

Breathing better, living longer

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Pope was asked to evaluate the credibility of an MIT study on Chinese air pollution.

Arden Pope's students know him as an excellent economics teacher, but some would be surprised to learn that, thanks to him, the air they breathe today is cleaner than the first breath they ever took.

In fact, a new study by this BYU professor concludes that improvements in U.S. air quality since 1990 have sparked a 35 percent reduction in

deaths and disability specifically attributable to [air pollution](#). Pope was a member of a large research team who co-authored the study for the *Journal of the American Medical Association*.

"Some of the best news relative to the air pollution research over the last few years is the evidence that our reducing air pollution in the United States has resulted in measurable improvements in life expectancy and public health," said Pope.

It's no coincidence that 1990 is a point of reference in air quality research. In the late 80s, a steel mill in Utah Valley shut down for one year due to a labor strike. Pope spotted a research opportunity that found big problems caused by small particles floating in the air. Known as "particulate matter," this kind of pollution is produced by combustion of car engines, [power plants](#) and steel mills.

Pope and other scholars found in successive studies that [dirty air](#) impacted [hospital admissions](#), [mortality rates](#), and cardiovascular disease – including the risk of heart attacks.

"One of the biggest surprises of this research was that air pollution contributed to cardiovascular disease and not just respiratory disease," Pope said. "In fact, we're learning that air pollution not only impacts our lungs but it impacts our heart and our brain."

The research caught the attention of scientists and regulators, which led to [automobile emissions](#) standards and cleaner manufacturing processes.

Now a world-renowned expert on the topic, Pope was asked this year to evaluate the credibility of an intriguing study on China's [air quality](#) by scientists at MIT, Peking University, Tsinghua University and Hebrew University of Jerusalem. Editors of the *Proceedings of the National Academies of Science* invited Pope to write a commentary that

accompanied a research paper on China's Huai River policy.

The Huai River runs west to east and is regarded as the geographical dividing line between northern and southern China. In winter, the Chinese government provides free coal to residents north of the river to heat their homes.



The study found that pollution in northern China reduced life expectancy by 5 years - a rate that Pope says is plausible given the amount of air pollution.

In denying coal to people who live south of the river, the Chinese government actually did them a favor. The researchers found that air pollution is 55 percent lower on the south side. They also estimated that life expectancy was five years lower on the north side because of the extra air pollution.

"While their results tend to be a bit higher than what we'd expect based on the rest of the literature, it's still roughly consistent with what we would expect based on the other studies that we've been doing," Pope said.

More information: [jama.jamanetwork.com/article.a ...
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