Average temperature can be indicator of region’s economic success, researchers find

When the figure rises above 55 degrees F, productivity declines, the study says, adding a new worry about global warming.

In a sweeping new study published Wednesday in Nature, a team of researchers says there is a strong relationship between a region’s average temperature and its economic productivity – adding another potential cost to a warming climate.

Culling together economic and temperature data for more than 100 wealthy and poorer countries alike over 50 years, they assert that the optimum temperature for human productivity seems to be around 13 degrees Celsius or roughly 55 degrees Fahrenheit, as an annual average for a particular place. Once things get a lot hotter than that, the researchers add, economic productivity declines “strongly.”
“The relationship is globally generalizable, unchanged since 1960, and apparent for agricultural and non-agricultural activity in both rich and poor countries,” write the authors, led by Marshall Burke of Stanford’s Department of Earth System Science, who call their study “the first evidence that economic activity in all regions is coupled to the global climate.” Burke published the study with Solomon Hsiang and Edward Miguel, economists at the University of California, Berkeley.

If the findings are correct, they add, that means that unmitigated global warming could lead to a more than 20 percent decline in incomes around the world, compared with a world that does not feature climate change. And this would also mean growing global inequality, since poorer countries will be hit by worse temperature increases – simply because “hot, poor countries will probably suffer the largest reduction in growth.” Indeed, some already wealthier countries with cold weather, such as Canada or Sweden, will benefit greatly based on the study, moving closer to the climatic optimum.

“If you’re in a country where the average temperature is cooler than 13 degrees C, a little bit of warming could actually be beneficial,” says Burke. “On the other hand, if you’re already at 13 degrees C, a little extra warming is going to hurt you.”

Assuming this relationship between temperature and productivity is correct, that naturally leads to deep questions about its cause. The researchers locate them in two chief places: agriculture and people. In relation to rising temperature, Burke says, “We see that agricultural productivity declines, labor productivity declines, kids do worse on tests, and we see more violence.”
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