

CBO's Role in Assessing Climate Change

January 23, 2023

Presentation to the National Academies of Sciences, Engineering, and Medicine
Roundtable on Macroeconomic and Climate-Related Risks and Opportunities

Joseph Kile

Microeconomic Studies Division

Budgetary Effects of Climate Change and Efforts to Address It



Climate change results in physical effects that reduce economic output.

Potential consequences exist for revenues, mandatory spending, and discretionary spending.

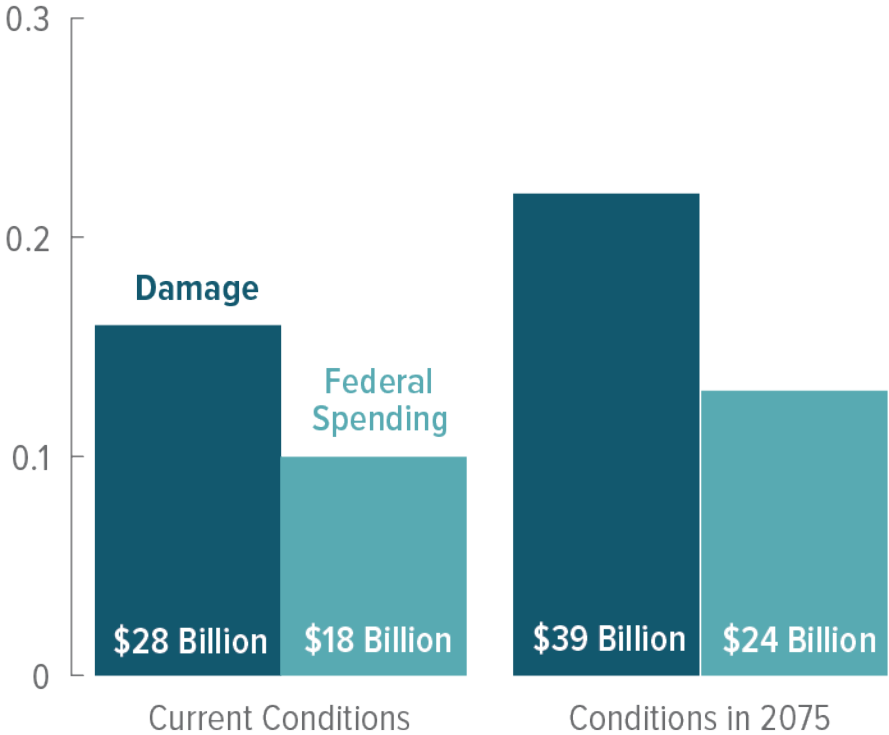
Adaptation and mitigation could reduce physical and budgetary effects.

Effects of Climate Change

Estimates of Hurricane Damage

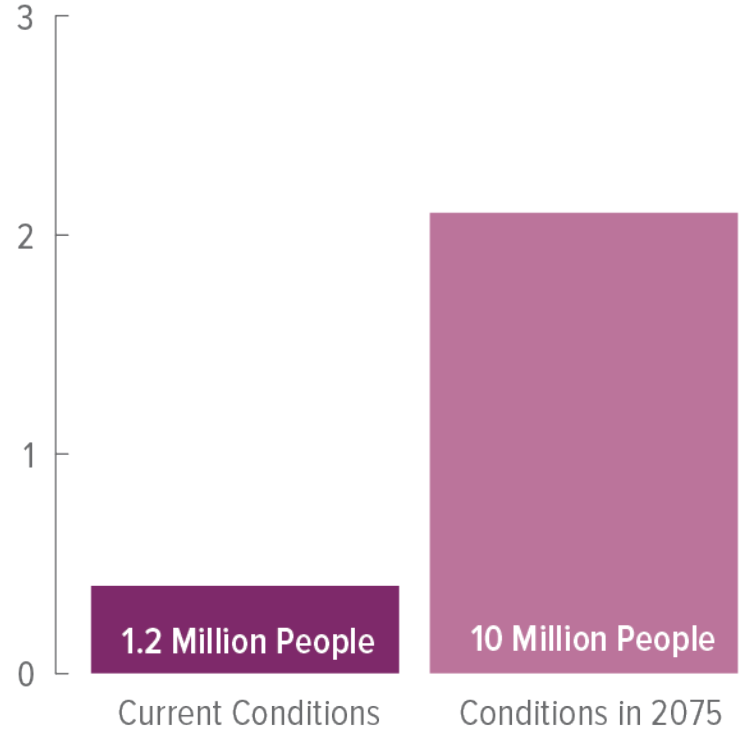
Expected Hurricane Damage and Related Federal Spending

Percentage of Gross Domestic Product
(Also shown in dollars based on today's economy)



Percentage of the U.S. Population Living in Counties With Substantial Hurricane Damage^a

Percentage of U.S. Population



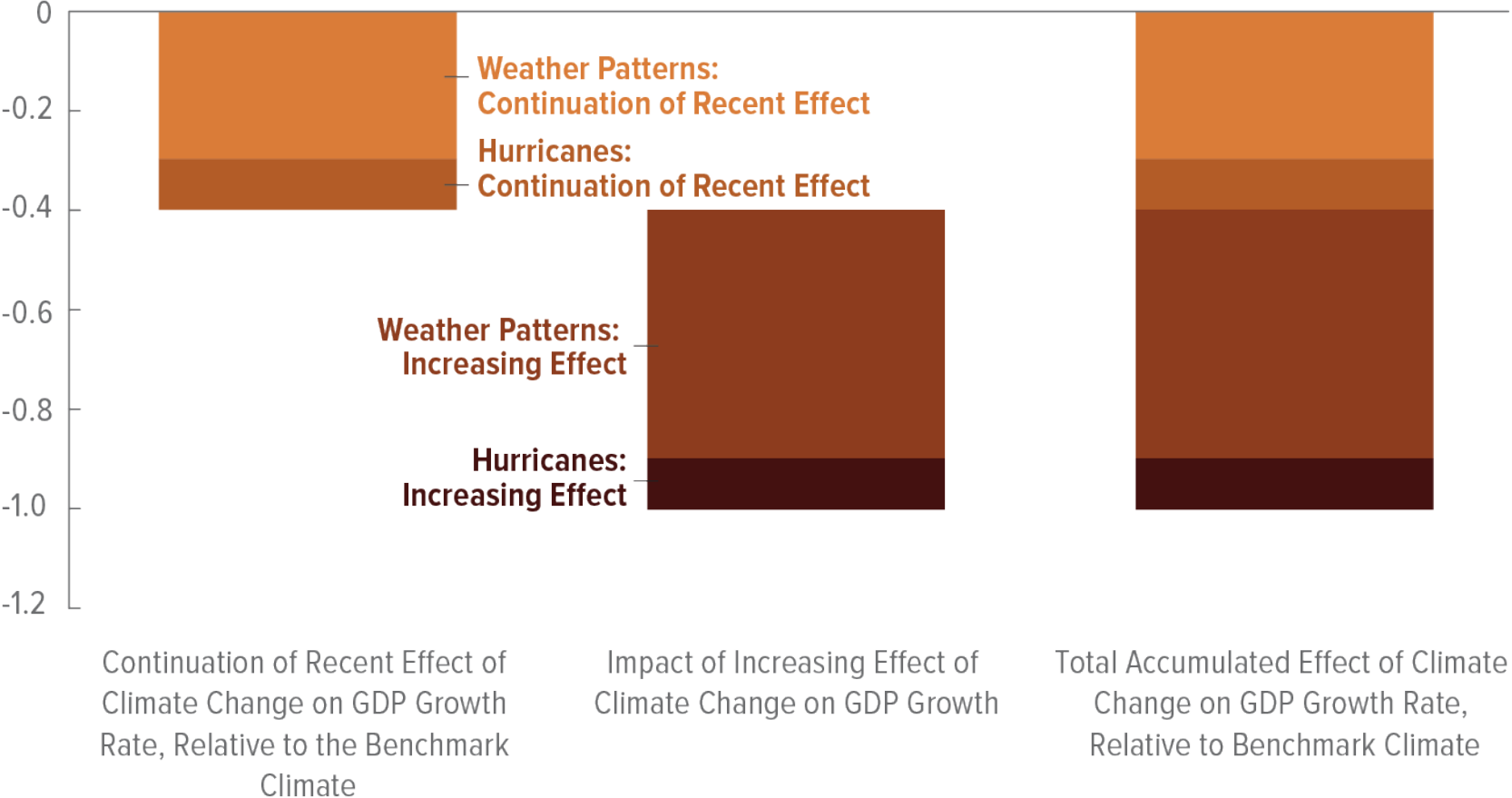
The cost of hurricane damage is expected to increase more than the economy will grow.

Expected annual damage in 2016 was 0.16 percent of gross domestic product (GDP).

Expected annual damage in 2075 is 0.22 percent of GDP.

How Climate Change Is Expected to Change the Level of Real Gross Domestic Product in 2050

Percentage of Real GDP



Climate change will reduce the growth rate of real (inflation-adjusted) GDP from 2020 to 2050 by an average of 0.03 percentage points.

That difference in annual growth accumulates to a 1.0 percent reduction in the projected level of real GDP in 2050.

Climate change will have effects on people’s well-being that are not measured in GDP.

See Congressional Budget Office, *The 2021 Long-Term Budget Outlook* (March 2021), www.cbo.gov/publication/56977; and Evan Herrnstadt and Terry Dinan, *CBO’s Projection of the Effect of Climate Change on U.S. Economic Output*, Working Paper 2020-06 (Congressional Budget Office, September 2020), www.cbo.gov/publication/56505.

Effects of Policies That Would Address Climate Change

How a Tax on Greenhouse Gas Emissions Would Affect the Federal Budget

Billions of Dollars	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total		
											2023– 2027	2023– 2032	
Decrease (-) in the Deficit													
Apply a \$25 tax per metric ton of emissions and increase tax annually by 5 percent, adjusted for inflation	-55.2	-86.2	-83.5	-82.4	-81.8	-81.3	-87.3	-95.4	-102.9	-109.5	-389.0	-865.4	
Apply a \$25 tax per metric ton of emissions and increase tax annually by 2 percent, adjusted for inflation	-55.2	-84.7	-80.4	-77.3	-74.9	-72.2	-75.0	-79.6	-83.4	-86.2	-372.5	-768.9	
Apply a \$25 tax per metric ton of emissions (excluding gasoline) and increase tax annually by 2 percent, adjusted for inflation	-43.3	-65.9	-61.0	-57.4	-54.6	-51.6	-54.0	-58.1	-61.5	-63.7	-282.1	-570.9	

Data sources: Staff of the Joint Committee on Taxation; Congressional Budget Office.

This option would take effect in January 2023.

An offset to reflect reduced income and payroll taxes has been applied to the estimates in this table.

Projected Carbon Dioxide Emissions From the Electric Power Sector Before and After the 2022 Reconciliation Act

Billions of Metric Tons

