

Energy and Environment

Climate change in the U.S. could help the rich and hurt the poor

By **Brady Dennis** June 29 at 2:00 PM

Researchers have long warned that unmitigated climate change could cause severe financial hardship to the United States in coming decades. But a new study published Thursday in the journal *Science* details how global warming could disproportionately affect poor areas of the country, contributing to widening economic inequality among Americans.

“The poor regions will get poorer and the richer regions will benefit,” said study co-author Solomon Hsiang, a professor of public policy at the University of California at Berkeley. “What we’re seeing here is that climate change will have a very large impact on the quality of life and economic opportunity in the coming decades for ourselves and our children.”

Hsiang and fellow researchers used scores of climate projections from scientists around the world to price the possible impacts of rising seas, higher temperatures and more-extreme weather. They ran thousands of simulations, computing the likely costs and benefits across a range of sectors. How would agriculture, crime and energy demand change as temperatures climb? How would coastal communities suffer from rising sea levels and more intense hurricanes?

They found that overall, the U.S. economy probably would lose about 0.7 percent of its gross domestic product for each 1 degree Fahrenheit (0.55 degree Celsius) increase in global temperatures — with each degree of warming imposing more costs than the previous. But that financial pain won’t play out evenly.

The poorest third of counties — many of them in the South and lower Midwest — could sustain economic losses by the last decades of this century that would be comparable to those suffered during the Great Recession, the study found. The Gulf Coast would face major risks from hurricanes and encroaching seas. Higher temperatures in the South would drive up air-conditioning costs and hamper productivity. Agriculture in the Midwest could see losses on par with the Dust Bowl of the 1930s, only “these long-term changes are here to stay,” Hsiang said.

Northern and Western areas of the country are likely to experience less-substantial damage, according to the researchers.

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They might even benefit in some instances from rising temperatures, which in cold regions could mean longer growing seasons and lower energy costs. Ultimately, the authors concluded, “combining impacts across sectors reveals that warming causes a net transfer of value from Southern, Central and Mid-Atlantic regions toward the Pacific Northwest, the Great Lakes region, and New England. ... [B]ecause losses are largest in regions that are already poorer on average, climate change tends to increase preexisting inequality in the United States.”

The projections, if they play out, illustrate the potential magnitude of decisions such as the recent one by President Trump to walk away from the international Paris climate accord, in which more than 170 countries agreed to slash their carbon emissions in coming years. Meanwhile, hundreds of governors, mayors and other elected officials have vowed to continue the shift toward cleaner sources of energy.

Hsiang acknowledged that despite the researchers’ efforts to use sound statistical approaches and a wealth of databases, calculating the future costs of climate change is inherently uncertain. Communities are likely to adapt and become more resilient. Industries evolve and relocate.

Delavane Diaz, a senior technical leader at the Electric Power Research Institute, agreed that the study has limitations. For one, it fails to account for how humans will probably plan for and respond to the changing climate. Still, she said, the conclusions provide an important glimpse of the economic risks the United States could face as global warming worsens.

“Monetizing the economic damages of climate change is important for risk management and decision-making,” Diaz said. “It tells us how the benefits of reducing greenhouse gas emissions stack up against the costs, as well as the value of spending on climate mitigation relative to other social investments.”

Thursday’s study joins a growing body of research that suggests a lack of global action on climate change will prove disruptive, costly and deadly to coming generations.

A 300-page White House report last year described the health problems associated with climate change as one of the gravest threats to the nation. It detailed the potential of increased deaths from extreme heat, longer allergy seasons and more polluted air and water. Likewise, diseases transmitted by ticks and mosquitoes could spread farther and faster, and more people would face the prospect of near-constant floods.

And in late 2015, a far-reaching study published in *Nature* found a strong relationship between a region’s average temperature and its economic productivity. Researchers compared economic and temperature data for more than 100 wealthy and poorer countries over half a century. They found that the optimum temperature for human productivity appears to be about 55 degrees Fahrenheit on average. Beyond that, economic productivity “strongly” began to decline.

Collectively, such data suggest the potential for growing inequality not just within the United States but also around the globe. That’s because already hot, poor countries are likely to experience the most severe temperature increases.

And unlike with economic downturns, Hsiang said, the effects of climate change won’t quickly recede with time. “When you

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impose these costs on the economy, they just don't go away," he said. "It's like an ongoing recession we just never climb out of."

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