

When Heating Is More Affordable, Fewer People Die

OVERVIEW

Heating represents the largest portion of annual home energy spending in the United States, despite being used for only part of the year. Low-income households often face a difficult choice between paying for adequate heating or spending on other necessities. IPR economist **Seema Jayachandran**, **Janjala Chirakijja** (PhD 2018) of Monash University in Australia, and **Pinchuan Ong**, a Northwestern PhD student, are the first to find a direct effect between lower heating prices and a reduction in the number of Americans who die in winter.

FINDINGS

While more people die in winter, fewer die when the price of heating is more affordable. A majority (58%) of American households use natural gas to heat their homes. Jayachandran and her co-authors show that as the price of natural gas fell over the late 2000s—mainly due to shale gas production, or fracking—winter deaths in households heating with natural gas fell by 1.6%. From 2005–10, this lowered the overall U.S. death rate in winter by 0.4% and prevented more than 11,000 deaths per year.

When heating costs are high, many Americans have to make tough spending choices. They may decide to cut heating to save money, or they may forgo other necessities to pay to heat their homes. Though households use less heating when its price

POLICY TAKEAWAYS

- Heating prices affect poorer U.S. households the most, as they are forced to make tough decisions on spending tradeoffs.
- Lower heating costs lead to fewer winter deaths, mainly from respiratory and cardiovascular diseases, which medical research has shown are exacerbated by exposure to the cold.
- These findings highlight the potential health benefits of policies to assist low-income people in paying their energy bills.



IPR economist **Seema Jayachandran** focuses on health and gender in developing countries, as well as conservation and political economy.

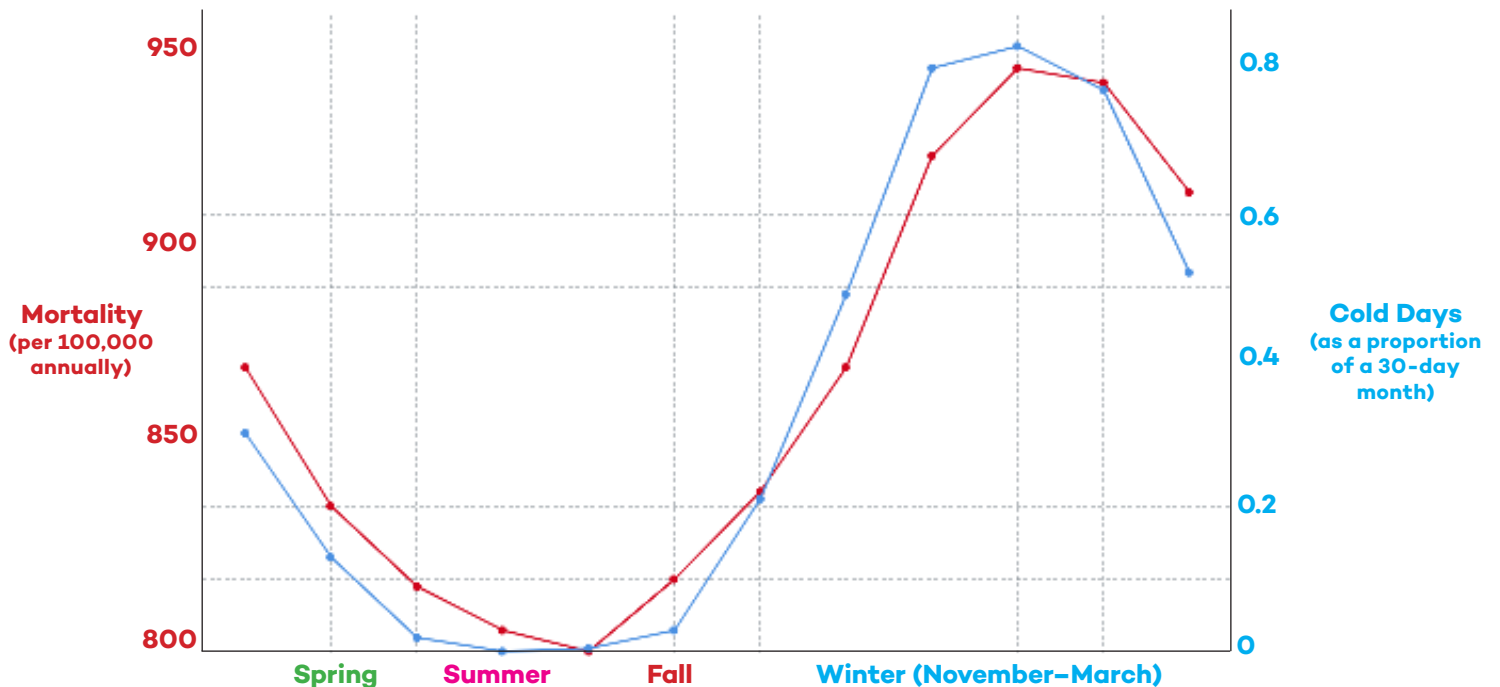
spikes, their energy bills still increase on net. Because they have to spend a larger share of their budget on heating, they might purchase less food or medicine as a result.

Heating prices have more significant effects on deaths among the poor. Previous studies have shown that when winter deaths spike, it is usually among people living in poorly insulated, older homes, suggesting indoor temperature is a crucial factor. The new research shows that as heating costs fell, winter deaths from causes exacerbated by the cold, including emphysema, pneumonia, and heart attacks, fell the most. These findings reveal a potential health benefit of programs, like the federal Low-Income Home Energy Assistance Program (LIHEAP), which assist low-income families in paying energy bills.

Shale gas production, or fracking, may have positive effects beyond lowering energy costs.

From 2005–10, the decline in natural gas prices due to fracking saved each household \$315 annually. Beyond cost savings, fracking might lower some health risks. For instance, by displacing coal-generated power, it can reduce pollution. But other work has shown harmful health effects, such as from its use of toxic chemicals. The authors call for more study on how fracking affects Americans' health overall.

Inexpensive Heating Reduces Deaths in Winter



As the number of cold days increase, winter death rates rise to match. The decline in natural gas heating costs is linked to fewer deaths in winter.

METHODOLOGY

The researchers combine data collected by the U.S. government on the national prices of natural gas and electricity, and data on the number of households using different energy sources for home heating in U.S. counties. They compare households using natural gas for heating with those using electricity. They assess how mortality in winter months responds to energy prices, focusing on causes that are exacerbated by exposure to cold such as pneumonia and heart attacks. They find a statistically relevant connection between the mortality rate and heating price in winter months. There is no such link in non-winter months when inadequate heating should not be a major factor.

REFERENCE

Chirakijja, J., S. Jayachandran, and P. Ong. 2019. [Inexpensive Heating Reduces Winter Mortality](#). IPR Working Paper 19-09.

FACTS AND FIGURES

- In the United States, 17% of households spend more than 10% of their income on home energy.
- The price of natural gas, the source of 58% of home heating in America, fell by 42% relative to electricity between 2005 and 2010.
On average, this saved natural gas-using households an estimated \$315 each year.
- This price decline caused a 1.6% decrease in the winter mortality rate for households using natural gas, preventing more than 11,000 deaths per year from 2005–10.



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