Bombing, Heating, and Causal Models

Gang He

2024-03-23

Bombing strategy in Vietnam

- Discontinuities in U.S. strategies employed during the Vietnam War to estimate their causal impacts.
- Rounding thresholds in an algorithm used to target air strikes
- Bombing increased the military and political activities of the communist insurgency, weakened local governance, and reduced noncommunist civic engagement.
- Spatial discontinuity across neighboring military regions that pursued different counterinsurgency strategies.
- A strategy emphasizing overwhelming firepower plausibly increased insurgent attacks and worsened attitudes toward the U.S. and South Vietnamese government, relative to a more hearts-and-minds-oriented approach.

Heating differences between the North and South in China

- China's Huai River policy: free winter heating via the provision of coal for boilers in cities north of the Huai River but denied heat to the south.
- Regression discontinuity design based on distance from the Huai River
- Ambient concentrations of TSPs are about 184 g/m3 [95% confidence interval (CI): 61, 307] or 55% higher in the north.
- Life expectancies are about 5.5 y (95% CI: 0.8, 10.2) lower in the north owing to an increased incidence of cardiorespiratory mortality.
- Long-term exposure to an additional 100 g/m3 of TSPs is associated with a reduction in life expectancy at birth of about 3.0 y (95% CI: 0.4, 5.6).

Thoughts for evaluation

- Natural experiments

- Causal identification strategies
- Regression discountinuity

Further readings

- Dell M, Querubin P. Nation Building Through Foreign Intervention: Evidence from Discontinuities in Military Strategies. *The Quarterly Journal of Economics* 2018;133:701–64. https://doi.org/10.1093/qje/qjx037.

- Chen Y, Ebenstein A, Greenstone M, Li H. Evidence on the impact of sustained exposure to air pollution on life expectancy from China's Huai River policy. *PNAS* 2013. https://doi.org/10.1073/pnas.1300018110.