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## The economic cost of air pollution due to stubble burning: Evidence from Delhi

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Stubble burning in North India has been a major contributing factor to the growing menace of air pollution in the National Capital Region of India for the last two decades. Though the health aspects of air pollution due to stubble burning have been extensively studied, its economic costs due to environmental damage have not been studied holistically. We attempt to estimate these costs using Instrumental Variable (IV) Analysis. Using VIIRS Data from NASA, we count the number of field fires per day in Punjab and Haryana during the September-December harvesting season, called FIRECOUNT. We use FIRECOUNT as the IV to estimate the concentration of PM<sub>2.5</sub> and PM<sub>10</sub> due to stubble burning. This is then regressed against the Gross State Domestic Product (GSDP) of New Delhi to identify the effect of increase in PM<sub>2.5</sub> or PM<sub>10</sub> on the GSDP of New Delhi. We find that field fires in North India contribute significantly to PM<sub>2.5</sub> and PM<sub>10</sub> concentration in New Delhi, and that an increase in PM<sub>2.5</sub> by 100 per cent is correlated with a decrease in the GSDP of New Delhi by approximately 1 per cent. This loss in GSDP can be in millions of Indian Rupees and this externality has strong policy implications for lawmakers in New Delhi.

**Keywords:** Air pollution, Environmental economics.

### Biography

Arti Agarwal is affiliated to Department of Interdisciplinary Studies, Indian Institute of Technology Kanpur. Her work is in modelling and empirically evaluating sustainable economic development and design of policies regarding the same.

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