

WORKSHOP NOTES: REVENUE VULNERABILITY

March 12, 2021

How are local and state government revenues vulnerable to climate change? How can we “climate proof” budgets and borrowing? The Working Group’s workshop on revenue vulnerability addressed how climate risk has the potential to destabilize general operating budgets and how climate risk could constrain access to lending markets.

Topics covered in this summary:

1. Presentation highlights
2. Discussion highlights
3. References

1. Presentation Highlights

Link to the full recording: <https://vimeo.com/525156580>

Part 1: Vulnerable revenue & dependence: How is revenue vulnerable to climate-related disruptions and policy changes?

Local and state governments need predictable, long-term revenue to plan for and implement climate adaptations. In Part 1 of the presentation Headwaters Economics researcher Kris Smith describes how fiscal policies can actually *disincentivize* climate adaptation. Kris also highlights how climate policies – if designed without a focus on local revenue stability – can create fiscal stress, uncertainty, and political divisions in communities that are dependent on fossil fuels.



On avg., states rely on sales taxes for ~23% of revenue and individual income taxes for 18% of revenue. In contrast, municipalities rely on property taxes for ~30% of revenue.

Key citations: Urban-Brookings Tax Policy Center 2020a; Wen et al. 2020.

120

**US cities at risk of losing
>20% of property taxes
due to sea level rise**

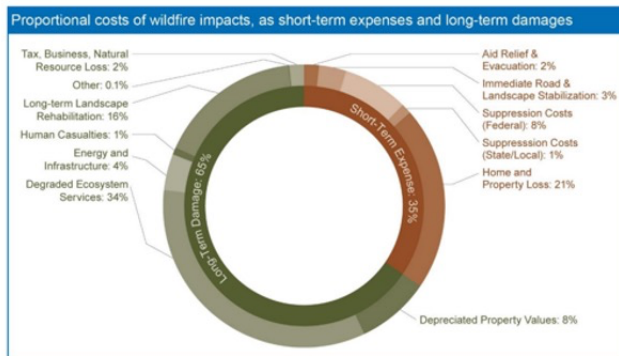
Union of Concerned Scientists, 2018

<https://headwaters-economics.org>

Majority of research on revenue vulnerability to climate change focuses on property tax decreases due to sea level rise and coastal risks.

Key citations: Dahl et al. 2018; Shi and Varuzzo 2020.

"The Full Community Costs of Wildfire" Headwaters Economics, 2018



For wildfires, full cost assessments of disasters demonstrate that long-term costs are greater than short-term costs. Local stakeholders (local governments, businesses, and individuals) pay for 46% of total costs of wildfires (Barrett 2018).

Transition risks & dependence

50%

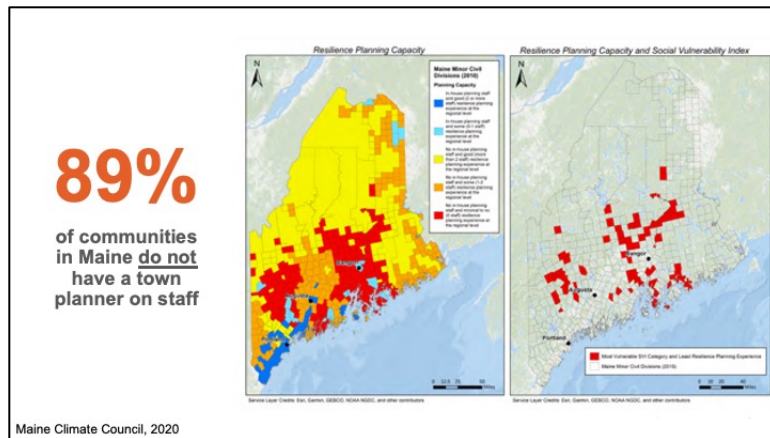
**Of Wyoming's
revenues are from
fossil fuel royalties
& severance taxes**



<https://headwaters-economics.org>

States and communities that are dependent on fossil fuels will likely experience revenue losses and increases in expenditures due to the transition to a lower-carbon economy. Governments often rely on fossil fuel revenues for critical infrastructure and debt payments, disincentivizing transitions.

Key citations: Haggerty et al. 2018; Smith 2020.



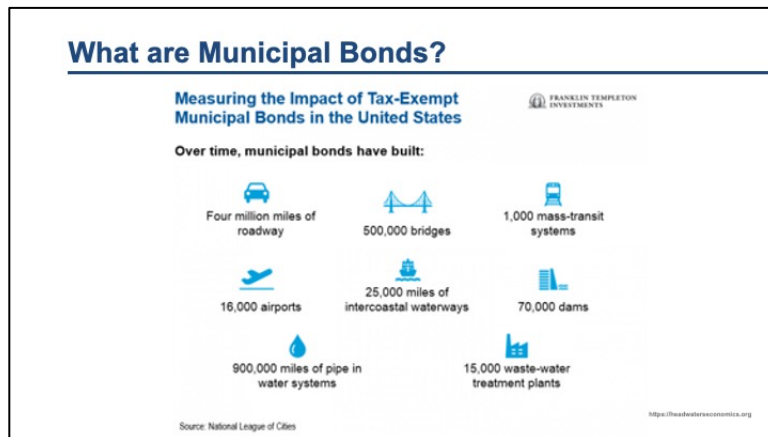
Fiscal policies need to be integrated with planning, but many communities lack planning capacity. For instance, Maine’s climate council (2020) noted that 89% of the state’s communities do not have a planner on staff, raising questions about their capacity for adaptation.

Solutions:

1. Plan for revenue vulnerability (see Haggerty et al. 2018).
 - a. Assess vulnerability.
 - b. Recognize fiscal policy barriers (including balanced budget requirements and limits on tax increases, debt, and spending - see Wen et al. 2020).
 - c. Incorporate fiscal projections and policy constraints into planning.
2. Reprioritize current funding to address climate goals.
 - a. Example: In 2003 Minnesota identified 100 existing agency programs that could be leveraged to meet climate goals ([more info](#)).
 - b. Example: A planning organization in New Mexico partnered with U.S. Department of Transportation to create climate scenarios and incorporate them into the agency’s transportation planning and prioritization ([more info](#)).
3. Create new revenue streams.
 - a. Implement new utility fees, taxes, and/or improvement districts to fund resilience projects.
 - i. Example: Grand Rapids, MI, passed a 1.5% income tax to fund green infrastructure in its Vital Streets Program ([more info](#)).
 - b. Invest in permanent funds to help stabilize revenues (particularly for fossil fuel-dependent communities).
 - i. Example: In Montana the Mineral Leasing Act allows communities to create a permanent account to save money for unanticipated costs related to the mine closure and future transitions.
 - ii. *Note from Aimee Franklin during discussion:* Two states (Oklahoma and Louisiana) recently chose not to create a permanent fund. Instead, they opted for revenue stabilization funds. These funds are more at risk of being underfunded and “raided” for other purposes.

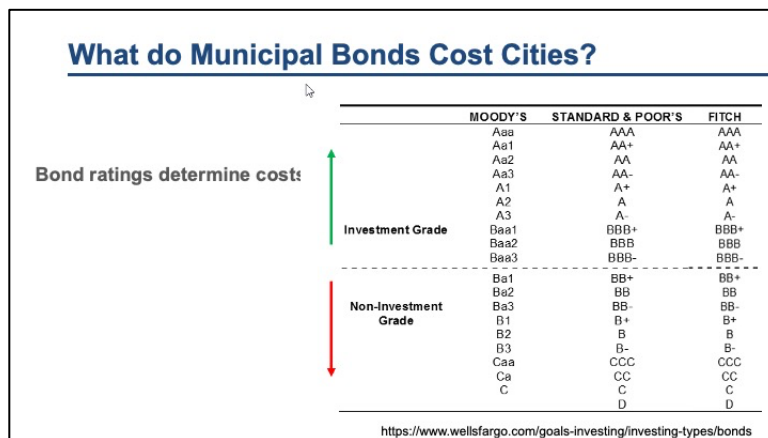
Part 2: Lending markets and climate risk: Do municipal bond markets account for climate change risk?

Municipal bonds finance two-thirds of state and local infrastructure. Nationally, there are more than one million outstanding local government bonds worth a combined \$4.1 trillion. However, access to lending markets may shift due to climate change. Headwaters Economics researcher Mark Haggerty describes how communities may face higher borrowing costs – making climate adaptation more expensive – as rating companies incorporate climate change into their risk calculations. Further, research suggests that bond markets may fail communities at the exactly the wrong time – when communities need the most help. Mark ends by identifying alternative sources of upfront capital and financing strategies for local and state governments.

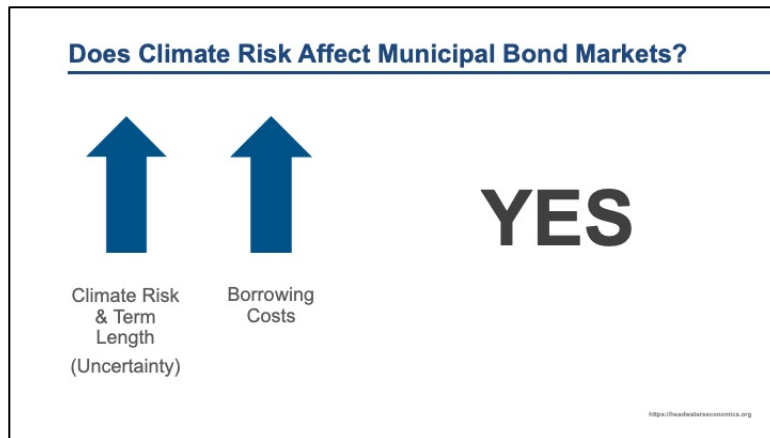


Municipal bonds finance two-thirds of state and local infrastructure. Nationally, there are 1 million outstanding bonds worth a combined \$4.1 trillion.

Key citations: National League of Cities 2016; Tax Policy Center 2020b.

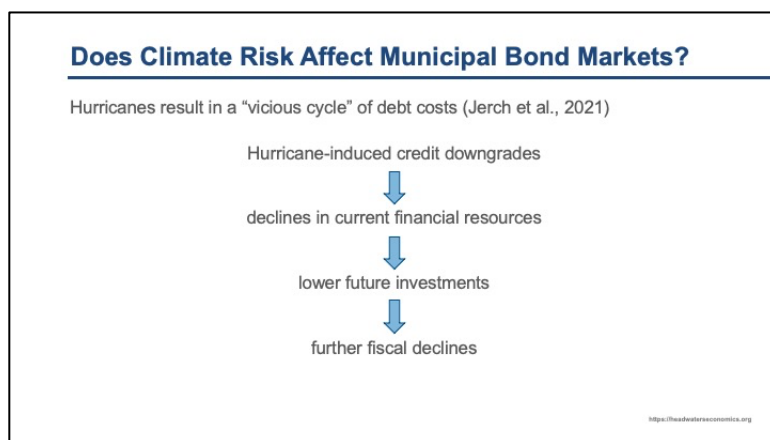


Governments that want to borrow money must pay a fee to a company to structure and sell their bonds. They also pay interest to the borrower. These costs can rise if governments are seen as “risky” by bond rating companies.



Increasingly, companies are including climate risk into their calculations. Painter (2020) found a statistically significant relationship between higher climate risk and more expensive issuance costs for bonds.

Key citations: Goldsmith-Pinkham 2021; Painter 2020.



Jerch, Kahn, and Lin (2021) found that municipal bond costs rise after hurricanes and create a “vicious cycle” of increasing costs of debt that make it harder for cities to pay for long-term recovery.



Solutions and alternatives to bond markets:

1. Private solutions

a. Green bonds and impact investing

- i. Example: Quantified Ventures Soil & Water Outcomes Fund in Iowa – an impact investment project that leverages private money to pay agriculture stakeholders for conservation practices to benefit downstream water utilities ([more info](#))

2. Public solutions
 - a. Revolving loan funds
 - i. Example: California's Climate Catalyst Revolving Loan Fund provides low-cost, low-interest financing to support low-carbon technology and infrastructure investments ([more info](#)).
3. Quasi-public solutions
 - a. Community Development Finance Institutions (CDFI) make investments to underserved communities. They often leverage public and private funds. There are more than 1,000 CDFIs in the United States ([more info](#)).
 - i. Example: Resilient Community Development Finance (ResCDF) Initiative

2. Discussion Highlights

Research questions identified and discussed by workshop participants

Research opportunities

 How do we make this information useful?
 What revenue is vulnerable? What strategies work?
 What barriers to resilient budgets need to be addressed?
 What investments are needed to climate-proof budgets?

<https://rescenterconomics.org>

Mark and Kris identified four opportunities where more research is needed. Then workshop participants offered other ideas for future research projects, which are included below.

What data (quantitative and qualitative) are we missing?

- What data are ratings companies using to assess climate risk? What kind of data do they want, how do they use it, and how could the RISAs help deliver it?
- What are the larger governance barriers to implementation? For example, how could state-level policies give local governments the autonomy they need?
 - Can we map an indicator of fiscal autonomy to show geographic variations?
- How do we help local governments assess climate risk?
 - Need for full cost accounting that takes into account the 20-to-30-year risks from climate change (sea-level rise example)
- How can we quantify what is being done today to inform what we should do tomorrow?
- How can we identify, describe, and quantify co-benefits of adaptation?
- What are the equity issues related to fiscal loss? What types of communities within the municipality feel it the most and in what ways?

How do we help communities assess and build capacity?

- Could primers be developed for local governments about these topics?
- Can we map out public finance and capacity indicators (like Maine did) on a broader scale?
- What kind of expertise and capacity is needed at the local government levels to allow communities to seek funding and pursue mitigation and adaptation?
- How do we deal with limited funds and competing priorities?
 - How can local revenue be raised without disenfranchising other stakeholders that want to use that money?
 - How should communities address competing priorities for property taxes? What are other people doing?
- How can communities build capacity together? Examples: (1) Texas local government investment pools; (2) shared city manager programs where small jurisdictions each contribute a % of the cost of city manager; (3) Oregon Mid-coast Water Planning Partnership – group of city engineers, planners, and experts building a regional water governance network ([more info](#)).
- How can climate data be integrated with fiscal capacity data to help target capacity assistance?

How do we communicate opportunities and challenges to communities?

- Can we create peer-learning opportunities?
- How can we make these data useful for decision makers?
- Audience for information is not necessarily local governments directly, because elected officials and/or staff change often. The target audiences are the professional institutions that support them (e.g., NCSL and NACOs of the world that do research, trainings, and lobbying).
- How do you build public support for debt financing? (There are often misconceptions about levies, bonds, and debt. Need to share why bonds are needed by governments.)
- How do professional and nonprofit groups influence policy debates that lead to positive or negative adaptations? How can these groups be incorporated into discussions about fiscal policy and adaptation to better serve communities?

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