

CBO's Recent Analyses of Climate Change, Flood Damage, and Mortgages

September 5, 2024

First Street Webinar

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CBO's Recent Work on Flooding and Natural Disasters

Congressional Budget Office
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Wildfires

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Communities at Risk of Flooding

SEPTEMBER | 2023

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Flood Damage and Federally Backed Mortgages in a Changing Climate

NOVEMBER | 2023

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Flood Insurance in Communities at Risk of Flooding

JULY | 2024

Congressional Budget Office
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Climate Change, Disaster Risk, and Homeowner's Insurance

AUGUST | 2024

Congressional Budget Office
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BUDGET SPOTLIGHT
NOVEMBER | 2022

Army Corps of Engineers: Budgetary History and Projections

The Army Corps of Engineers participates in the development and management of the nation's water resources. The Corps has three main objectives:

- Supporting commercial navigation by maintaining and regulating commercial ports and waterways.
- Protecting the environment by preserving and restoring aquatic ecosystems, and
- Building and maintaining flood control projects.

Every two years since 2014, lawmakers have enacted the Water Resources Development Act (WRDA), which authorizes new construction and rehabilitation projects and directs the Corps to study the feasibility of future projects. [Click here to read the full report.](#)

Congressional Budget Office
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BUDGET SPOTLIGHT
NOVEMBER | 2022

FEMA's Disaster Relief Fund: Budgetary History and Projections

To help households as well as state, local, and tribal governments respond to and recover from disasters, the federal government provides financial assistance through the Disaster Relief Fund (DRF), the largest source of federal financial assistance after disasters. The Federal Emergency Management Agency (FEMA) administers the fund through a single federal spending account under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The money is used for the following activities:

- Repair, replace, and improve the **resiliency** of damaged infrastructure;
- Clear debris;
- Provide critical services;

Working Paper Series
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Flood Damage Avoided by Potential Spending on Property-Level Adaptations

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Working Paper 2024-03
May 2024

Working Paper Series
Congressional Budget Office
Washington, D.C.

The Effects of Flood Damage on the Subsidy Cost of Federally Backed Mortgages

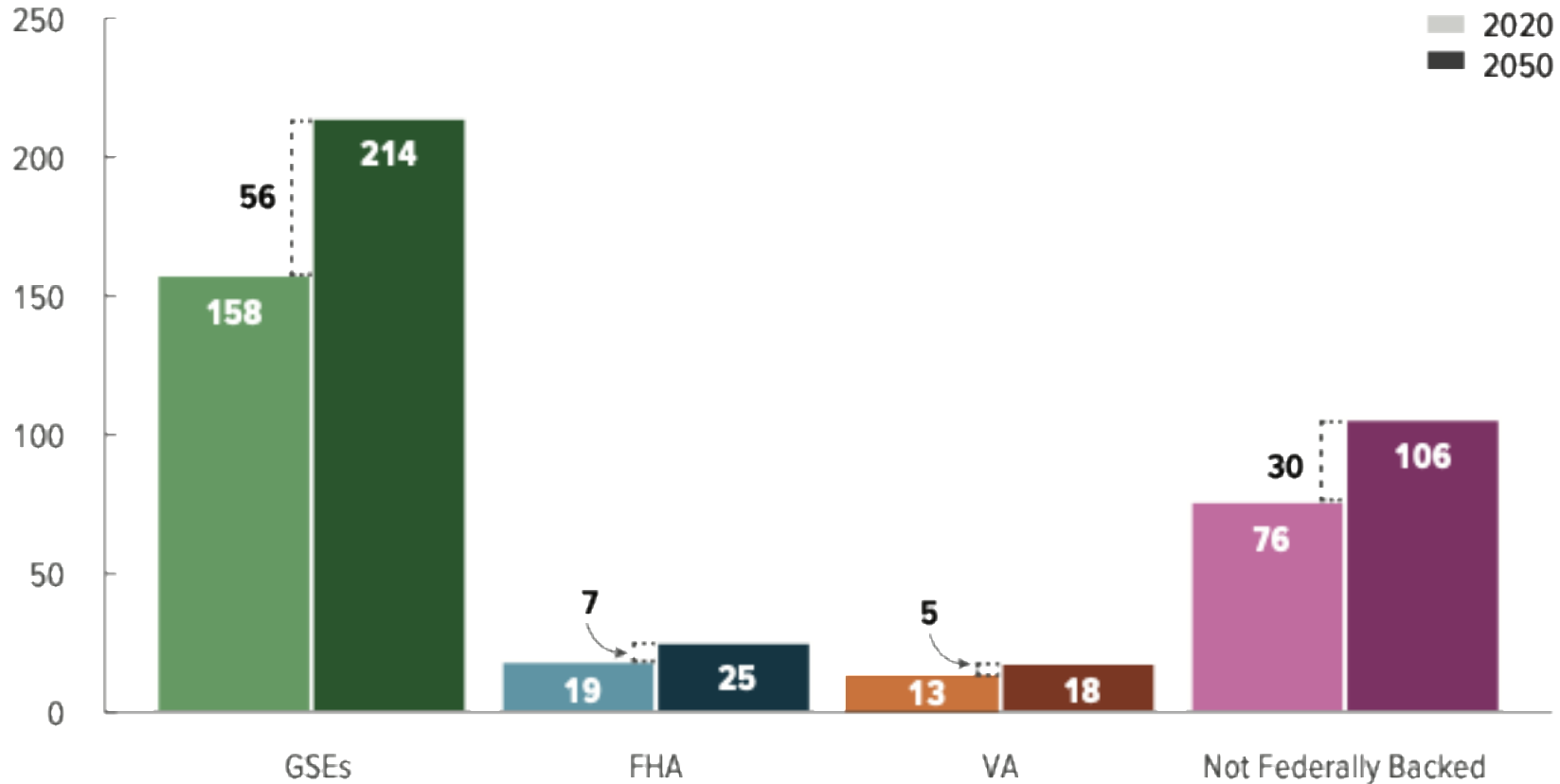
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Working Paper 2024-04
July 2024

Present Value of Expected Damage to Homes With Mortgages

Billions of 2020 dollars



The present value of 30 years of expected flood damage for homes with mortgages backed by the GSEs, FHA, or VA totals \$190 billion in the 2020 period. That value increases by 36 percent, to \$258 billion, in the 2050 period.

Most of the present value of expected damage in both periods is attributable to homes with mortgages backed by the GSEs.

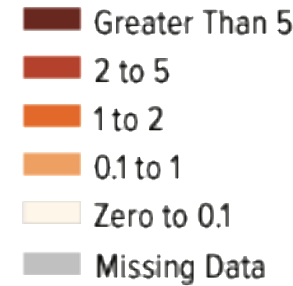
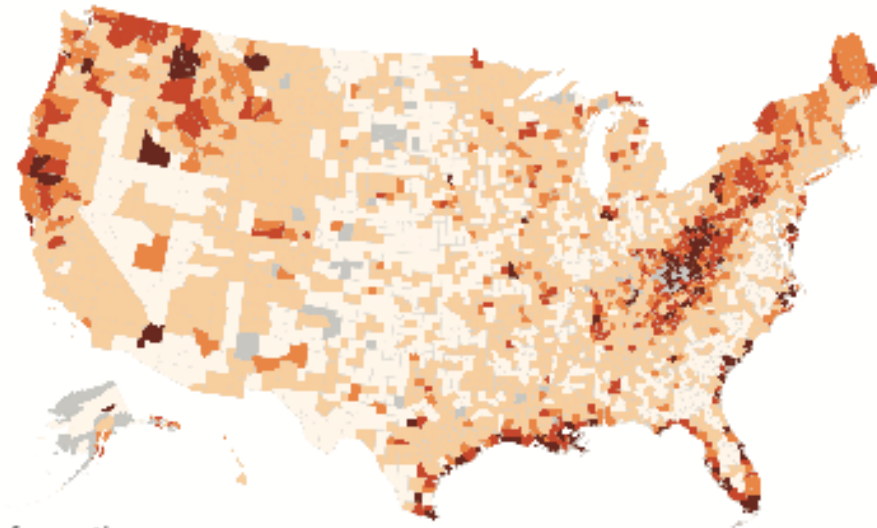
Congressional Budget Office, *Flood Damage and Federally Backed Mortgages in a Changing Climate* (November 2023), p. 7, www.cbo.gov/publication/59379.

A present value is a single number that expresses a flow of current and future income or payments in terms of an equivalent lump sum received or paid at a specific time.

FHA = Federal Housing Administration; GSE = government-sponsored enterprise; VA = Department of Veterans Affairs.

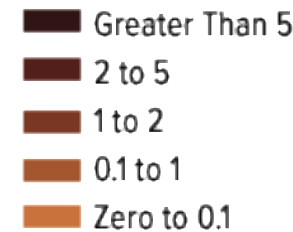
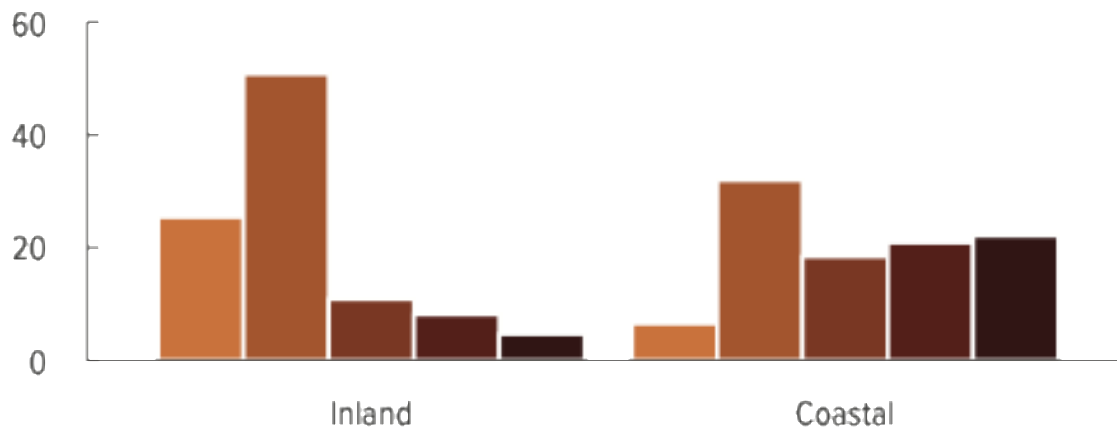
Present Value of Flood Damage to Homes With Federally Backed Mortgages as a Percentage of Total Property Value in the 2020 Period

Percent



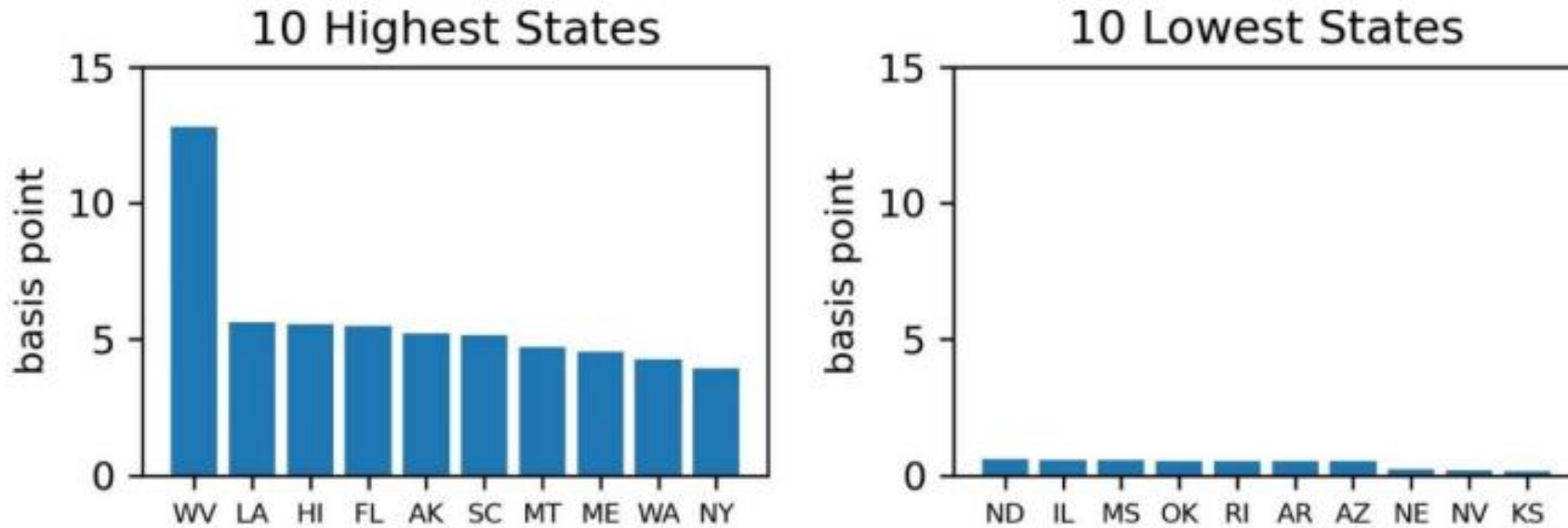
The present value of flood damage as a percentage of total property value among homes with federally backed mortgages is highest in some coastal counties and in inland counties in Idaho and Appalachia.

Percentage of counties



Over 20 percent of coastal counties face a present value of flood damage to property with a federally backed mortgage that is greater than 5 percent of the total value of that property.

Effects of Flood Damage on the Subsidy Rate Under Current Climate Conditions, by State

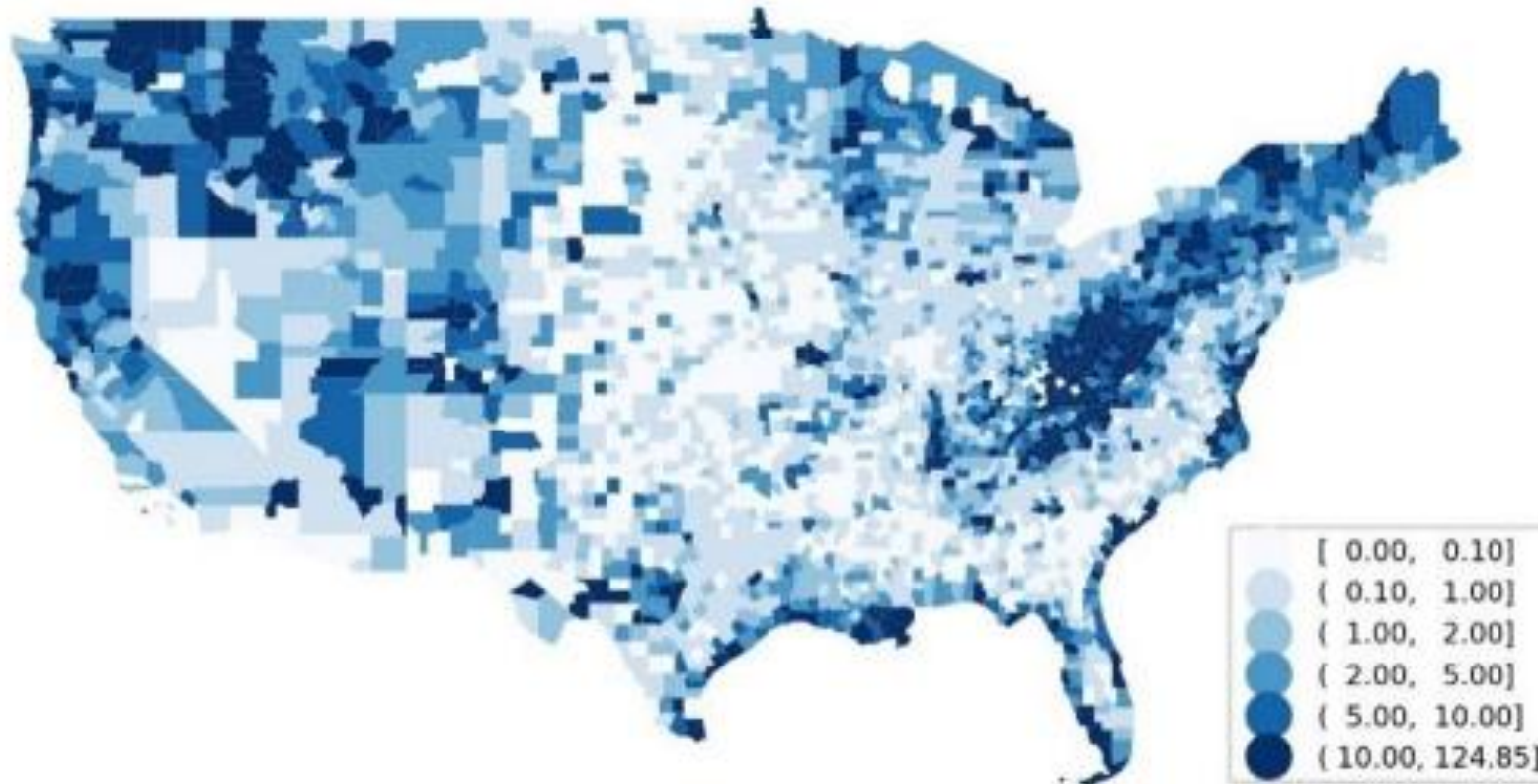


Evan Herrstadt and Byoung Hark Yoo, *The Effects of Flood Damage on the Subsidy Cost of Federally Backed Mortgages*, Working Paper 2024-04 (Congressional Budget Office, July 2024), Figure 2, www.cbo.gov/publication/60167.

A basis point is one one-hundredth of a percentage point.

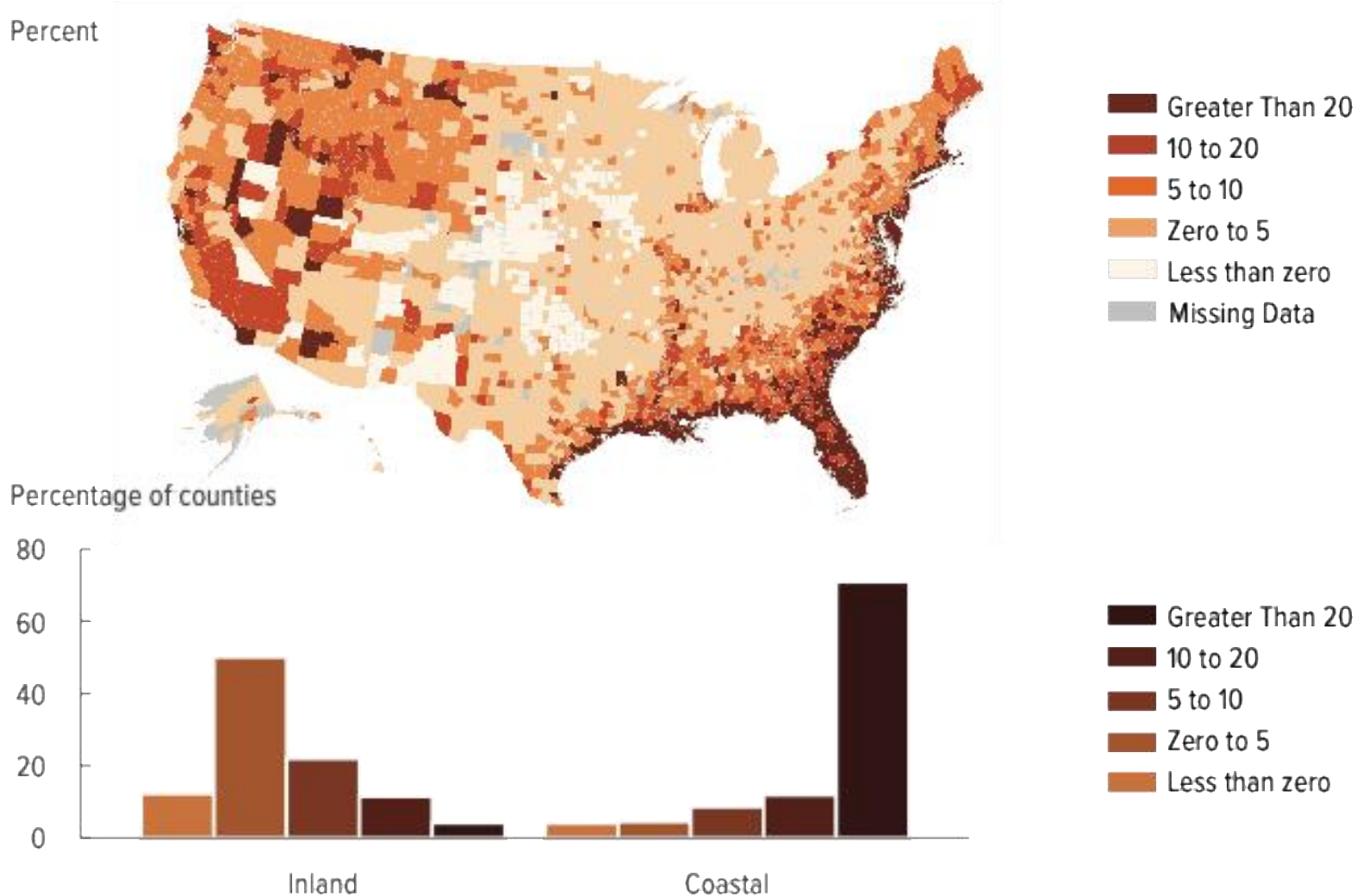
Effects of Flood Damage on the Subsidy Rate Under Current Climate Conditions, by County

Effect on the Subsidy Rate (basis points)



The riskiest 25 percent of census tracts account for 90 percent of the nationwide effect on the subsidy cost.

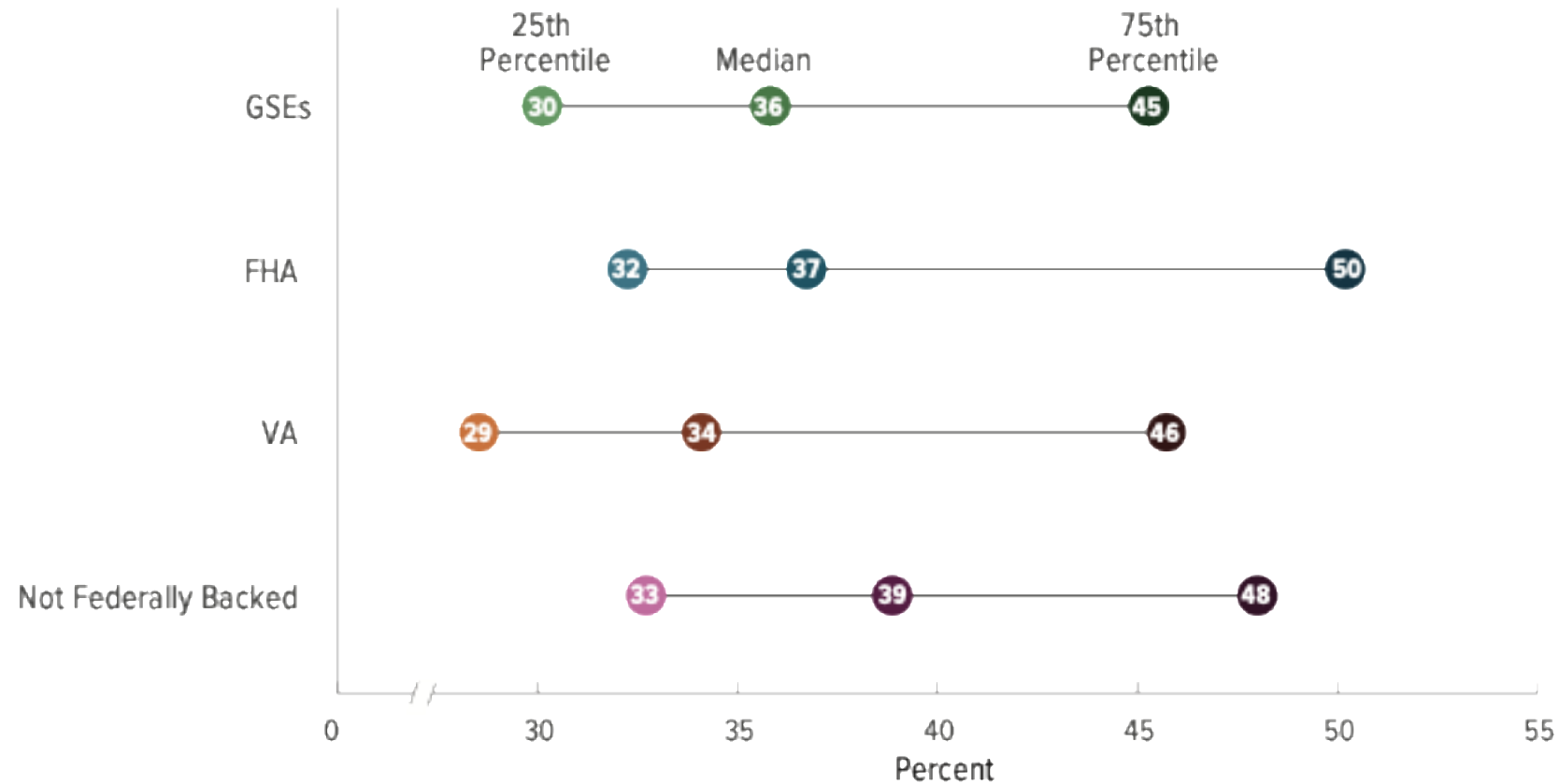
Total Increase in Expected Annual Damage to Homes With Federally Backed Mortgages, by County



Homes with federally backed mortgages near the Gulf of Mexico or the Atlantic Ocean are expected to see the largest increases in damage.

Over three-quarters of coastal counties are expected to see EAD increase by 20 percent or more.

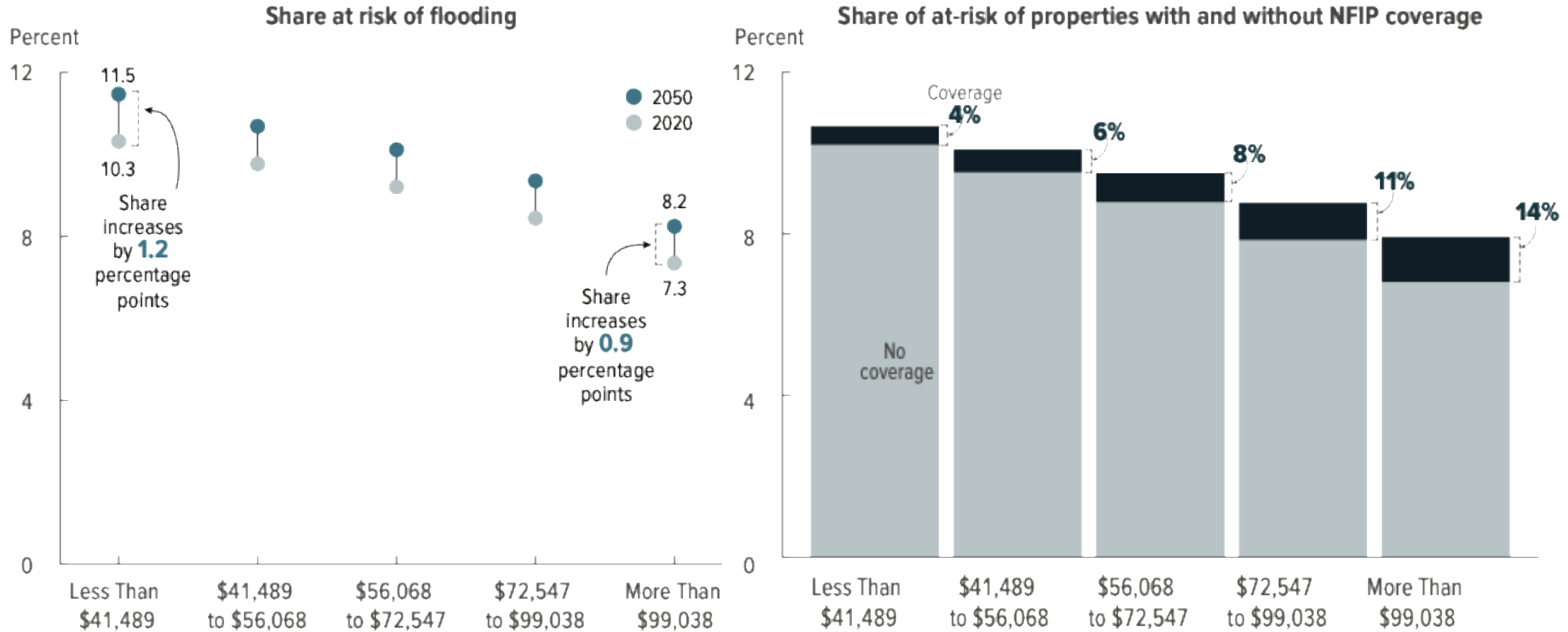
Change in Expected Annual Damage Under Different Climate Projections



The change in EAD from 2020 to 2050 under all three climate outcomes is similar for the different sources of federal mortgage guarantees.

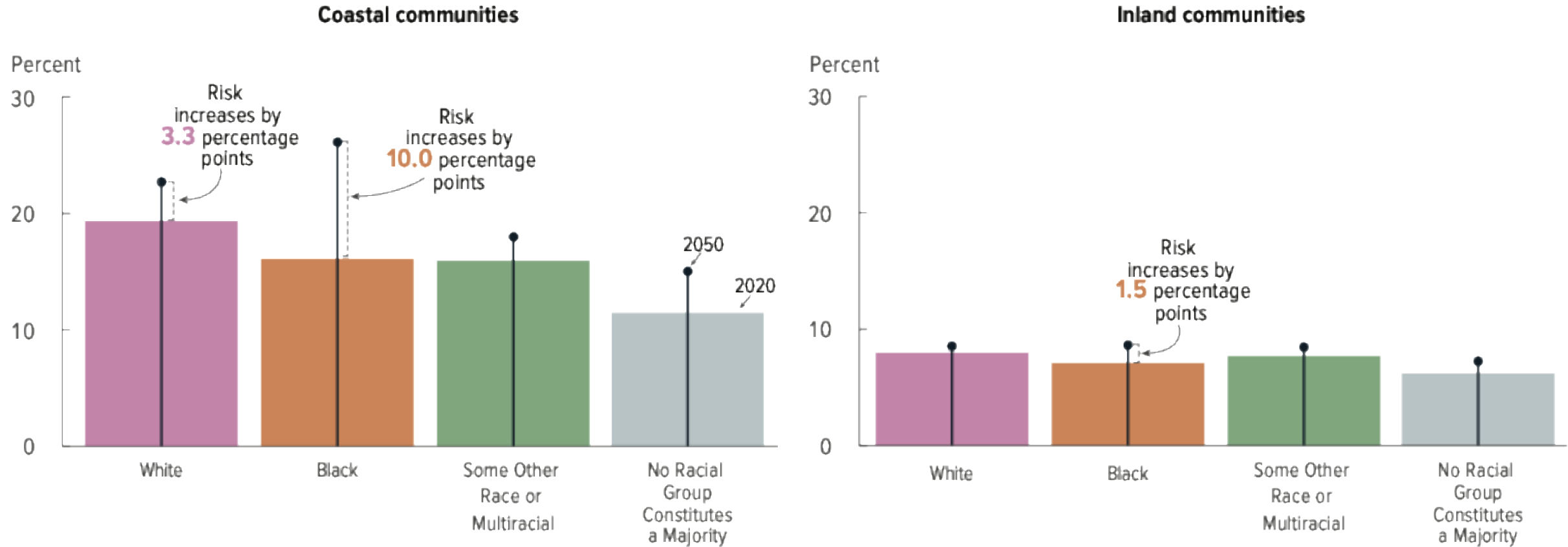
The increase in EAD from 2020 to 2050 ranges from 29 percent to 33 percent under the 25th percentile outcome, from 34 percent to 39 percent under the median outcome, and from 45 percent to 50 percent under the 75th percentile outcome.

Share of Properties Projected to Be at Risk of Flood, by Quintile of Median Household Income, and NFIP Coverage Among Those Properties



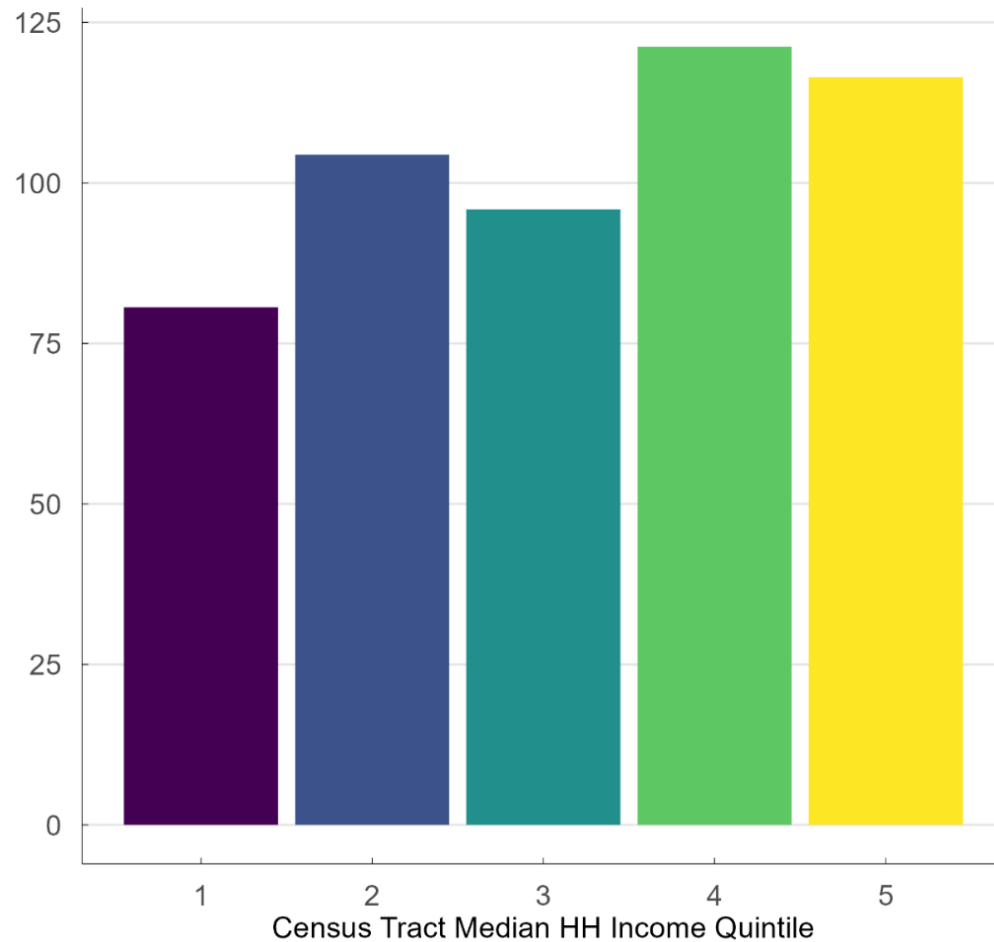
Congressional Budget Office, *Communities at Risk of Flooding* (September 2023), p. 4, www.cbo.gov/publication/58953, and, *Flood Insurance in Communities at Risk of Flooding* (July 2024), p. 6, www.cbo.gov/publication/60042.

Share of Properties Projected to Be at Risk of Flood, by the Majority of Householders' Race and Location

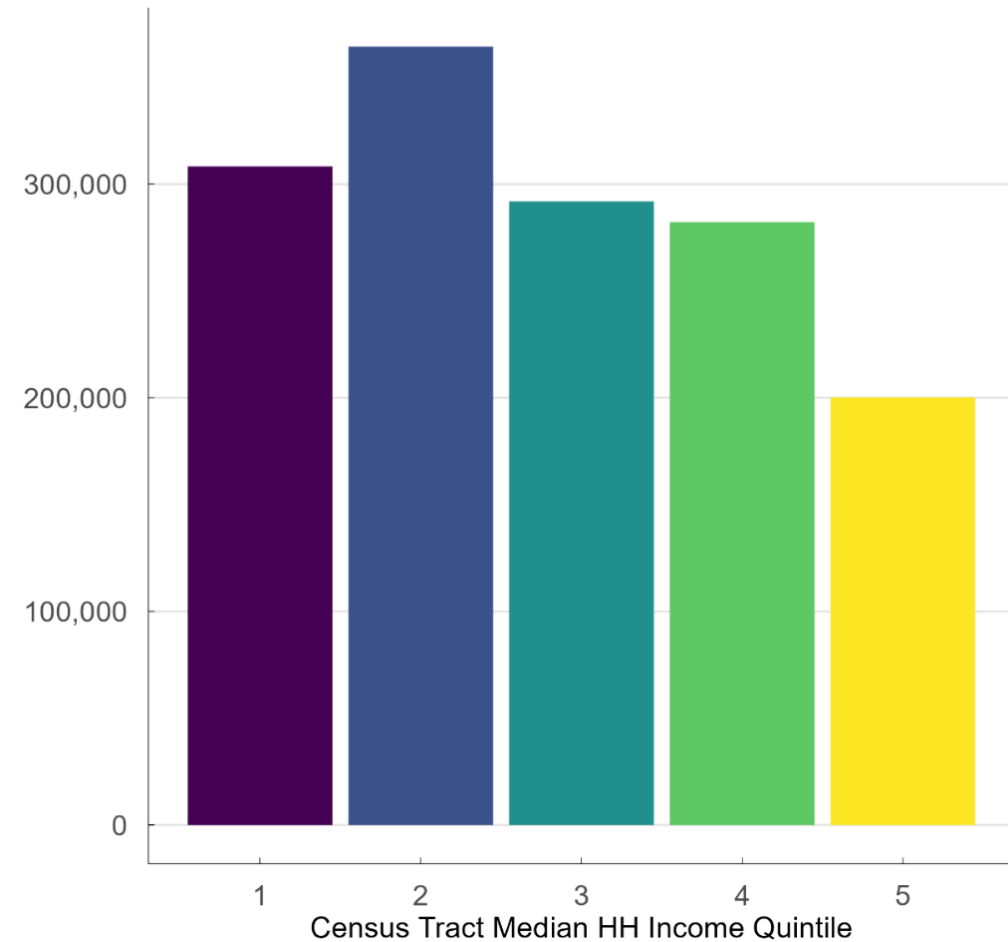


Projects With Avoided Damage per Dollar Spent Greater Than \$1 in Each Census Tract Quintile, As Defined by Median Household Income

Expected Avoided Damage (billions of dollars)



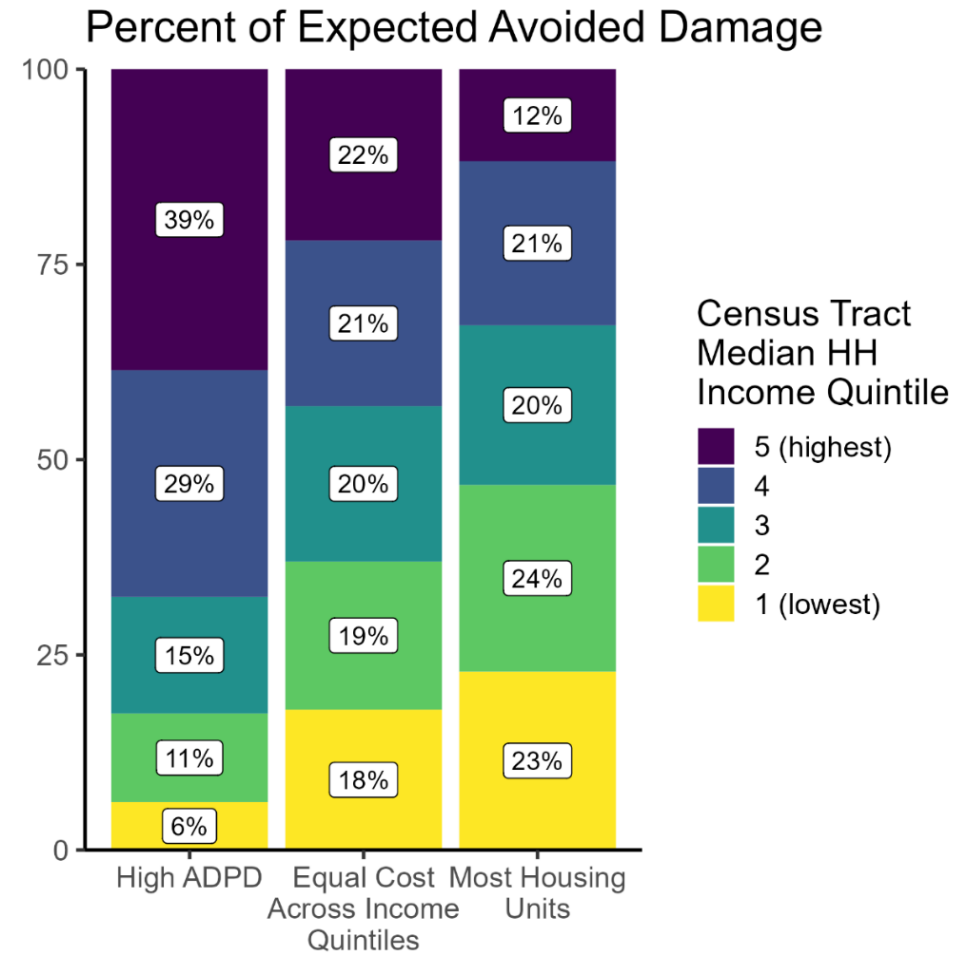
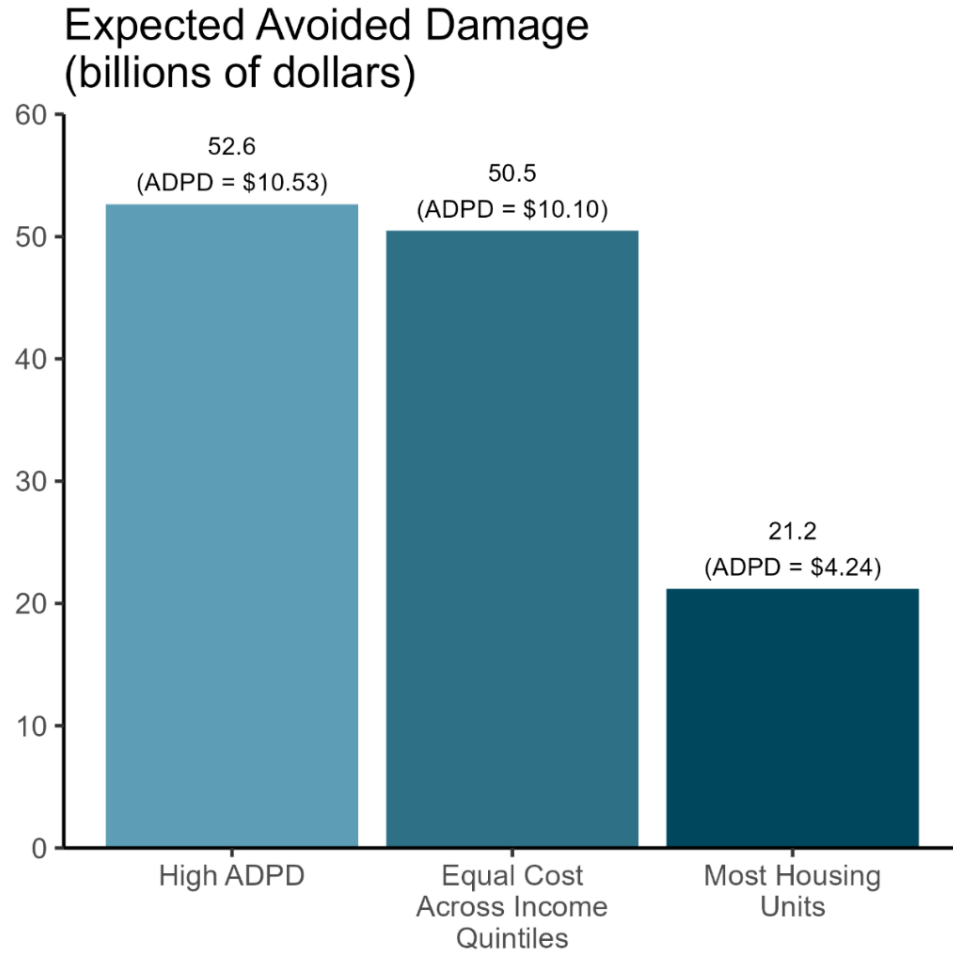
Housing Units Adapted



Evan Herrnstadt and Jared Jageler, *Flood Damage Avoided by Potential Spending on Property-Level Adaptations*, Working Paper 2024-03 (Congressional Budget Office, May 2024), Table 2, www.cbo.gov/publication/58168.

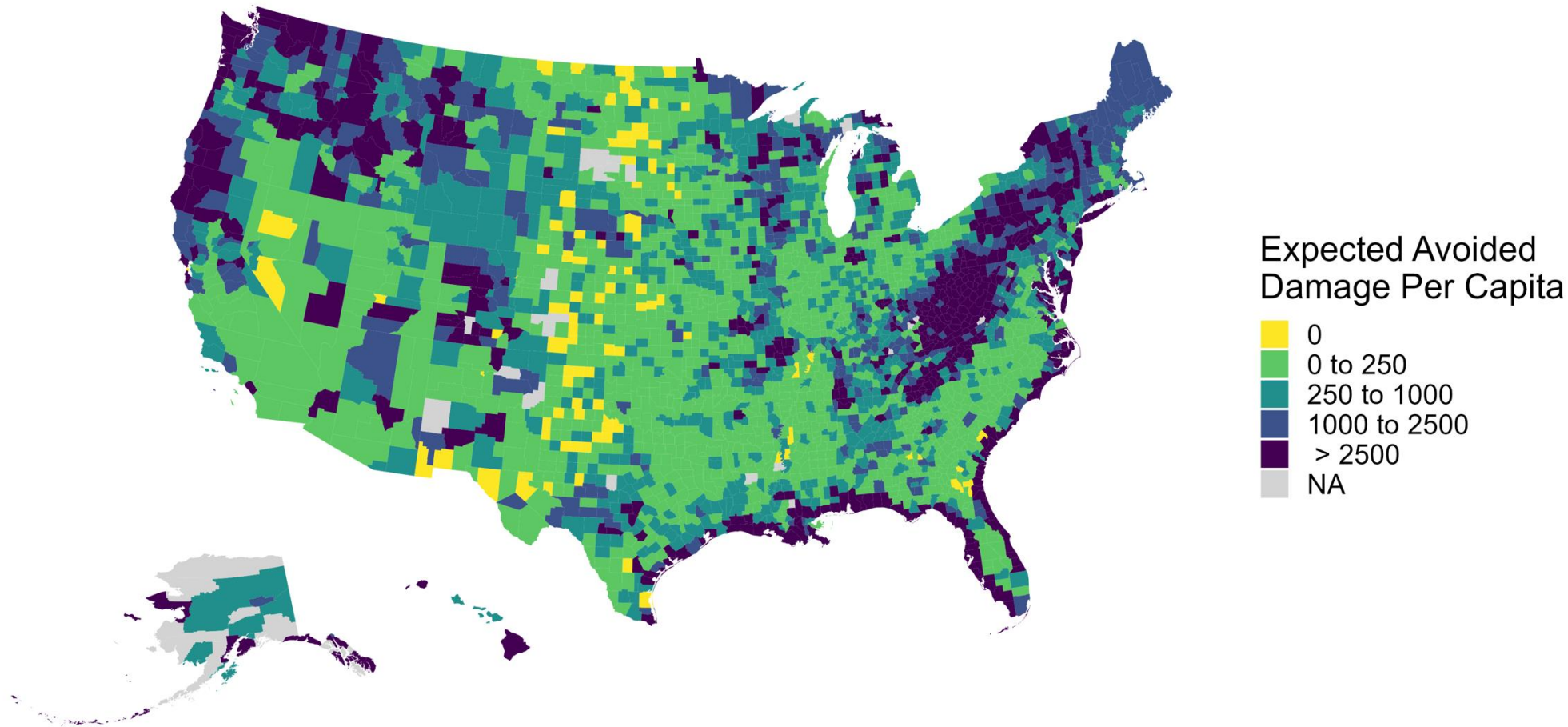
HH = household.

Results From Project Sets, by Specific Targets



Evan Herrnstadt and Jared Jageler, *Flood Damage Avoided by Potential Spending on Property-Level Adaptations*, Working Paper 2024-03 (Congressional Budget Office, May 2024), Figures 11 and 12, www.cbo.gov/publication/58168.

Geographic Distribution of Damage Avoided per Capita From Potential Projects With Avoided Damage per Dollar Spent Greater Than \$1



Works Cited

- Congressional Budget Office, *Communities at Risk of Flooding* (September 2023), www.cbo.gov/publication/58953.
 - CBO examines the variation in current and future flood risk across communities with different economic and demographic characteristics.
- Congressional Budget Office, *Flood Damage and Federally Backed Mortgages in a Changing Climate* (November 2023), www.cbo.gov/publication/59379.
 - CBO estimates the flood damage that homes with federally backed mortgages are expected to face in multiyear periods centered on 2020 and 2050 and analyzes where that damage is concentrated.
- Congressional Budget Office, *Flood Insurance in Communities at Risk of Flooding* (July 2024), www.cbo.gov/publication/60042.
 - CBO examines how the share of properties at risk of flooding that are covered by policies purchased through the National Flood Insurance Program varies across communities with different economic and demographic characteristics.
- Evan Herrstadt and Jared Jageler, *Flood Damage Avoided by Potential Spending on Property-Level Adaptations*, Working Paper 2024-03 (Congressional Budget Office, May 2024), www.cbo.gov/publication/58168.
 - This working paper provides estimates of the flood damage avoided from property buyouts and elevations and analyzes how the effects of adaptation spending could vary across regions, by area income, and for different subsets of projects.
- Evan Herrstadt and Byoung Hark Yoo, *The Effects of Flood Damage on the Subsidy Cost of Federally Backed Mortgages*, Working Paper 2024-04 (Congressional Budget Office, July 2024), www.cbo.gov/publication/60167.
 - CBO uses data on mortgages and expected flood damage for each residential property in the United States to examine how much flood damage is expected to increase the cost of federally backed mortgages.

Recent Related CBO Publications

- Congressional Budget Office, *Wildfires* (June 2022), www.cbo.gov/publication/57970.
 - CBO analyzes trends in wildfire activity; considers the effects of wildfires on the federal budget, the environment, people's health, and the economy; and reviews forest-management practices meant to reduce fire-related disasters.
- Congressional Budget Office, *Army Corps of Engineers: Budgetary History and Projections* (November 2022), www.cbo.gov/publication/58415.
 - CBO examines trends in funding and spending for the Army Corps of Engineers and explains how CBO treats that agency's activities in its baseline and cost estimates.
- Congressional Budget Office, *FEMA's Disaster Relief Fund: Budgetary History and Projections* (November 2022), www.cbo.gov/publication/58420.
 - CBO examines trends in funding and spending for the Federal Emergency Management Agency's Disaster Relief Fund and provides information about how CBO treats that program in its baseline and cost estimates.
- Congressional Budget Office, *Climate Change, Disaster Risk, and Homeowner's Insurance* (August 2024), www.cbo.gov/publication/59918.
 - CBO analyzes recent changes in property insurance markets and considers alternative insurance products as well as policy approaches to increase the availability and affordability of insurance for homeowners and renters.