

Vice Presidency of Sectors and Knowledge
Research Department

Implications of Climate Change and Natural Disasters for Latin America and the Caribbean

The Latin America and the Caribbean Research Network
RG-K1198

1. Background and motivation

The global climate is changing; temperatures are rising, and storms are likely to become more intense as waters warm. Temperature and precipitation patterns have already changed. Land and ocean temperatures have risen, and heat waves are more frequent. Over the past 50 years, the temperature in Latin America and the Caribbean (LAC) has steadily trended upward, from 21.64° Celsius in 1961 to 22.36° Celsius in 2010. More recent years have seen especially high temperatures, with 2020 being one of the three hottest years on record in LAC.¹ Although short-run weather includes fluctuations, the overall trend of rising temperatures is clear.

Despite some progress toward coordinated mitigation, all the projections of the International Panel on Climate Change (IPCC) indicate that global temperature will rise significantly.² The average annual global temperature is projected to increase by 2.4° Celsius by 2100 with full implementation of 2030 Nationally Determined Contributions according to recent projections.³ Rising temperatures and sea levels will likely increase the severity of hydrometeorological natural disasters: storms, floods, and droughts. With climate change threatening, it is time to prepare for what appears to be the inevitability of more extreme weather events as the century unfolds.

Evidence indicates that increases in temperature and natural disasters have economic consequences and that the negative impacts are more acute for poorer households. Adaptation can play an important role in preparing for the future climate, and the benefits of adaptation can greatly outweigh the costs, particularly when considering concerns of equity.

The motivation of this project is to sponsor a set of papers that tackle specific aspects of climate challenges, especially adaptation, across countries in LAC, or tackle a set of issues in one or more countries, thus comprising an interesting collection that represents the spectrum of current challenges for the region as a whole. Under a novel agreement, the IDB and the journal *Economics of Disasters and*

¹ https://reliefweb.int/sites/reliefweb.int/files/resources/Statement_LAC_es_big.pdf

² <https://www.ipcc.ch/report/ar6/wg1/#FullReport>

³ <https://climateactiontracker.org/publications/glasgows-2030-credibility-gap-net-zeros-lip-service-to-climate-action/>

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Climate Change (EDAC) will organize a conference in 2023 dedicated to this project and publish a special issue including selected papers from the conference.

Papers selected for both the conference and the special issue will undergo a standard review process. Selected papers are likely to have a technical modeling or empirical component and be structured such that the analytical work proposed may shed light on a particular challenge and related policy conundrum or decision(s). Selected papers will both adhere to the relevant rigorous academic standards for publication and support the IDB's continuous dialogue with policymakers in the region.

2. Objective, Content, and Methodology

The objective of this project is to produce a set of research papers examining the implications of climate change and natural disasters focused on LAC. Proposals for papers may be made on a specific topic, in which case authors may wish to apply a theoretical framework or address empirical issues involving more than one country or a set of countries in LAC. Alternatively, proposals may focus on a particular country and analyze a specific set of topics or challenges using relevant theory or empirical tools.

As discussed above, it is expected that a general theme running through the project will be strategies or policies to address climate change and natural disasters for the region, including possible mitigation measures, and especially adaptation measures. Topics might include green infrastructure solutions to address coastal flooding, adapting firm supply chains, financial strategies to reduce sovereign defaults in the wake of extreme events, insurance mechanisms for the private and public sectors, and stress-testing portfolios to climate change. This list of topics is meant to be suggestive and is by no means exclusive. Authors are free to suggest alternative challenges and topics.

There is also interest in including analyses that are particularly relevant for Central America and the Caribbean. Analyses comparing issues in LAC to other countries or regions may also be proposed, but all papers should have a main focus on LAC, and it is expected that each paper will bear implications for some aspect of policymaking in the region. The papers are expected to include a theoretical and/or empirical component and an analysis of relevant policy interventions or reforms that may address the challenge(s) being considered.

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Core activities of research may involve, but are not limited to, the following:

1. Reviewing existing literature for the country(ies) being studied, comparing with regional or non-regional experiences, as relevant.
2. Collecting and analyzing data.
3. Developing a theoretical model or performing an empirical analysis using state-of-the-art techniques, and with due consideration of standard robustness tests to consider a particular challenge or policy conundrum.
4. Writing a research paper according to the standard quality requirements for publication as an IDB working paper, to be considered for presentation in the joint IDB-EDAC conference and eventual publication in the EDAC Special Issue, taking into account relevant formatting and stylistic considerations.
5. Each research paper must contain either a theoretical model or an empirical analysis that sheds light on the research question to be addressed. However, the proposal leaves open what type of model this may be or whether the empirical exercise takes the form of time-series, panel, or other econometric techniques. In the case of a theoretical model, it should be relevant for policy analysis or calibrated for a LAC country.
6. In all cases, the final dataset employed in the analysis will be delivered to the IDB along with the research paper (an exception may be made in the case of proprietary data, in which case some type of aggregation may be acceptable).

We plan to commission 5 – 7 papers, depending on the proposals received and the available budget. Each project may either focus on one country, or compare countries through the analysis of a particular topic or theme.

The papers produced as part of this research project should be submitted for publication as working papers of the IDB. They will be eligible to be selected for presentation in a conference sponsored by the EDAC journal and the IDB. Subject to EDAC's usual peer-review standards, papers may then be published in a special conference issue by the EDAC in the Spring of 2023.

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3. Selection Criteria

Research institutions only may present proposals. Research proposals will be evaluated based on the following criteria:

- a) Quality of the proposal (50 percent)** – this will include sufficient detail regarding any economic modeling proposed to judge its feasibility as well as sufficient detail regarding data sources and availability to judge the feasibility of any empirical analysis proposed. Creative and innovative proposals that are judged as feasible will be particularly welcome.

The IDB will also judge a set of papers in terms of how they relate to one another and may accept or reject papers for funding to ensure consistency and avoid repetition across the papers selected. In particular, the IDB seeks to create a balanced research project across different countries and topics.

- b) Relevance to the policy challenges being faced by the region (30 percent)** – the proposal should outline what challenge(s) the analysis addresses and why the results are expected to be relevant to policymakers that must deal with the challenge(s) under consideration
- c) Publication record and CV of the author(s) (20 percent)** – proposals will also be evaluated on the strength of CV(s) and publication record of the author(s) to increase the chances that selected proposals will successfully develop into working papers and publications.

To be considered for the project, the research proposal should include the following:

- a) A brief survey of previous studies on this topic involving the selected country or countries (up to two pages).
- b) Data templates for the data being used and assessment of data availability. Proposals must additionally provide a description of strategy for collecting relevant data, including regulatory/proprietary data.

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- c) A detailed description of the methodologies to be used in the quantitative exercise.

Final papers will be considered for dissemination as IDB working papers or technical notes, depending on quality. Papers will be eligible for presentation in a conference sponsored by EDAC and may be published in a special conference volume, subject to the journal's usual peer-review process. Other forms of dissemination or publication should be explicitly approved by the coordinators. Proposals may include suggestions for further dissemination of the final version of the paper.

Note: Proposals must be submitted in English.

4. Proposal Submission

Proposing research institutions can submit their proposals even if they are not part of the Research Network but they should be registered as members if selected (contact Elton Mancilla at eltonma@iadb.org) and must be based in the Latin American and Caribbean region. Institutions from other parts of the world do not qualify as members of the Research Network. However, researchers not based in Latin American and Caribbean institutions can participate with research teams from proposing institutions.

Proposals should be submitted using the Web Submission Form that is provided in the Call for Proposals announcement. Proposals are due **May 2, 2022**. Please note that there are two options within the submission form: one for institutions and another for individual researchers. Please make sure to choose the **institutions option**.

5. Coordination and Schedule

The Research Network project will be administered by the Research Department (IDB/RES) and will be coordinated by Eduardo Cavallo (IDB/RES), Bridget Hoffmann (IDB/RES), Allen Blackman (CSD/CSD), and Diether Beuermann (CCB/CCB).

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Professor Ilan Noy, Chair in the Economics of Disasters and Climate Change School of Economics and Finance at Victoria University of Wellington in New Zealand, will act as external advisor of the Research Network project and as managing editor of the special issue of EDAC to be published in the spring of 2023.

Professor Eric Strobl, from University of Bern, Switzerland, will act as external advisor of the Research Network project. In addition, he will act as co-editor of the special issue of EDAC, together with Eduardo Cavallo, Bridget Hoffmann, Toan Phan (affiliated with the Richmond Fed), and Ilan Noy (managing editor).

The tentative schedule of activities is as follows (exact dates subject to changes):

- **May 2, 2022:** Due date for **receiving proposals**. Institutions should ensure that the complete documentation is submitted to the evaluation committee. Complete documentation includes the registration form with all the information requested, the research proposal, budget, and curriculum vitae (CVs up to three pages long).
- **May 13, 2022:** Announcement of **selected research proposals**.
- **May 27, 2022:** Kick-off **Discussion Virtual Workshop** to discuss and refine the selected proposals and methodology to be used in the study.
- **October 3, 2022:** Due date for receiving a **first draft** of research papers, including the narrative, database, and preliminary results on the quantitative exercise.
- **January 25, 2023:** Due date for receiving a **second draft** of research papers. Supporting documents utilized in the study must also be received. The **second draft** will be considered for presentation at the IDB-EDAC conference, if applicable.
- **February 6, 2023:** **Announcement of papers selected for the IDB-EDAC conference.**
- **March 6, 2023:** **IDB-EDAC Conference** in Washington, D.C (may be virtual depending on sanitary conditions and travel restrictions).
- **March 24, 2023:** Deadline for receiving a **final version** of research papers, and datasets utilized in the study. Studies that are of good quality at this stage will be considered for publication in the IDB Working Papers series and for the EDAC Special Issue. Research papers must follow the IDB Manual of Style for working papers.

6. Financial Contribution and Payment Schedule

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The IDB will contribute up to **US\$30,000** (or its equivalent in local currency) – depending on the scope and complexity of the proposal – as a contribution to the total budget of each study. The payment schedule is as follows:

- **20 percent** within 30 calendar days of signing the formal agreement between the IDB and the respective institution.
- **30 percent** within 30 calendar days of presentation and approval by the IDB of the first draft of the research paper.
- **30 percent** within 30 calendar days of presentation and approval by the IDB of the second draft of the research paper.
- **20 percent** within 30 calendar days of presentation and approval by the IDB of the final version of the research paper, delivery of the datasets utilized by the study, and completion of the conditions of the terms of reference.