

MACH Focus Areas



Municipal Finances

What problem does this focus area address?

Climate disasters place a heavy financial strain on local governments, extending far beyond the immediate costs of emergency response and recovery. In addition to funding rescue operations, debris removal, and infrastructure repairs, municipalities must contend with longer-term economic pressures such as declining property tax revenues, rising insurance premiums, and the escalating costs of fortifying infrastructure against future calamities. These mounting expenses can push local budgets to the brink, forcing difficult financial decisions in communities already grappling with the unpredictable toll of a changing climate. Faced with the growing financial strain of coastal disasters, the Municipal Finances group examines the local economic consequences of such events, with a particular emphasis on flooding.

How can this research be used?

The group analyzes historic data from sources such as the U.S. Census Bureau's Census of Governments to quantify the full range of costs associated with large-scale flooding events. Central to their work is the development of demographic multipliers that estimate how many residents live in exposed buildings and an online fiscal impact tool designed to enable public officials, practitioners, and residents to calculate and visualize the financial consequences of varying disaster scenarios for local governments.

The research highlights a critical challenge in states like New Jersey, where local governments rely heavily on property taxes and may be incentivized to permit development in flood zones to maximize revenues. While financially expedient in the short term, this approach exposes communities to significant long-term risks. The group's

What is MACH?

The Megalopolitan Coastal Transformation Hub (MACH) is a consortium of 13 institutions that brings together academics, policymakers, and community leaders to research climate change impacts and develop effective, evidence-based responses in the Philadelphia–New Jersey–New York region and beyond. Learn more about MACH at coastalhub.org.



Coastal Climate Risk



Housing, Insurance, and
Mortgage Markets



Adaptation Strategy Design



Household Decision-Making



Transdisciplinary Research
and Co-Production Design

coastalhub.org

analysis sheds light on the repercussions of building in vulnerable areas and underscores the need for a balanced system of incentives that prioritizes public safety and sustainable development.

One of the most complex issues the group's research addresses is managed retreat from high-risk flood zones. While retreat—involving the buyout of properties in flood-prone areas—may seem costly initially, the group's findings indicate that reductions in municipal and school costs, emergency response, and infrastructure repair frequently offset the loss of property tax revenue.

Understanding the interplay between state and federal governments during disasters is another critical facet of the group's work. Local communities often rely on counties and states for immediate assistance, with federal programs providing broader-scale support. Mapping the flow of resources among these government levels is crucial for a nuanced analysis of a disaster's fiscal impacts. Here, too, the group is developing a digital tool to visualize how funds are channeled from one level of government to another under varying disaster scenarios and policy constraints. The analysis aims to promote a more cohesive and efficient system of disaster response in which each level of government plays to its strengths, with local governments tailoring solutions to local problems and state and federal agencies pooling risk, delivering large-scale aid, and providing strategic resources.

How does this research relate to the work of other focus areas?

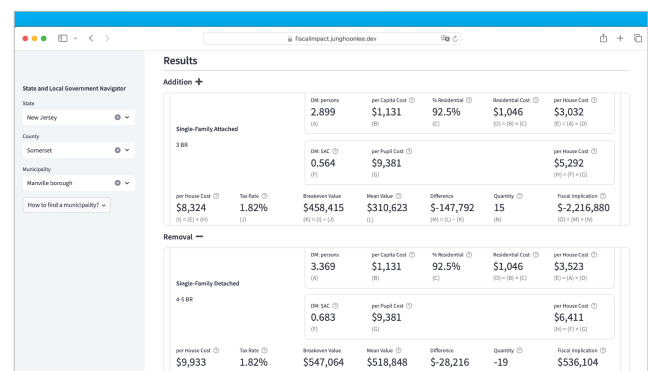
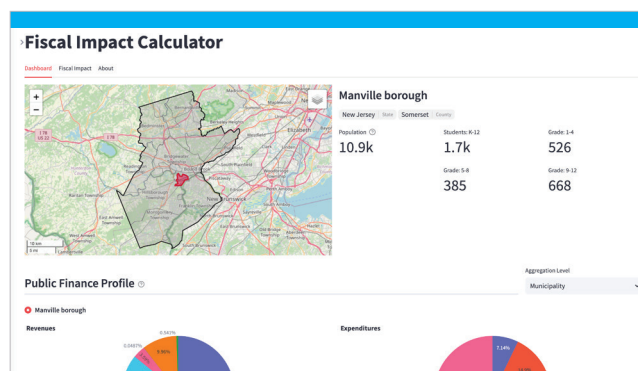
Ultimately, the Municipal Finances group's goal within MACH's broader mission is to realign incentives and foster decision-making frameworks that enhance resilience. With many climate adaptation decisions falling to local governments, understanding the fiscal

impact of climate-related disasters on municipalities is increasingly urgent. By leveraging data-driven insights and developing innovative tools, the group aims to work together with the Coastal Climate Risk and Adaptation Strategy Design groups to help communities build the financial and structural resilience needed to withstand the mounting economic and environmental pressures of a warming world.

The work described here is conducted by researchers at Rutgers University affiliated with the MACH consortium. Reach out to coastalhubinfo@gmail.com for more information.

KEY POINTS

- Climate disasters impose financial burdens on municipalities.
- MACH's Municipal Finances group analyzes historical data to understand the fiscal impact of climate disasters on local governments and develops online decision-support tools.
- Reliance on property taxes can encourage development in flood-prone areas, necessitating incentives for sustainable planning.
- Research suggests that buying out properties in high-risk areas can be cost-effective; loss of property-tax revenue may be offset by reducing emergency and infrastructure expenses.
- The group's goal is to strengthen communities against economic and environmental challenges related to climate change by providing data driven analytical tools, reshaping financial incentives, and encouraging a more efficient intergovernmental response.



The Fiscal Impact Calculator, an online data-visualization tool developed by MACH's Municipal Finances group, draws upon multiple national data sets, including the Census of Governments, American Community Survey, Rutgers Demographic Multipliers, and others.

This work is supported by the National Science Foundation as part of the Megalopolitan Coastal Transformation Hub (MACH) under NSF award ICER-2103754. The opinions, findings, and conclusions or recommendations expressed are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

