
# “There is no post-hurricane world”

Distilling the enduring economic and social effects of hurricanes and other natural disasters from data

# Team Members

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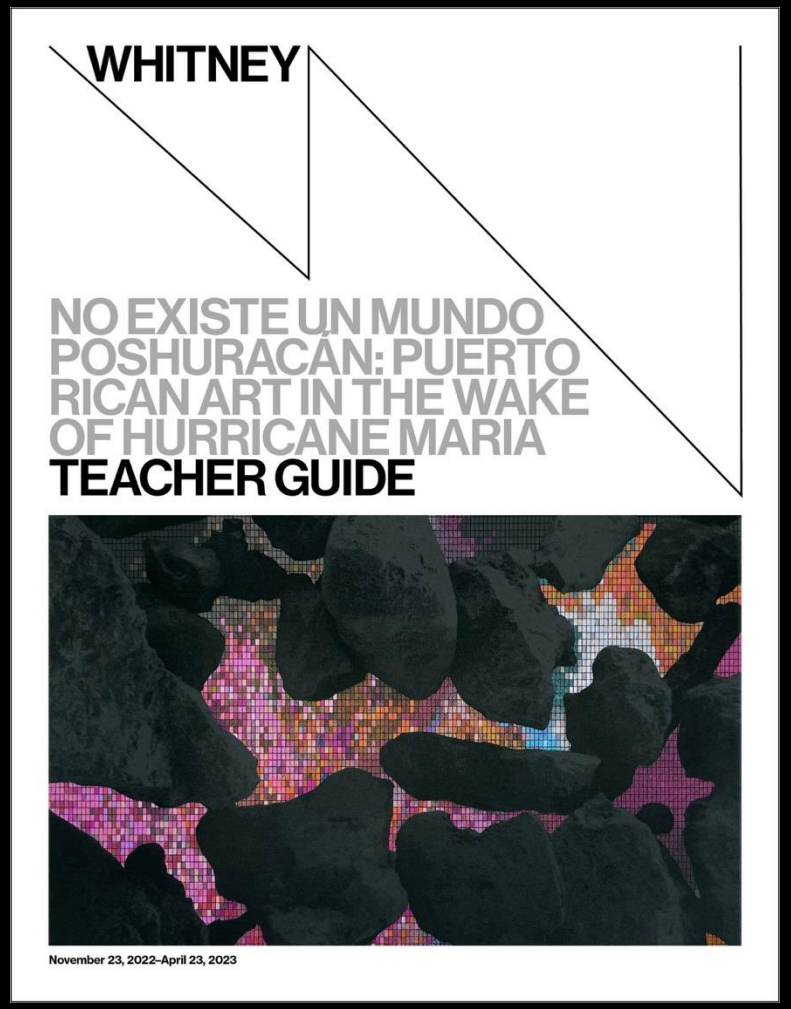
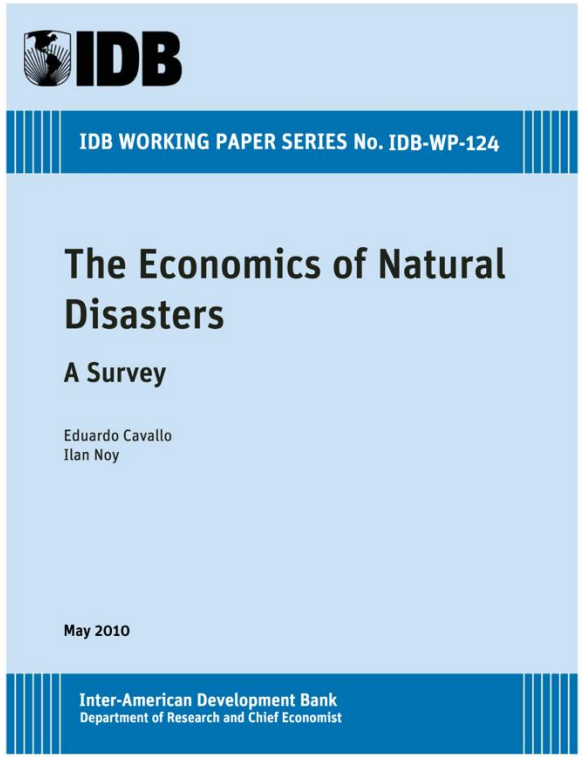
# Description




Our project's title is a translation of *No existe un mundo poshuracán*, the title of a 2023 exhibition in the Whitney Museum of American Art that explored Hurricane Maria's lasting effects in the Commonwealth of Puerto Rico. If there is no post-hurricane world, what does said world look like economically and socially? Are these effects truly permanent? Do other natural disasters—such as floods and earthquakes—also change the economic and social trajectories of countries?

*There is no post-hurricane world* will use a list of natural disasters between 2006 and 2024 to study GDP growth--both before and after--for the countries in which they occurred. We seek to differentiate between natural disasters. Which, if any, have long term impact on economic growth? Additionally, we will use data from the World Bank to determine if natural disasters impact other economic and social metrics such as national debt, education outcomes, access to fresh water, interest rates, gender disparities, healthcare access, trade, public corruption, government effectiveness, etc.

We hope that answering these questions reveals novel socioeconomic patterns produced by natural disasters and illuminates how countries can become resilient to their long-term effects so that post-hurricane worlds become possible.




# Prior Work

A review of the literature reveals that most studies focus on data prior to Hurricane Maria, which made landfall in Puerto Rico on September 20, 2017, and serves as inspiration for this project. In the age of intensifying climate change and natural disasters increasing in frequency and magnitude, we hope to build on the foundation set by prior studies to distill from the data whether climate change has intensified any previously known effects of natural disasters. Additionally, we hope to fill any gaps in the literature using less-studied data points from to the detailed and highly granular data offered by the World Bank.

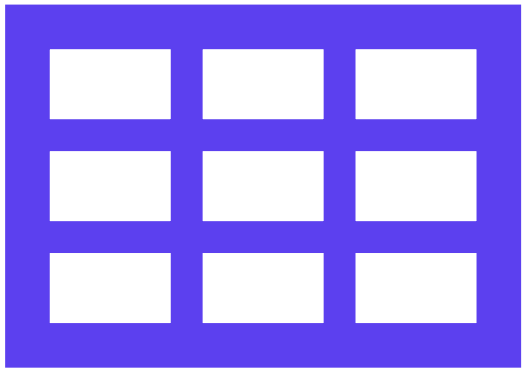
Selections:

*The Economics of Natural Disasters,* Inter-American Development Bank (2010).

*The Economic Impacts of Natural Disasters: A Review of Models and Empirical Studies*, Botzen, et. al. (2019).

*The effect of economic variables on natural disasters and the impact of disasters on economic variables*, Tasri, et. Al. (2022).

*Human and economic impacts of natural disasters: can we trust the global data?*, Jones, et. al. (2022).



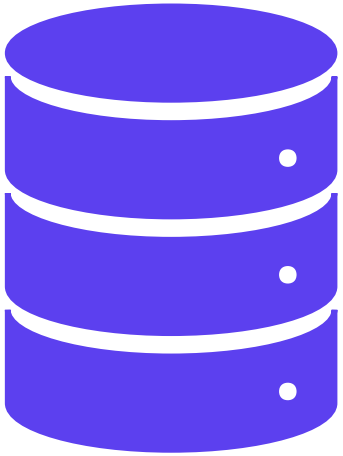
# Datasets

1. DISASTER DATASET

+ Selections from EM-DAT, the International Disaster Database
+ https://www.kaggle.com/datasets/jseebs/disaster-dataset
+ Downloaded to Alexander's computer and present in Group 9's Discord server.

2. ECONOMIC AND SOCIAL DATA

+ All selections, for all countries, in the World Bank's World Development Indicators Database
+ https://databank.worldbank.org/
+ Downloaded to Alexander's computer and present in Group 9's Discord server.



# Proposed Work

Integration: We must combine the Disaster Dataset with the Development Indicators Dataset. This should be a singular CSV file or Pandas DataFrame.

Normalization: Our combined dataset needs to be normalized. The natural disasters are our candidate keys.

Cleaning: The literature made clear that datasets on the matter often have missing values. We must identify and isolate these empty attributes and cells in the CSV file or DataFrame.

New attributes: We should quantify the effects of natural disasters and create new attributes that explain any calculations that we made.

Visualization: We should produce visual tools to assist us in explaining our findings in an accessible format.

# List of Tools

- Jupyter Notebooks
- Python and data science libraries
- SQL
- If needed, a cloud solution for dataset like Kaggle.

# Evaluation

**Accuracy of Insights**

Do our results align with the literature?

**Comparative Analysis**

If our findings stray from the literature, what caused this discrepancy?

**Reproducibility**

Can others reproduce our results using similar methods?

**Clarity of visualizations**

Do our visual tools make our findings clear? Do they make our results and the data digestible for any audience?