

Heat Stress, Mortality, and Adaptation Technology Choice: Evidence from India

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Abstract

This paper investigates the consequences of inequality in heat adaptation, examining the effectiveness of alternative cooling technologies in mitigating mortality impacts from extreme heat in India for the period 2014-2019. Our empirical results highlight a critical trade-off in heat adaptation. While we find that the expensive air conditioning proves to be highly effective in reducing temperature-related mortality, its ownership and use remains low, predominantly limited to high-income cities. In contrast, many Indian households, including low-income ones, purchase and use cheaper evaporative coolers, which we estimate offer reduced protection against heat stress. Our analysis then reveals that heat adaptation technologies have collectively reduced heat-related deaths by 21%, generating an annual gross welfare gain of \$32 billion. The wide prevalence of evaporative coolers contributes to two-thirds of these benefits. Yet, our counterfactual scenario demonstrates that air conditioners, if as widespread as evaporative coolers, could have prevented 47% of the heat-related deaths. We conclude showing that subsidising air-conditioning is a cost-effective way to reduce heat-related mortality in India.

Keywords: Heat stress, Cooling, Mortality, Inequality, India

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