

AS THE WIND BLOWS: THE EFFECTS OF LONG-TERM EXPOSURE TO AIR POLLUTION ON MORTALITY

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Abstract

There is strong evidence that short-run fluctuations in air pollution negatively impact infant health and contemporaneous adult health, but there is less evidence on the causal link between long-term exposure to air pollution and increased adult mortality. This project estimates the impact of long-term exposure to air pollution on mortality by leveraging quasi-random variation in pollution levels generated by wind patterns near major highways. I combine geocoded data on the residence of every decedent in Los Angeles over three years, high-frequency wind data, and Census Short Form data. Using these data, I estimate the effect of downwind exposure to highway-generated pollutants on the age-specific mortality rate by using orientation to the nearest major highway as an instrument for pollution exposure. I find that doubling the percentage of time spent downwind of a highway increases mortality among individuals 75 and older by 3.8%–6.5%. These estimates are robust and imply significant loss of life years. (JEL: Q53, I12)

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