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Climate Change Could Cost Each American Born Today \$500,000

Beyond its effects on the broader economy, rising temperatures could seriously hurt individuals' personal finances, a new analysis finds

By [Scott Medintz](#)

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You might have heard that climate change costs the U.S. economy hundreds of billions of dollars a year. Or that globally it's expected to cause trillions worth of damage annually by 2050.

But huge numbers like those are so abstract that it's hard to see how the cost of climate change might affect our everyday lives.

So a new report commissioned by Consumer Reports and conducted by ICF, a global consulting firm that conducts climate studies for businesses and governments, might snap some of us to attention. Its finding: If humanity does not act swiftly to limit it, climate change will cost a typical child born in 2024 at least around \$500,000 over the course of their lifetime—and possibly as much as \$1 million—through a combination of cost-of-living increases and reduced earnings.

That's in 2024 dollars, meaning each newborn will lose the current purchasing power of those amounts. Add in inflation and the actual amount they'll lose over their lifetimes will be much larger.

The study also says those costs will be significantly lower if we act quickly to reduce global carbon emissions.

Cost of climate change: \$500,000 over a lifetime

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“It’s common to think of climate change as just an environmental problem, but it’s important to look at the impact it will have on people,” says Chris Harto, a senior policy analyst at CR who was involved in commissioning the report from ICF. “What this study shows is that those impacts can be

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quite significant. The good news is that these costs are not baked in. We still have time to act and reduce the human costs of climate change.”

ICF ran all of its projections under two different climate change scenarios.

The projection of \$500,000 to \$1 million in costs for the average child born in 2024 is built around a “high emissions” scenario, which represents a consensus view of what will happen to global temperatures if we remain on our current trajectory without additional mitigation efforts. Under that scenario, greenhouse gas emissions would roughly double and average temperatures would rise more than 4° C (7.2° F) by 2100, when children born this year are nearing 80 years old.

The “low emissions” scenario posits a faster shift to sustainable practices that result in CO₂ concentrations peaking around 2080 and temperatures rising 1.5° C (2.7° F) before beginning to decline in the last decades of this century.

How Climate Change Will Take the First \$500K

Projected losses under the high-emissions scenario would fall into two categories: Cost-of-living increases and reduced earnings.

ICF expects climate change to raise the cost of living over a lifetime by some \$255,000 in 2024 dollars. The biggest chunk of that, \$125,000, is housing-related, due to increased maintenance, operating, and insurance costs. Energy costs are next, at \$88,000 over a lifetime, resulting from a combination of higher gas and electricity prices and people consuming more energy to keep their homes comfortably heated and cooled.

The next largest, food, will add another \$33,000 in costs over a lifetime. The reason: Warmer temperatures, extreme weather events, and changes in precipitation patterns are expected to challenge farmers, interrupt food supplies, and increase retail prices. Although some food-producing regions could benefit from warming temperatures, climate models consistently predict an overall negative effect on food production. (Healthcare and transportation are projected to add another \$5,000 and \$4,000 in lifetime costs, respectively.)

Climate change will hit the other side of the balance sheet—earnings—as well. One large bite out of future paychecks will come in the form of higher taxes, a result of growing government expenses (on stressed healthcare systems and damaged infrastructure, among other things) and decreasing government revenues (because of reduced personal and corporate earnings that lead to lower tax collections). All told, taxes are projected to increase by 15 percent over the course of a lifetime, reducing lifetime take-home pay by some \$200,000.

Income from employment is also expected to decrease due to climate change, a result of reduced labor hours

due to extreme weather (especially for people working outdoors) and growing health risks. Over a lifetime, lost wages will amount to about \$25,000.

Climate Change Will Cost Our Kids \$480K

Extra costs modeled over an 80-year life span of a child born in 2024.

\$5K

Healthcare

Climate-connected health issues such as heat-related and respiratory illnesses will increase healthcare costs.

\$25K

Income Loss

Labor hours will be lost due to increased climate-related health hazards in the workplace.

\$33K

Food

Climate change is expected to disrupt food systems, reduce access to food, and lead to higher food prices.

\$92K

Energy

Includes transportation. Extreme weather will threaten energy infrastructure, increasing energy prices, and cause auto insurance rates to rise.

\$125K

Housing

Extreme weather-related damage can significantly increase the cost of repairing, maintaining, and insuring a home.

\$200K

Taxes

Climate change will increase government costs for infrastructure, disaster recovery, and insurance programs while lowering government revenues.

Why Losses Could Reach \$1 Million

Losses from higher housing, energy, and food costs, increased taxes, and reduced income total nearly \$500,000. But ICF researchers say the number nearly doubles if you count the loss of investment income that many Americans would suffer as climate change takes a bite out of their retirement savings.

Many Americans today have been unable to save much at all for retirement. But those Americans born in 2024

who are able to sock away money are likely to see a dramatic reduction in the growth of those funds, according to the study, as the value of corporate securities experiences a range of climate-related drags. These will include higher costs to purchase increasingly stressed supplies of raw materials; additional spending to keep facilities cool in hotter climates; productivity declines as workers have to take more breaks during heat waves; expenses to repair damage from extreme weather; and costs associated with transitioning to low-carbon power sources.

The ICF report says that even the shrinking number of American workers covered by traditional defined benefit pension plans will likely be affected because the corporate securities underlying such pension plans are also sensitive to climate change.

The Assumptions Behind the Projected Losses

ICF emphasizes throughout the report that its projections are based on numerous assumptions and conjectures and in many cases were extrapolated from specific data points chosen as representatives of broader expense or earnings categories.

For example, the projected cost-of-living increases were based partly on academic or government studies that anticipate rising prices for a hypothetical “market basket” of goods and services that include food, housing, energy, transportation, and healthcare. Food prices, for instance, were extrapolated from data in four

studies conducted over the past decade that project corn and wheat crop yields under various climate change scenarios and the price increases that would be expected to result as the market adjusts to the new supply levels.

Despite those and other uncertainties, ICF is confident that it has underestimated, not overestimated, the cost of climate change. The reason is that many likely economic effects of climate change have not been quantified in the scientific literature, so the analysis necessarily left them out.

For instance, the report's estimates of future personal tax increases did not include the effects of increased government spending due to larger Department of Defense outlays, federal mortgage lending risks, damage to federal buildings and facilities, and more—even though peer-reviewed academic journal articles and the federal Office of Management and Budget have identified all those categories as likely contributors to the growth of future federal budgets.

Tracey Holloway, a professor of atmospheric and oceanic sciences at the University of Wisconsin-Madison and head of a NASA effort to use the agency's data for public health and air quality management, agrees that the ICF report may underestimate the long-term cost of climate change. On the other hand, she accurately says the study did not attempt to calculate the potential effects of technological advances and adaptations that could mitigate the economic effects of climate change.

“This is an innovative way to approach the issue, and the authors are up front about the limitations of their analysis, because it is so new,” says Holloway, who was not involved in the report but read a draft. “The optimist in me knows there are a lot of moving parts, and it could end up being easier to be sustainable, easier to be resilient, than we thought, and maybe in some ways that will offset the costs that they project.”

More on Sustainability

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Different People, Different Economic Effects

The report also emphasizes that its loss projections are U.S. national averages and that the economic effects of climate change on individuals will vary dramatically depending on geographical location, occupation, socioeconomic status, marital status, race, and gender identity, among other factors.

To demonstrate the effect of these factors, the study created a series of fictional personas. Ann, a construction worker in Tampa, Fla., for example, is likely to face greater-than-average housing costs because

of damage from increasingly frequent severe tropical storms and hurricanes. But though her income will take a hit because of outdoor work days lost to those climate-driven weather conditions, that's likely to be outweighed by the additional work generated by those storms.

Bianca, an IT professional in Reno, Nev., is likely to face elevated healthcare costs because increasing drought conditions in her region will translate into more wildfires and degraded air quality, and thus a higher incidence of respiratory and cardiovascular problems in the region. Similarly, Chris, a farm equipment operator in Iowa, is likely to miss work days and face increased healthcare costs because of heat-related illness, as well as lost income as declining crop yields and increasing fuel costs cut into his hourly wages.

Meanwhile, Derek, a nurse in Boston, will face higher housing costs as insurance premiums on coastal properties increase dramatically to account for flood and storm damage from rising sea levels and extreme weather events.

The Upside of Action

One interesting finding of ICF's report is that climate change can be much less economically painful if we change the current trajectory of greenhouse gas emissions and temperatures.

Under the low-emission scenario, expected losses are significantly lower than \$500,000 to \$1 million. ICF

projects, for example, that taxes would increase by only \$5,200 over a lifetime, compared to a cumulative hit of \$200,000 if we maintain the current climate change trajectory.

And in some categories, ICF projects that the average American would actually benefit economically from the low-emissions scenario, even compared to a hypothetical baseline scenario in which average temperatures remain at current levels.

For example, whereas the study projects about \$400,000 in lost investment income due to climate change under the high-emissions scenario, it says the typical American born in 2024 would earn about \$25,000 extra in investment income under the low-emissions scenario than he or she would if global temperatures remained where they are today. That's because they would be able to generate modest marginal gains—a “low-carbon transition premium”—by investing in companies developing mitigation and adaptation technologies.

The bottom line? Under the low-emissions scenario, ICF expects kids born in 2024 to hold on to about \$300,000 that they'd otherwise lose if we do not act swiftly to mitigate climate change.

That element of the study may be both comforting and galvanizing to the parents of small children.

“I think this study will change the way some people think about climate change because it makes the future so much more immediate and personal,” says Holloway, the climate scientist who is also a member of the

advocacy group Science Moms and the mother of two sons, Peter, 14, and Henry, 3. “The effects of climate change are not so far ahead. This report is about the life of this little person I take care of every day, and the choices I make every day are going to affect his well-being.”

Corrections: Under the low-emissions scenario, ICF expects a child born in 2024 to hold on to about \$300,000 of lost investment income, not \$200,000.

This article has also been updated to correct the spelling of Tracey Holloway’s last name.

Editor’s Note: The study described in this article was conducted by ICF and commissioned by Consumer Reports with support from Breakthrough Energy, an organization whose work includes philanthropic efforts for clean energy.



Scott Medintz

Scott Medintz is a writer and editor at Consumer Reports, focusing on the organization’s public policy work on behalf of consumers. Before coming to CR in 2017, he was an editor at Time and Money magazines.

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