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Air pollution trade-offs in developing countries: an empirical model of health effects in Goa, India

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Abstract

Developing countries experience both household air pollution resulting from the use of biomass fuels for cooking and industrial air pollution. We conceptualise and estimate simultaneous exposure to both outdoor and household air pollution by adapting the Total Exposure Assessment model from environmental health sciences. To study the relationship between total exposure and health, we collected comprehensive data from a region (Goa) in India that had extensive mining activity. Our data allowed us to apportion individuals' exposure to pollution in micro-environments: indoor, outdoor, kitchen, and at work. We find that higher cumulative exposure to air pollution is positively associated with both self-reported and clinically- diagnosed respiratory health issues. Households in regions with higher economic (mining) activity had higher incomes and had switched to cleaner cooking fuels. In other words, household air pollution due to higher biomass use had been substituted away for outdoor air pollution in regions with economic activity.

Keywords: air pollution; household air pollution; health; fuel choice; mining

JEL classification: I15; Q53; D13

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