

# Noise and Violent Crime: Evidence from Exogenous Variation in Aircraft Flight Paths

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## Abstract

Noise pollution affects countless millions of people around the world and has long been recognized as a public health concern and a major externality of economic activity. While many epidemiologists attempted to analyze the health consequences of noise and highlighted its effects on cardiovascular diseases and sleep disturbances, the behavioral effects of noise have attracted little attention. In this paper, I analyze the effect of noise exposure on violent criminal behavior. The hypothesis put forward is that noise exposure induces biological stress responses which in turn facilitate criminal activity by limiting self-control in cognition. The empirical analysis uses noise monitor data and individual crime records from police statistics. Noise effect estimations are often plagued by omitted variable bias from self-selection of individuals with adverse outcomes into noisy neighborhoods. I use a novel instrumental variable strategy to circumvent endogeneity in the estimation. My instrument exploits a peculiarity in flight paths around airports that forces aircrafts to land from the opposite direction on certain days. Controlling for year, week, day and district fixed effects, I find that a one decibel increase in noise levels increases the rate of assaults by 3 percent. The effect is driven predominantly by male adult victims, assaults during daytime and assaults occurring outside of the domestic domain. The noise-triggered assaults are additional crimes which do neither only turn attempted assaults into action nor substitute for other crimes. There is also no evidence for a harvesting effect that would decrease crime rates on neighboring days. My results imply that environmental factors like noise can affect decision making in a meaningful way and inform policy makers of societal costs from short-term variation in noise exposure.

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