



ANTI-HURRICANE HURRICANE CLUB

 **SFU** SIMON FRASER UNIVERSITY

 **TACC**
TEXAS ADVANCED COMPUTING CENTER

 **aws**

 **HACKNPC.ORG**

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PROJECT DESCRIPTION

- Different communities are unequal in different ways
- Social Vulnerability Indexes (SVIs) can be used as proxy to estimate which communities are not as strongly prepared in the event of natural disasters, like hurricanes.
- The dashboard we've created helps to visualize the range in these indices amongst counties, and identify which are more at risk than others.



Photo by [Christian Crocker](#) on [Unsplash](#)

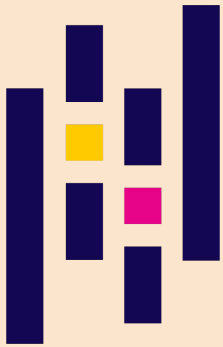
IMPACT OF PROJECT ON ENVIRONMENTAL & SOCIAL THREATS

As suggested by the ATSDR, SVIs and subsequently our Dashboard can be used to:

- Allocate emergency preparedness funding by community need
- Decide how many emergency personnel are required to assist people
- Identify areas in need of emergency shelters.
- Create a plan to evacuate people, accounting for those who have special needs, such as those without vehicles, the elderly, or people who do not understand English well
- Identify communities that will need continued support to recover following an emergency or natural disaster

USE OF TECHNOLOGY IN THE PROJECT

pandas

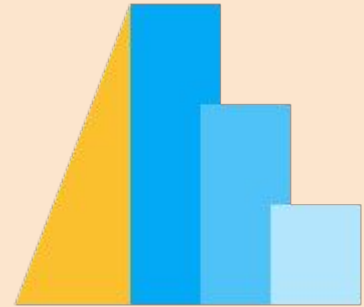


dash-plotly



plotly | Dash

altair



ABOUT THE DATASET

- Created by ATSDR's Geospatial Research, Analysis & Services Program (GRASP).
- Contains 'Social Vulnerability Indices' per subdivision of counties area of Puerto Rico
- We combined the years 2016 and 2018
- 18 variables are categorized into four themes:
 - Socioeconomic Status,
 - Household Composition & Disability,
 - Minority Status & Language, and
 - Housing Type & Transportation.

The logo for the Agency for Toxic Substances and Disease Registry (ATSDR), featuring the acronym "ATSDR" in a bold, blue, sans-serif font on a white rectangular background.

SOCIAL VULNERABILITY INDICES

Socioeconomic Status

- Below poverty
- Unemployed
- Income
- No High School Diploma

Household Composition and Disability

- Aged 65 or Older
- Aged 17 or Younger
- Civilian with a Disability
- Single-Parent Households

Minority Status and Language

- Minority
- Speaks English “Less than Well”

Housing Type and Transportation

- Multi-Unit Structures
- Mobile Homes
- Crowding
- No Vehicle
- Group Quarters

DASHBOARD DEMO

<http://ec2-18-219-99-218.us-east-2.compute.amazonaws.com:8050/>

Social Vulnerability Indices in Puerto Rico

Which county needs the most help?

Select Year:

2016 2018

Select County Population:

1.3k 50k 100k 364k

Rank Counties by

Socioeconomic Status

Compare

Unemployed_above_age16

VS

Total_Population

in a Scatterplot

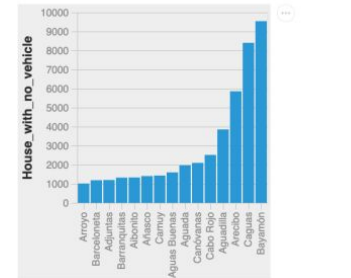
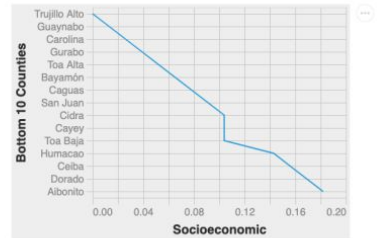
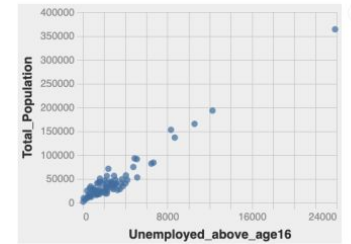
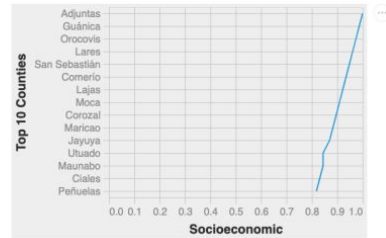
Compare

House_with_no_vehicle

Among Counties

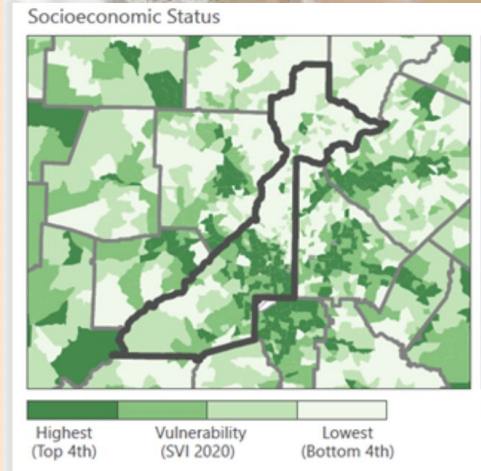
Adjuntas Aguada Aguadilla
 Aguas Buenas Albonito Añasco
 Arecibo Arroyo Barceloneta
 Barranquitas Bayamón Cabo Rojo
 Caguas Camuy Candelinas

in a Barplot



FUTURE WORK

- Make the dashboard look nice and more visually appealing
- Add more plots and functionalities
 - a. County map: visually see where are counties with highest vulnerabilities
 - b. Second tab with more information and descriptions
 - c. Etc
- Use data from more further in the past to build a predictive models on the SVI Themes explored in this EDA tool.



From the [CDC/ATSDR SVI Fact Sheet](#)



THANK YOU!
QUESTIONS?

Please connect with me (Ricky) on LinkedIn: <https://www.linkedin.com/in/rickyheinrich/>

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Photo by NASA on
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