

Geographic Climate Regions and Homicide in the Continental US

A Challenge to Subcultural Arguments

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Subcultural Influence?

- * Higher homicide rates in historical South
 - * “Southern subculture of violence”
 - * What this sometimes means: *Black* subculture of violence
- * Messner (1983):
 - * Higher homicide rates in cities in the Confederate South
 - * Percent Black positively affects homicide rate for cities *outside* the South, but not those *within* it
- * Peterson & Krivo (2010):
 - * Controlling for neighborhood disadvantage *and* disadvantage in neighboring neighborhoods:
 - * Gap in violent crime rates between Black & White neighborhoods shrinks dramatically (disappears when controlling for distal crime rate)

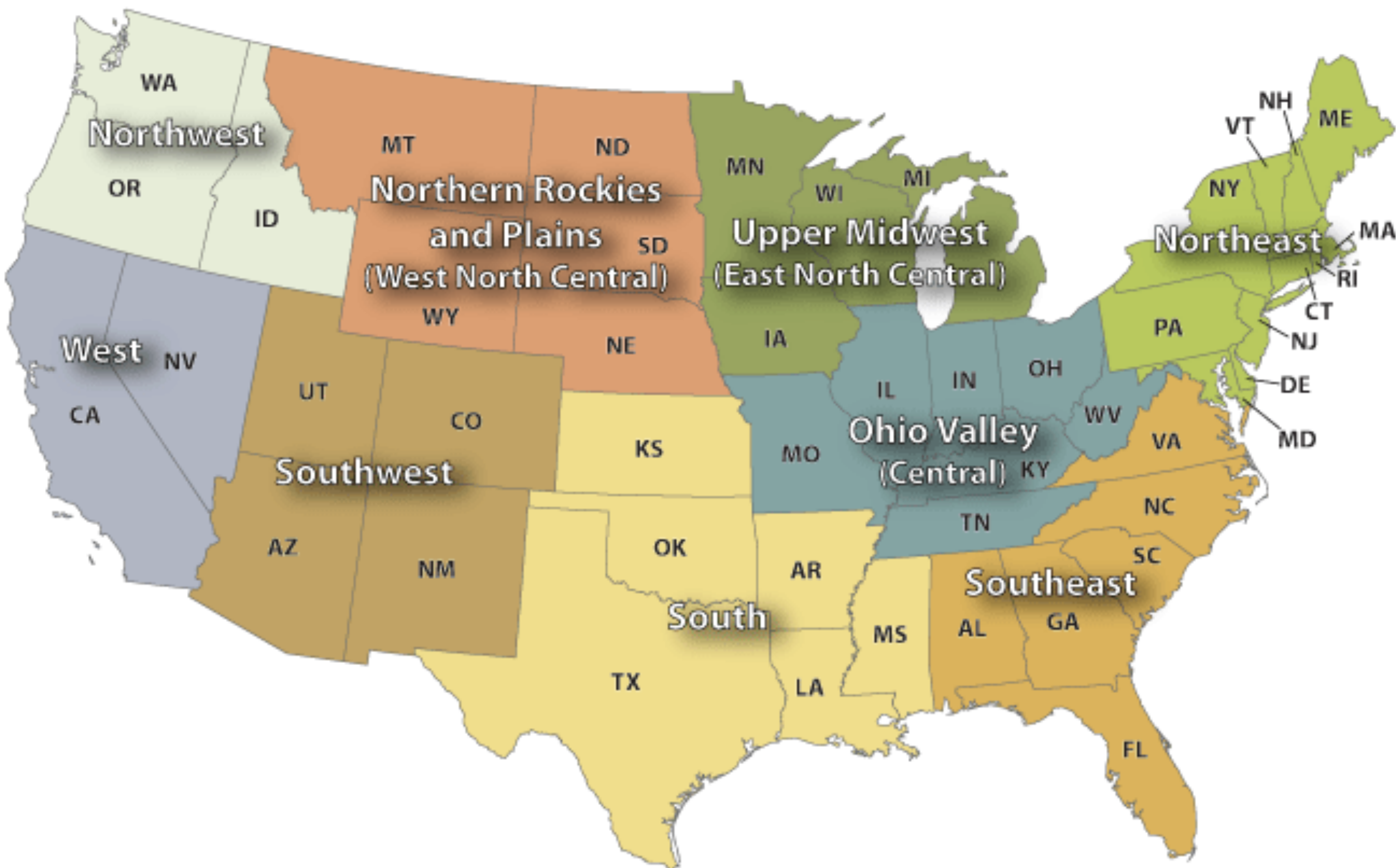
Research question:

What is the effect of climate
on homicide rate?

Effect of Climate on Crime?

- * Temperature affects violence through two general pathways (under a deterministic model):
 - * Routine activities: people spend more time outdoors in pleasant weather (Rotton & Cohn, 2003)
 - * Psycho-physiology: aggression increases in extreme conditions (see Anderson, 1989, for a review)
- * Extend temperature to climate by including: dew point, cloudiness, precipitation, wind chill, and daylight hours

U.S. Climate Regions



NOAA NATIONAL CENTERS FOR
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Classification Approach: Statistical Learning

- * Meteorological data (NOAA, 1981–2010)
- * Daylight data (TSA, 1981–2010)
- * Standard metropolitan statistical areas (SMSAs) in the continental U.S.
- * Support vector machines (SVMs)
- * Train a model classifying SMSAs by geographic climate region: attempt to match known regions

Controls: Demographics

* An index created from Census data:

* Total population

* Black population

* Segregation (index of dissimilarity)

* Young men (aged 15–34)

* Low-wage workers

* Low-prestige workers

* Manufacturing jobs

* Poor households

* Female-headed households

* Joblessness

* No bachelor's degree

* Residential instability

* Residential loans

* Immigrant prevalence

Dependent Variable

- * Homicide rate (2008–2012) per 100,000 per SMSA
- * Source: UCR monthly reports (ICPSR)

Geographic Climate versus Subculture

- * Develop linear models with controls (dummy variables) for geographic climate regions and include climate measures:
- * Regions statistically significant: culture (and other environmental and political variables)
- * Regions not statistically significant: climate

References

- * Craig A. Anderson (1989): "Temperature and Aggression: Ubiquitous Effects of Heat on Occurrence of Human Violence." *Psychological Bulletin* 106:1 (74-96).
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<https://www.ncdc.noaa.gov/monitoring-references/maps/us-climate-regions.php>
- * Ruth D. Peterson & Lauren J. Krivo (2010): *Divergent Social Worlds: Neighborhood Crime and the Racial-Spatial Divide*. New York: Sage.
- * James Rotton & Ellen G. Cohn (2003): "Global Warming and U.S. Crime Rates: An Application of Routine Activity Theory." *Environment & Behavior* 35:6 (802-825).