

## Heat Is Costing the U.S. Economy Billions in Lost Productivity

From meatpackers to home health aides, workers are struggling in sweltering temperatures and productivity is taking a hit.



By Coral Davenport

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As much of the United States swelters under record heat, Amazon drivers and warehouse workers have gone on strike in part to protest working conditions that can exceed 100 degrees Fahrenheit.

On triple-digit days in Orlando, utility crews are postponing checks for gas leaks, since digging outdoors dressed in heavy safety gear could endanger their lives. Even in Michigan, on the nation's northern border, construction crews are working shortened days because of heat.

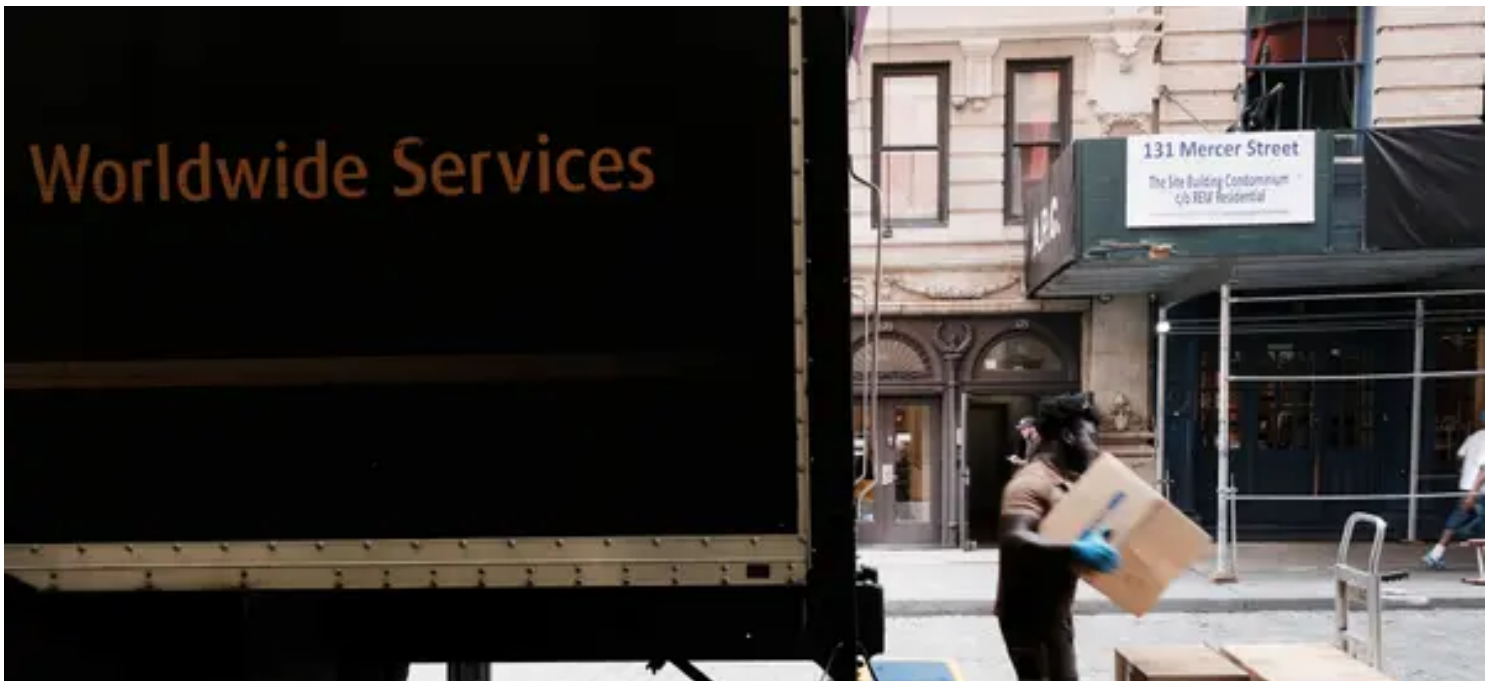
Now that climate change has raised the Earth's temperatures to the highest levels in recorded history, with projections showing that they will only climb further, new research shows the impact of heat on workers is spreading across the economy and lowering productivity.

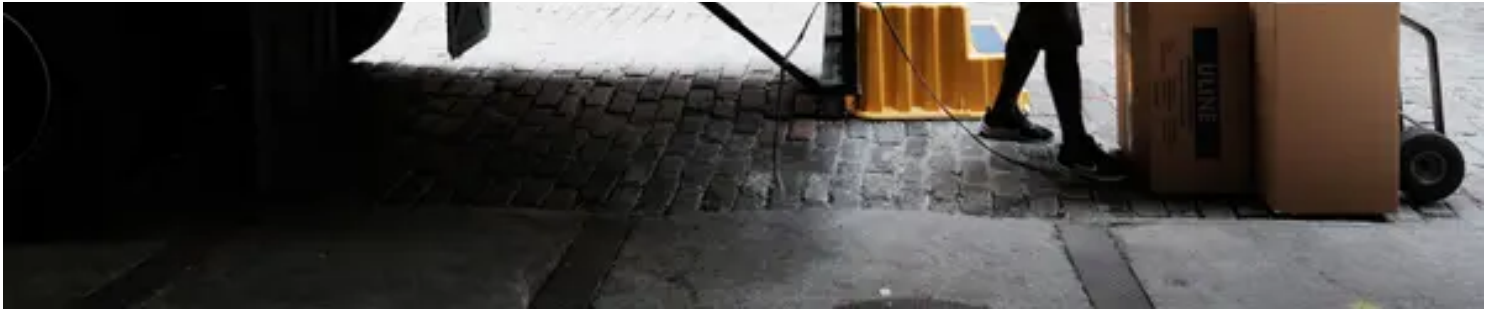
Extreme heat is regularly affecting workers beyond expected industries like agriculture and construction. Sizzling temperatures are causing problems for those who work in factories, warehouses and restaurants and also for employees of airlines and telecommunications firms, delivery services and energy companies. Even home health aides are running into trouble.

“We've known for a very long time that human beings are very sensitive to temperature, and that their performance declines dramatically when exposed to heat, but what we haven't known until very recently is whether and how those lab responses meaningfully extrapolate to the real-world economy,” said R. Jisung Park, an environmental and labor economist at the University of Pennsylvania. “And what we are learning is that hotter temperatures appear to muck up the gears of the economy in many more ways than we would have expected.”

A study published in June on the effects of temperature on productivity concludes that while extreme heat harms agriculture, its impact is greater on industrial and other sectors of the economy, in part because they are more labor-intensive. It finds that heat increases absenteeism and reduces work hours, and concludes that as the planet continues to warm, those losses will increase.

The cost is high. In 2021, more than 2.5 billion hours of labor in the U.S. agriculture, construction, manufacturing, and service sectors were lost to heat exposure, according to data compiled by The Lancet. Another report found that in 2020, the loss of labor as a result of heat exposure cost the economy about \$100 billion, a figure projected to grow to \$500 billion annually by 2050.





A U.P.S. delivery in Manhattan on Monday. Spencer Platt/Getty Images

Other research found that as the mercury reaches 90 degrees Fahrenheit, productivity slumps by about 25 percent and when it goes past 100 degrees, productivity drops off by 70 percent.

And the effects are unequally distributed: in poor counties, workers lose up to 5 percent of their pay with each hot day, researchers have found. In wealthy counties, the loss is less than 1 percent.

Of the many economic costs of climate change — dying crops, spiking insurance rates, flooded properties — the loss of productivity caused by heat is emerging as one of the biggest, experts say.

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“We know that the impacts of climate change are costing the economy,” said Kathy Baughman McLeod, director of the Adrienne Arsht-Rockefeller Foundation Resilience Center, and a former global executive for environmental and social risk at Bank of America. “The losses associated with people being hot at work, and the slowdowns and mistakes people make as a result are a huge part.”

Still, there are no national regulations to protect workers from extreme heat. In 2021, the Biden administration announced that the Occupational Safety and Health Administration would propose the first rule designed to protect workers from heat exposure. But two years later, the agency still has not released a draft of the proposed regulation.

Seven states have some form of labor protections dealing with heat, but there has been a push to roll them back in some places. In June, Governor Greg Abbott of Texas signed a law that eliminated rules set by municipalities that mandated water breaks for construction workers, even though Texas leads all states in terms of lost productivity linked to heat, according to an analysis of federal data conducted by Vivid Economics.

Business groups are opposed to a national standard, saying it would be too expensive because it would likely require rest, water and shade breaks and possibly the installation of air-conditioning.



Martin Rosas, the vice president for the United Food and Commercial Workers Union International. “When it’s extremely hot, and their safety glasses fog up, their vision is impaired and they are exhausted, they can’t even see what they’re doing,” he said of the workers he represents. Brett Deering for The New York Times

“OSHA should take care not to impose further regulatory burdens that make it more difficult for small businesses to grow their businesses and create jobs,” wrote David S. Addington, vice president of the National Federation of Independent Business, in response to OSHA’s plan to write a regulation.

Marc Freedman, vice president of employment policy at the United States Chamber of Commerce, said, “I don’t think anyone is dismissing the hazard of overexposure to heat.” But, he said, “Is an OSHA standard the right way to do it? A lot of employers are already taking measures, and the question will be, what more do they have to do?”

The National Beef slaughterhouse in Dodge City, Kan., where temperatures are expected to hover above 100 degrees Fahrenheit for the next week, is cooled by fans, not air-conditioning.

Workers wear heavy protective aprons and helmets and use water vats and hoses heated to 180 degrees to sanitize their equipment. It’s always been hot work.

But this year is different, said one worker, who asked not to be identified for fear of retribution. The heat inside the slaughterhouse is intense, drenching employees in sweat and making it hard to get through a shift, the worker said.

National Beef did not respond to emails or telephone calls requesting comment.

Martin Rosas, a union representative for meatpacking and food processing workers in Kansas, Missouri and Oklahoma, said sweltering conditions present a risk for food contamination. After workers skin a hide, they need to ensure that debris doesn’t get on the meat or carcass. “But when it’s extremely hot, and their safety glasses fog up, their vision is impaired and they are exhausted, they can’t even see what they’re doing,” Mr. Rosas said.

Almost 200 employees out of roughly 2,500, have quit at the Dodge City National Beef plant since May, Mr. Rosas said. That’s about 10 percent higher than usual for that time period, he said.



Maria Rodriguez, who has worked at the same McDonald's in Los Angeles for 20 years, walked out on July 21. Jessica Pons for The New York Times

But even some workers in air-conditioned settings are getting too hot. McDonald's workers in Los Angeles walked off the job this summer as the air-conditioned kitchens were overwhelmed by the sweltering heat outside.

"There is an air-conditioner in every part of the store, but the thermostat in the kitchen still showed it was over 100 degrees," said Maria Rodriguez, who has worked at the same McDonald's on Crenshaw Boulevard in Los Angeles for 20 years, but walked out on July 21, sacrificing a day of pay. "It's been hot before, but never like this summer. I felt terrible — like I could pass out or faint at any moment."

Nicole Enearu, the owner of the store, said in a statement, "We understand that there's an uncomfortable heat wave in LA, which is why we're even more focused on ensuring the safety of our employees inside our restaurants. Our air-conditioning is functioning properly at this location."

Tony Hedgepeth, a home health aide in Richmond, Va., cares for a client whose home thermostat is typically set at about 82 degrees. Last week, the temperature inside was near 94 degrees.

Any heat is a challenge in Mr. Hedgepeth's job. "Bathing, cooking, lifting and moving him, cleaning him," he said. "It's all physical. It's a lot of sweat."

Warehouse workers across the country are also feeling the heat. Sersie Cobb, a forklift driver who stocks boxes of pasta in a warehouse in Columbia, S.C., said the stifling heat can make it difficult to breathe. "Sometimes I get dizzy and start seeing dots," Mr. Cobb said. "My vision starts to go black. I stop work immediately when that happens. Two times this summer I've had heart palpitations from the heat, and left work early to go to the E.R."

In Southern California, a group of 84 striking Amazon delivery workers say that one of their priorities is getting the company to make it safe to work in extreme heat. Last month, unionized UPS workers won a victory when the company agreed to install air-conditioning in delivery trucks.



Amazon delivery drivers striking at the company's Palmdale, Calif., warehouse and delivery center on Tuesday. Robyn Beck/Agence France-Presse — Getty Images

"Heat has played a tremendous role — it was one of the major issues in the negotiations," said Carthy Boston, a member of the International Brotherhood of Teamsters representing UPS drivers in Washington, D.C. "Those trucks are hotboxes."

Many factories were built decades ago for a different climate and are not air-conditioned. A study on the effects of extreme temperatures on the productivity of auto plants in the United States found that a week with six or more days of heat exceeding 90 degrees Fahrenheit cuts production by an average of 8 percent.

In Tulsa, Okla., Navistar is installing a \$19 million air-conditioning system at its IC Bus factory, which produces many of America's school buses. Temperatures on the floor can reach 99 degrees F. Currently, the plant is only cooled by overhead fans that swirl high above the assembly line.

Shane Anderson, the company's interim manager, said air-conditioning is expected to cost about \$183 per hour, or between \$275,000 and \$500,000 per year — but the company believes it will boost worker productivity.

Other employers are also adapting.



Brad Maurer, who leads a construction contracting business in Michigan, where heat has caused his employees to stop working hours before quitting time at some sites.  
Emily Elconin for The New York Times

Brad Maurer, vice president of Leidal and Hart, which builds stadiums, hospitals and factories in Michigan, Ohio, Indiana, Kentucky and Tennessee, said managers now bring in pallets of bottled water, which they didn't used to do, at a cost to the company of a few thousand dollars a month.

Rising heat around Detroit recently caused his employees to stop working three hours early on a Ford Motors facility for several days in a row — a pattern emerging throughout his company's work sites.

"It means costs go up, production goes down, we may not meet schedules, and guys and women don't get paychecks," Mr. Maurer said. Labor experts say that as employers adapt to the new reality of the changing climate, they will have to pay one way or the other.