MedicalXpress

Emissions-cheating vehicles linked to worse health outcomes in babies, children across U.S.

June 20 2019, by Erin Meyer

Credit: CC0 Public Domain

A new study conducted by researchers at Northwestern University and the Federal Reserve Bank of Chicago is the first to show that diesel cars

implicated in the emissions-cheating scandal had population-level impacts on infant and child health.

More than 600,000 cars billed as having "clean diesel technology" were sold by automakers in the United States between 2008 and 2015. The new working paper finds the additional pollution from the exhausts of these cars is linked to lower birth weights in approximately 38,600 children and an increase in acute asthma in infants and children. The effects were especially pronounced for children born to mothers from high socioeconomic backgrounds, the study concluded.

"Car pollution is obviously a central issue for all of society—even the wealthiest members of society are exposed to it on a daily basis, although the poor are exposed more," said co-author Hannes Schwandtan economist with the Institute for Policy Research at Northwestern. "It is surprising that little is known about the causal impacts on population health."

In September 2015, the U.S. Environmental Protection Agency (EPA) charged the Volkswagen Group with violating the Clean Air Act, launching what came to be known as "Dieselgate." The EPA revealed that so-called "clean diesel cars" were cheating on emissions tests by using illegal software, known as "defeat devices," to meet U.S. air quality regulations.

Outside of testing labs, however, the cars were emitting dangerously high levels of nitrogen oxide (NOX) via their exhausts. As shown in previous research, one "cheating diesel" car in real-world driving conditions could emit as much NOXas 150 gasoline-powered cars. Other diesel car makers also were eventually implicated in the scandal.

One important aspect of this research is that the effects of the emissions scandal were not disproportionately felt among lower-income

populations. The new diesel cars were marketed to environmentally conscious consumers, with advertising emphasizing the power and mileage typical for diesel engines in combination with unprecedented low emissions levels. They sold especially well in higher income areas.

The researchers tracked car registrations around the U.S. to pinpoint where the cheating diesel cars were sold, linking that data to detailed information on pregnancies and births in those counties. They also collected data from EPA monitoring stations and satellites to measure air pollution.

Schwandt and co-author Diane Alexander, an economist with the Chicago Federal Reserve, found that each additional cheating diesel car per 1,000 cars in a county led to a 2 percent increase in fine particulate matter—a pollutant known to impair population health—and a nearly 2 percent increase in the rate of low birth weight. The researchers also calculated an 8 percent increase in asthma emergency department visits among young children in a subsample of five states: Arizona, Florida, Kentucky, New Jersey and Rhode Island.

Children across the socioeconomic spectrum were affected, but the effects were particularly pronounced for children born to white, non-Hispanic mothers with a college degree.

"Our study provides evidence that car pollution affects everyone—not just people living right next to major highways," Alexander said. "And for policymakers, we highlight the importance of not only appropriate regulation, but also enforcement."

While previous research has documented the ill effects of pollution on disadvantaged populations living next to highways, for example, this study is the first to show that even moderate levels of pollution can have detrimental health effects across the entire population.

The researchers argue that even these moderate levels of car pollution, deemed "safe" by the EPA, can still harm human health. They argue that revised policies that reduce car emissions to lower levels than what currently exist are likely to provide benefits to all of American society.

They plan to follow up with studies of outcomes for older children, adults and the elderly that will cover education outcomes, death and disease rates, and labor productivity, among others.

More information: The Impact of Car Pollution on Infant and Child Health: Evidence from Emissions Cheating: www.ipr.northwestern.edu/publi … s/2019/wp-19-17.html

Provided by Northwestern University

Citation: Emissions-cheating vehicles linked to worse health outcomes in babies, children across U.S. (2019, June 20) retrieved 11 May 2024 from https://medicalxpress.com/news/2019-06-emissions-cheating-vehicles-linked-worse-health.html