

Putting a Price Tag on Air Pollution: the Social Health Care Costs of Air Pollution in France

Julia MINK

Abstract :

I estimate the effects of air pollution on health care use and costs using administrative data on health care reimbursements in France and reanalysis data on concentrations of nitrogen dioxide (NO₂), ozone (O₃) and fine particles pollution (PM 10 and PM 2.5). To establish a causal relationship, I exploit daily variation in air pollution intensity induced by variations in wind speed and periods of strikes in the public transport sector.

I estimate that each 1 µg/m³ increases in daily NO₂ (7.2% of the average) results in an increase of EUR 7.57 in daily health expenditure per postcode area, while each 1 µg/m³ increase in daily O₃ (1.8% of the average) results in an increase of EUR 3.94, which corresponds respectively to a 1.5% and 0.8% increase in average daily expenditure. Summing across postcode areas and scaling the effects appropriately, this corresponds to an increase in health expenditure of EUR 6.8 million per day or EUR 2.5 billion per year. These costs are the result of exposure to pollution levels that are mostly well below the current regulatory levels. In addition, the estimates reflect only the costs of short-term exposure to air pollution while the potentially even larger effects of long-term exposure are not considered. These high costs from short-term exposure alone suggest that there are considerable benefits to reducing air pollution even further below current limit values. Finally, I find significant heterogeneity of effects across location and patient characteristics, indicating that air pollution reduction policies have the potential to reduce health inequalities.