicators and various adaptation funds under the UNFCCC framework, this paper provides an empirical analysis of the relation between adaptation and emissions. We specifically test whether adaptation measures to climate change affect emissions of GHGs in a world where adaptation funds are available using a difference-in-differences approach. We consider several measures of emissions such as CO₂ emissions, per capita CO₂ emissions, dollar CO₂ emissions, CO₂ intensity, as well as methane, nitrous oxide and other greenhouse gases.

Specifically, we apply a difference-in-differences analysis where we compare the emissions of non-Annex I countries that received adaptation funding relative to non-Annex countries that did not receive such funding before and after the fund approval. We find that receiving adaptation funding significantly and negatively affects all measures of CO₂ emissions except CO₂ intensity, providing preliminary evidence of the presence of a halo effect of adaptation funding. We do not find evidence of a significant change in the emissions of methane, nitrous dioxide and other greenhouse gases. Our results are supported by an event study analysis. For robustness, we also provide a falsification test by randomly assigning a fund approval date and find no significant effects on emissions.

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