The Transboundary Health Effects of Saline Lakebed Dust

Abstract
The world's terminal saline lakes are rapidly drying, primarily due to agricultural water diversions. Decreases in water inflow increase dust emissions from the exposed lakebed surfaces, which in aggregate are an important contributor to global dust emissions. This paper studies the transboundary health impacts of dust in the context of the Salton Sea, which has seen accelerating lakebed exposure as the result of a water right transfer agreement. In 2003, the elevation of the Salton Sea was around 229 feet below sea level. By the end of 2018 the elevation had fallen to over 234 feet below sea level, and total lakebed exposure exceeded 20,000 acres. We examine the impacts of this newly exposed lakebed on pollution and health outcomes in Mexico, leveraging a pollution transport model and administrative health data. We find that pollution driven by Salton Sea dust emissions decreases infants' birthweight, with larger effects observed in socioeconomically vulnerable households. Our paper highlights the importance of accounting for transboundary externalities when designing water management strategies.

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