

Department of Environmental Science and Policy Seminar Series

A thousand cuts: Cumulative lead exposure reduces academic achievement

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DATE: Friday, 11/11/2022

TIME: 10:30 am

ROOM: SLAB103

Zoom: <https://miami.zoom.us/j/97928202378>



Abstract: We study how ambient lead exposure impacts learning in elementary school by leveraging a natural experiment where a large national automotive racing organization switched from leaded to unleaded fuel. We find increased levels and duration of exposure to lead negatively affect academic performance, shift the entire academic performance distribution, and negatively impact both younger and older children. A single average race emitted more than 10 kilograms of lead — a quantity similar to the total annual emissions of an airport or the median lead-emitting industrial facility in the United States. The average treated student in our setting has an expected income reduction of \$5,200 in present value terms. Avoiding said treatment has an effect size similar to improving teacher value added by one-fourth of a standard deviation, reducing class size by 3 students, or increasing school spending per pupil by \$750. The marginal impacts of lead are larger in impoverished, non-white counties, and among students with greater duration of exposure, even after controlling for the total quantity of exposure.

Bio: Ivan Rudik is the Ruth and William Morgan Assistant Professor at the Dyson School of Applied Economics and Management at Cornell University. Dr. Rudik is an environmental economist studying climate change and air pollution. His research focuses on estimating damages from pollution exposure, the role of adaptation, and how to design more efficient environmental policy.

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