

Return of Investment of Hazard Mitigation Projects



FEMA

By: Rachel Beery



FEMA

FEMA's mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.

Problem Statement

- Our client FEMA has tasked us with studying the success of hazard mitigation by analyzing hazard mitigation projects of the past to find what projects yield the highest return of investment.
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Data

- There is an OpenFEMA dataset used in this analysis.
- Hazard Mitigation project information is found in this dataset
 - Features of importance include region, state, project amount, program fiscal year, benefit cost ratio, and net value benefits
- Our modeling begins in **1989** when reporting began for hazard mitigation projects

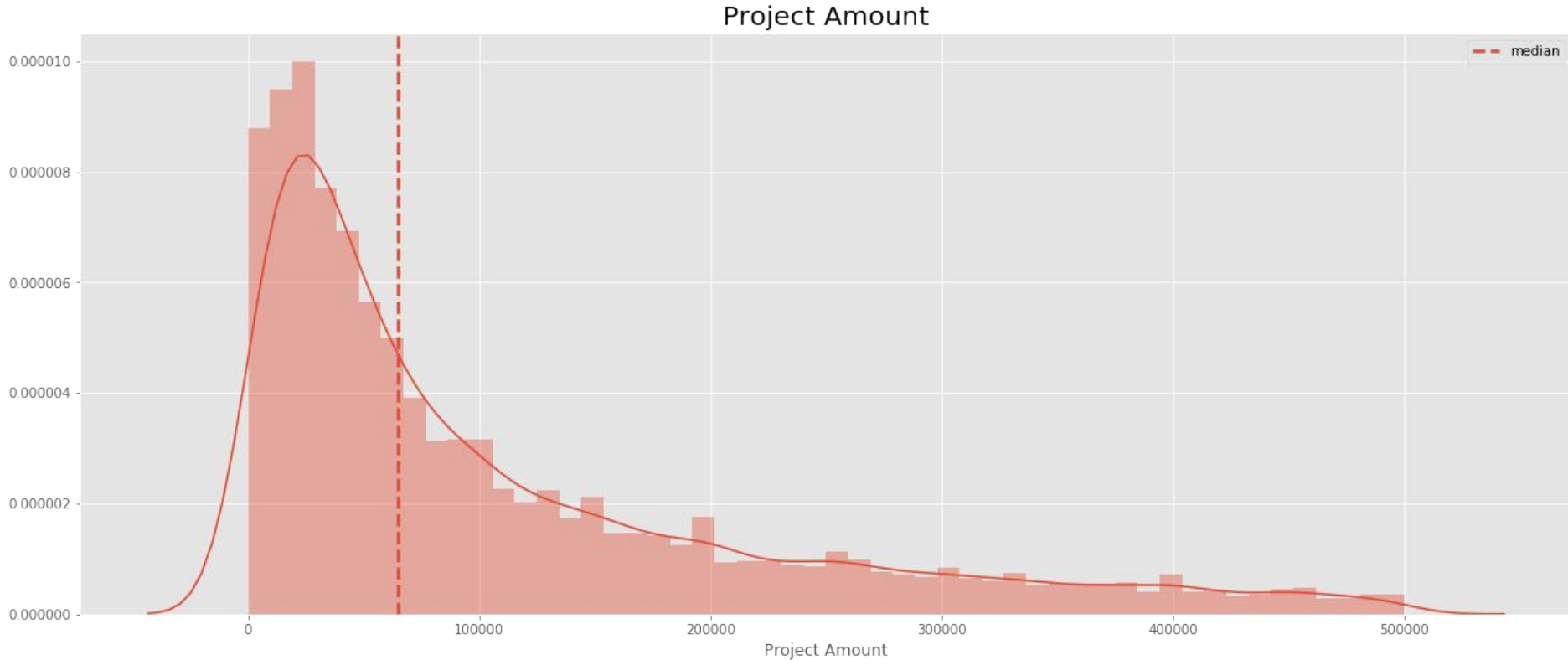
Data provided by FEMA at the following website:

<https://www.fema.gov/openfema-data-page/disaster-declarations-summaries-v2>



Mean Cost of Hazard Mitigation:
\$815,798.37

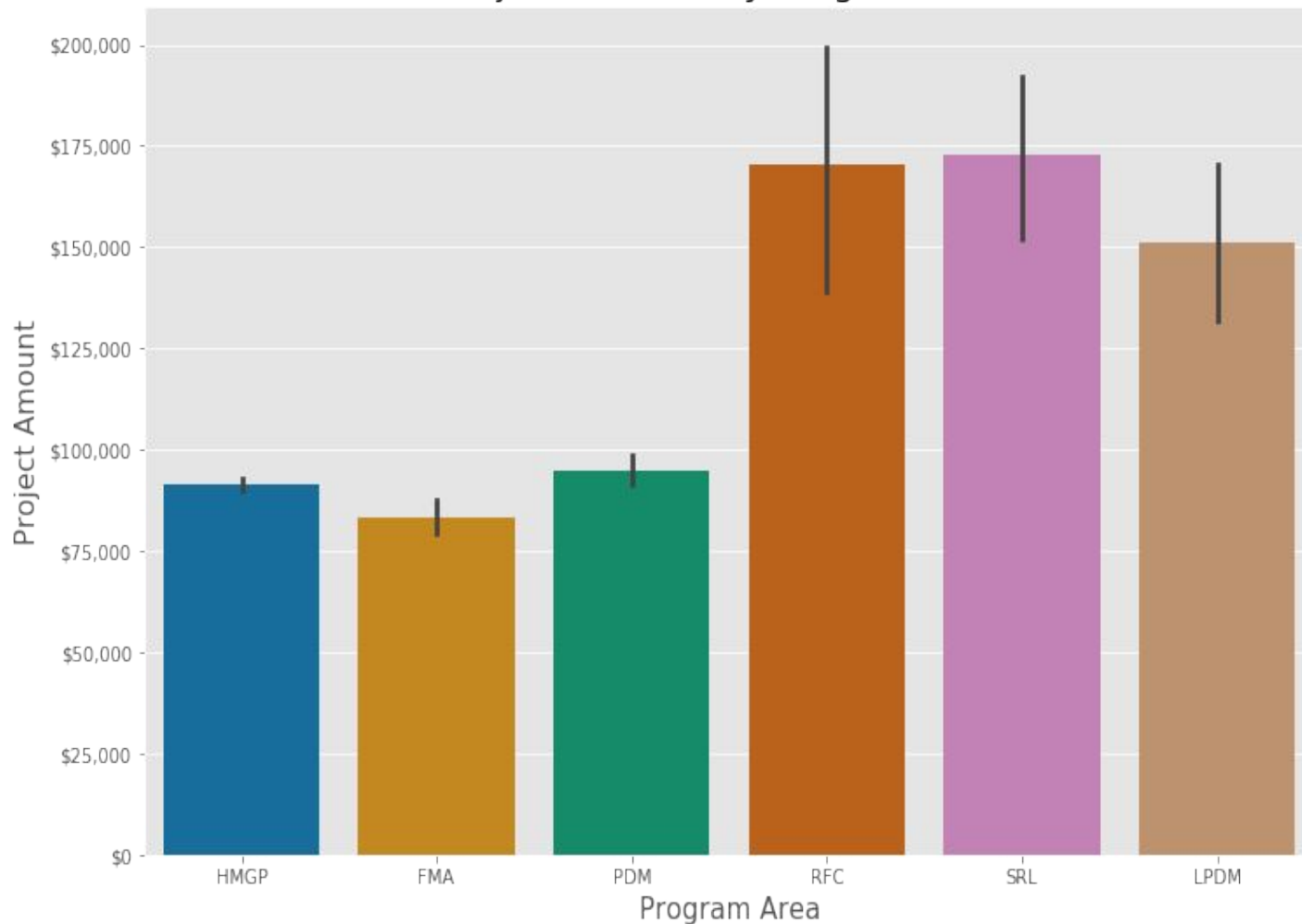
Median Cost of Hazard Mitigation:
\$114,895.50



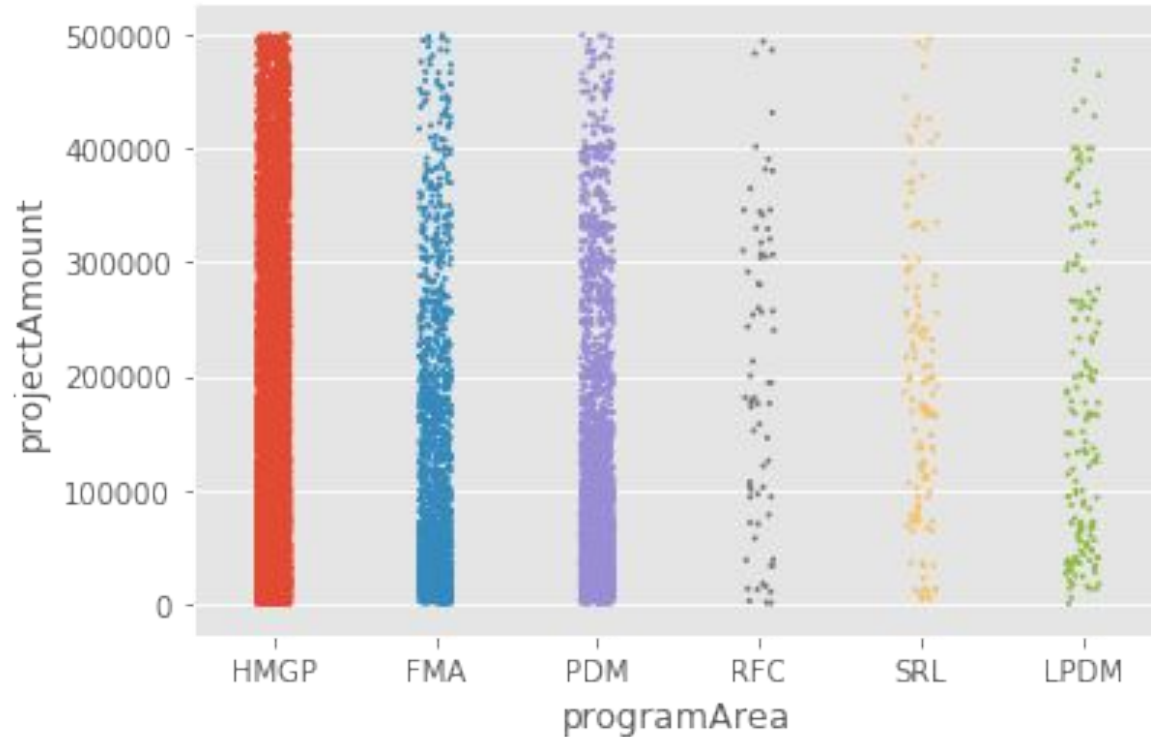
Program Areas

- HMGP - **Hazard Mitigation** Grant Program
 - FMA - **Flood Mitigation** Assistance grant program,
 - PDM - **Pre-disaster Mitigation** grant program
 - RFC - **Repetitive Flood Claims** grant program
 - SRL - **Severe Repetitive Loss** grant program
 - LPDM - **Legislative Pre-disaster** Mitigation grant program
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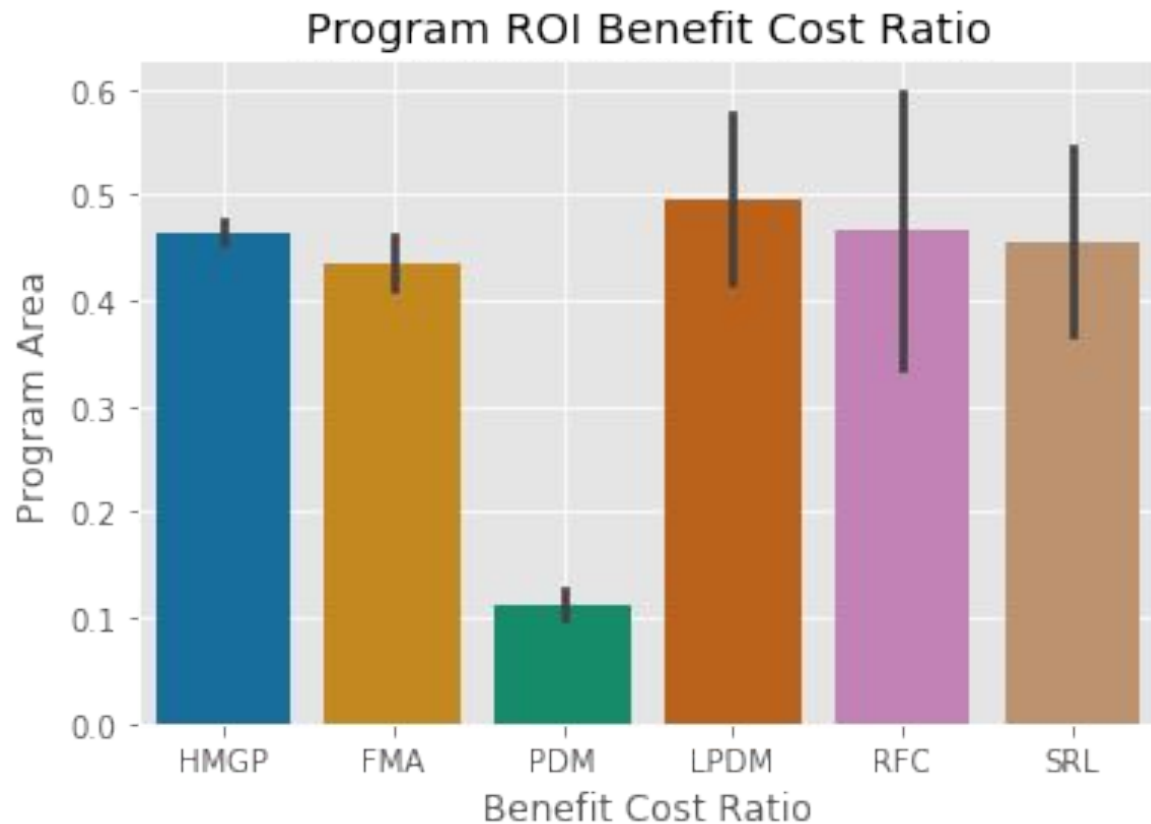
Project Amount by Program Area



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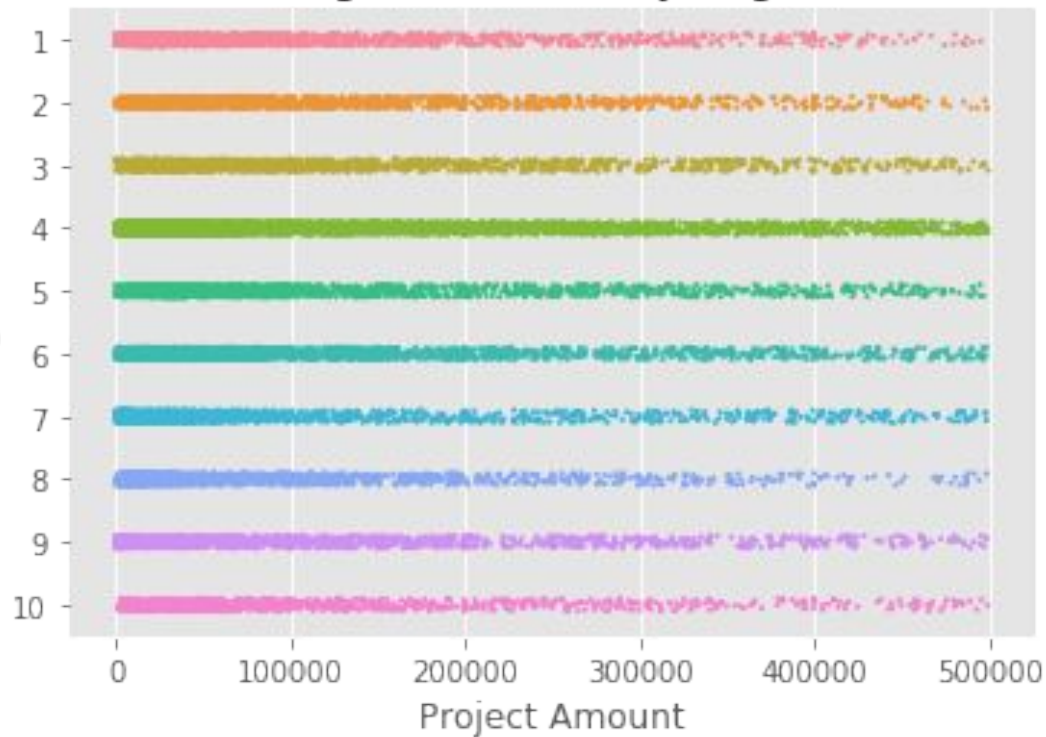
Recommendations

- More funds should be allocated to hazard mitigation in all categories of hazard mitigation with the HMGP being the program of highest ROI

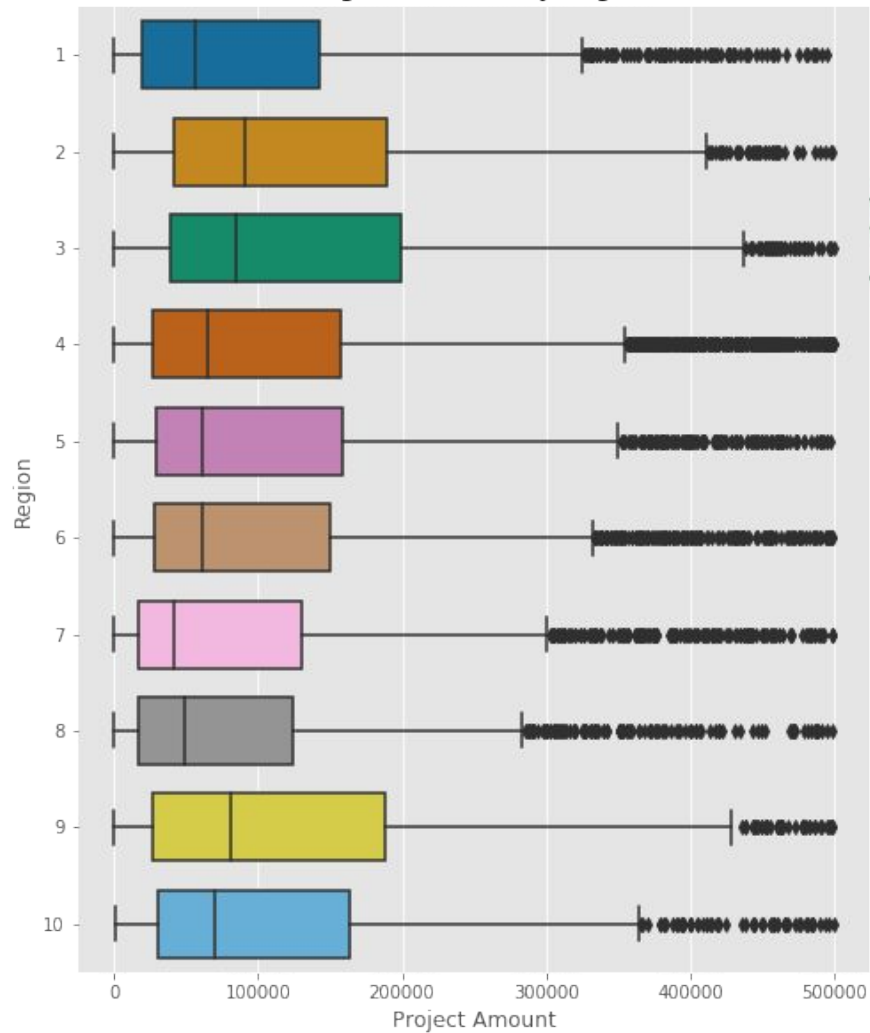
Regions



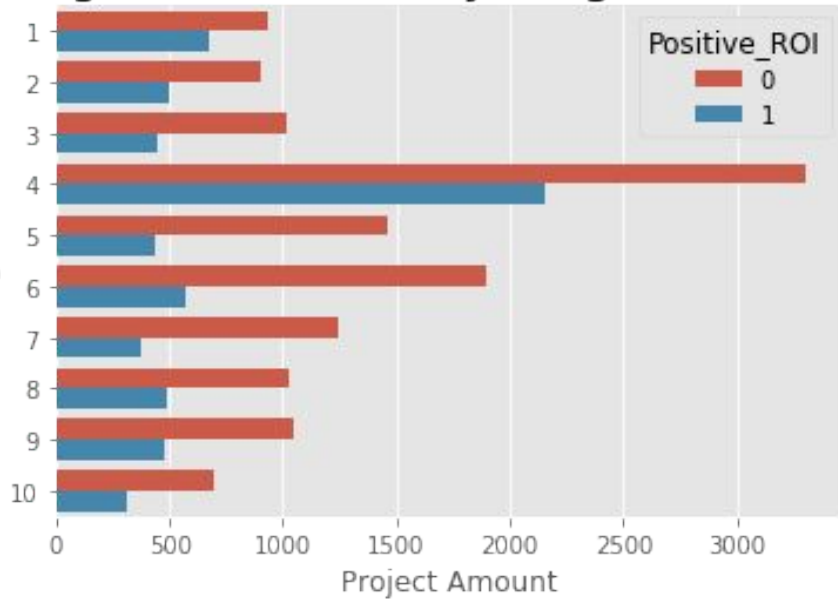
Program Amount by Region



Program Amount by Region



Program Area ROI by Program Amount

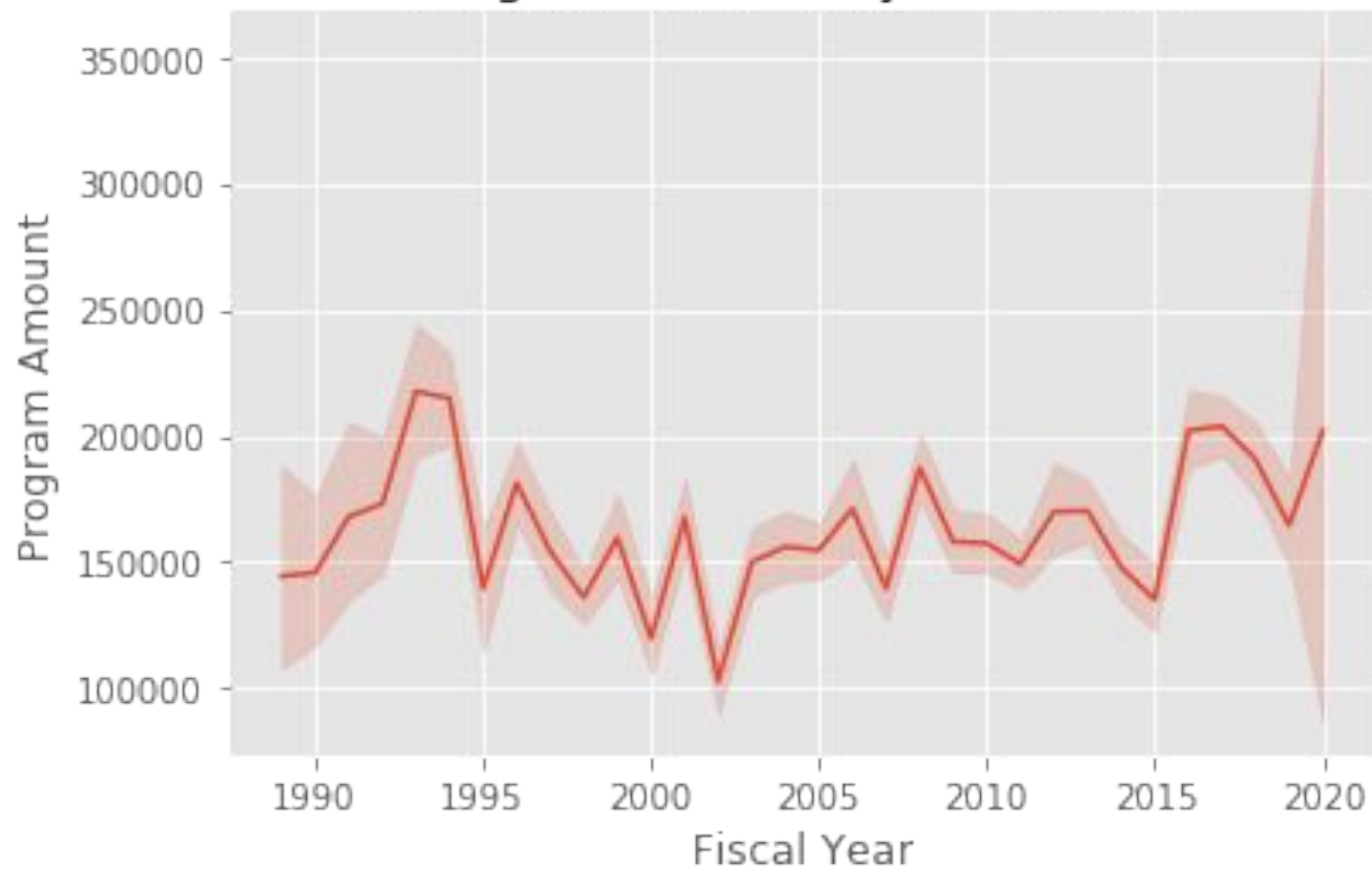


Recommendations

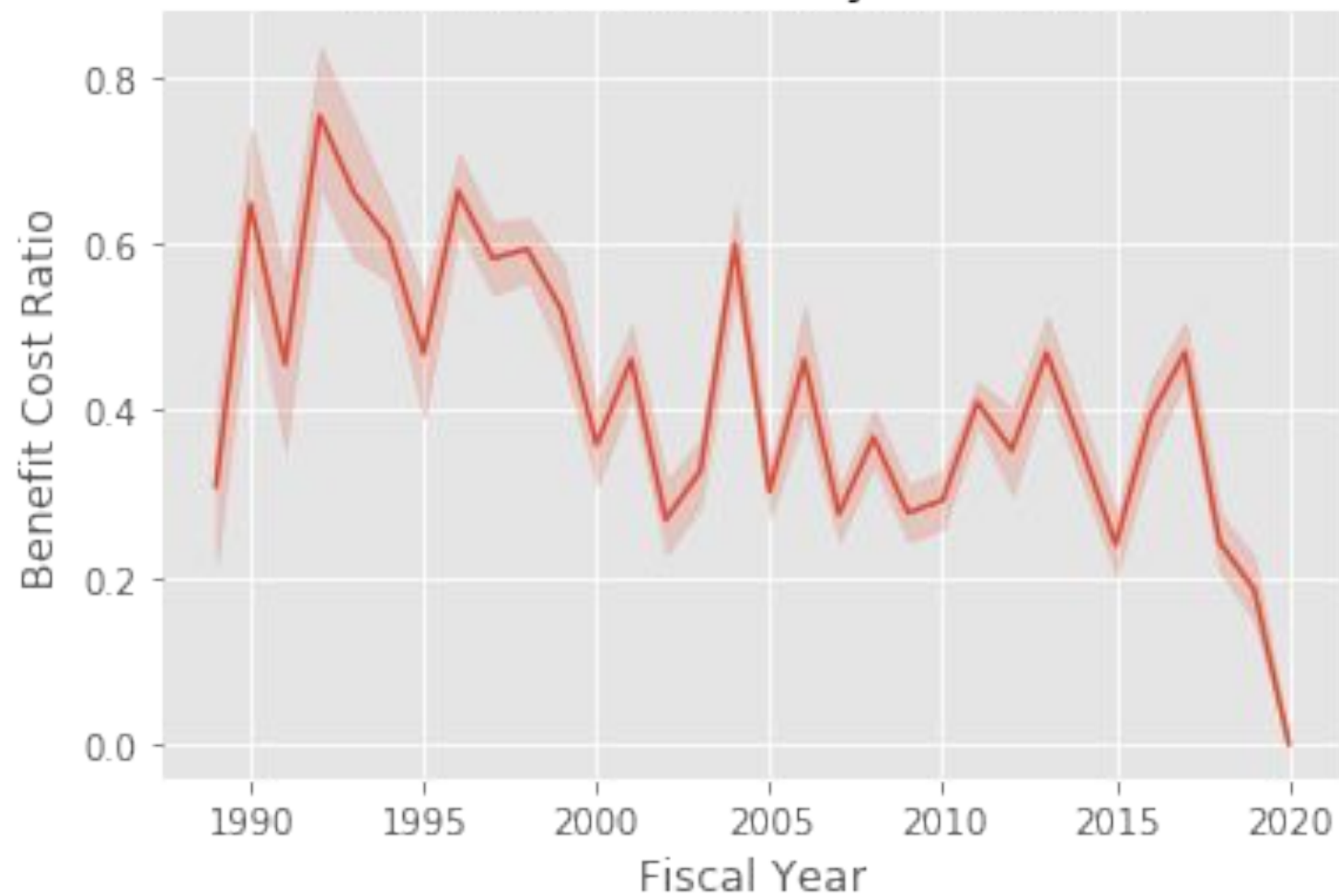
- Certain areas of the US are more prone to natural disasters and need more funding for hazard mitigation including 1, 2, 4, and 9 having the best ROI
- Regions 6 & 7 having the lowest ROI
 - Further investigation into why this occurs or move more funding to regions with best ROI

Program Costs & Benefit Cost Ratios Over Time

Program Amount by Fiscal Year



Benefit Cost Ratio by Fiscal Year



Recommendations

- The costs of COVID-19 surpass all categories of natural disaster recovery costs and were unprecedented
 - There could have been further preparation and can be more preparation in the future

Recommendations



- **Program Areas**

- More funds should be allocated to hazard mitigation in all categories of hazard mitigation with the HMGP being the program of highest ROI

- **Regions**

- Certain areas of the US are more prone to natural disasters and need more funding for hazard mitigation including 1, 2, 4, and 9 having the best ROI
- Regions 6 & 7 having the lowest ROI

- **Program Costs & ROI**

- The costs of COVID-19 surpass all categories of natural disaster recovery costs and were unprecedented
 - There could have been further preparation

Future Work

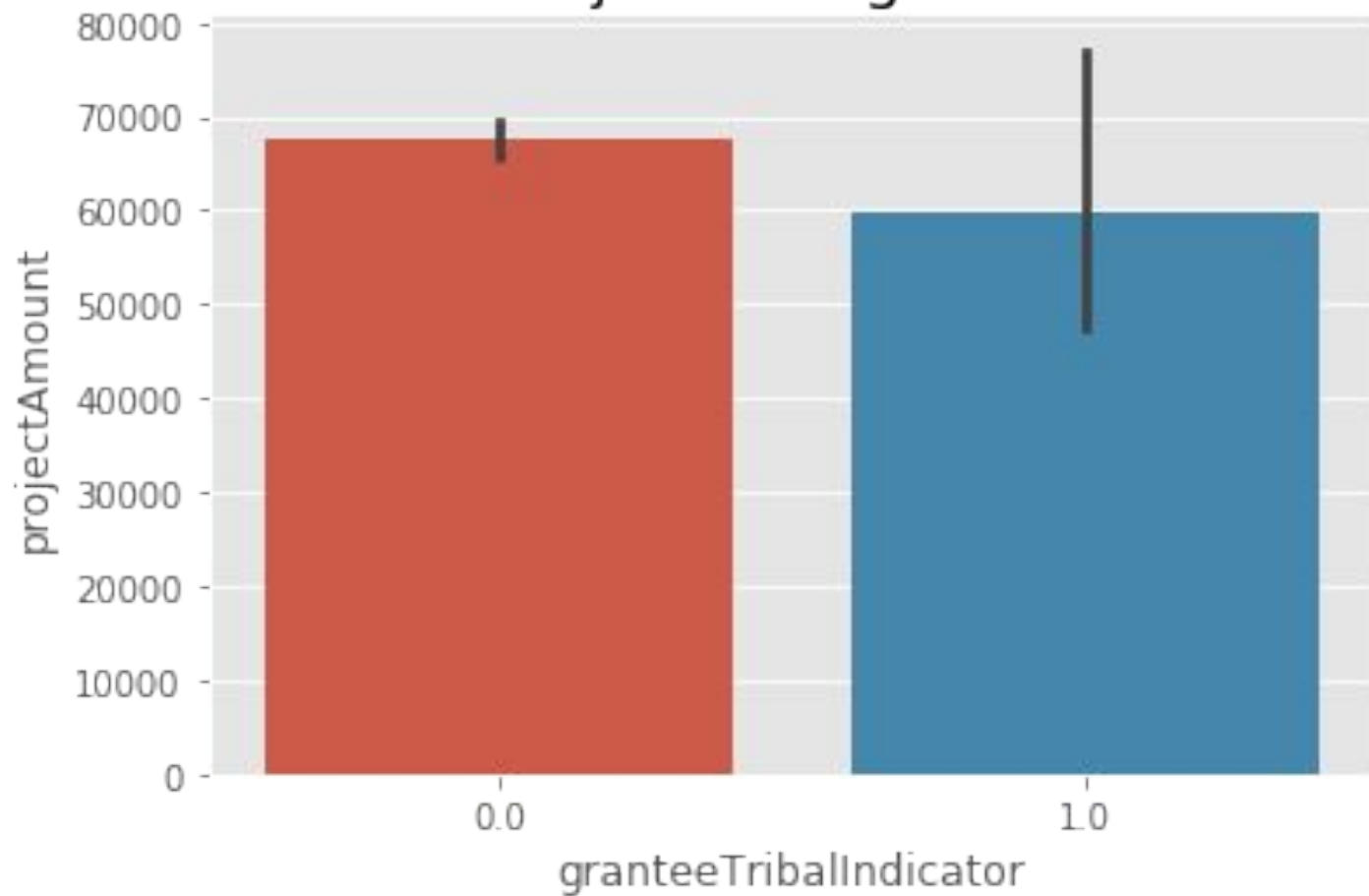
- Budgets in Hazard Mitigation Project Areas
 - HMGP - Hazard Mitigation Grant Program
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- Funding allocation
 - Community Preparation

Thank you!

Appendix

Focus on Tribal Projects

Tribal Projects Program Amount



Tribal Grantee Programs

