

EXTERNAL EFFECTS OF DIESEL TRUCKS CIRCULATING INSIDE THE SÃO PAULO MEGACITY

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Abstract

The medical literature documents adverse health effects of acute exposure to diesel exhaust, yet quasi-experimental evidence of a policy intervention sustained over months at the scale of a metropolis is lacking. Exploiting the inauguration of a beltway that removed 20,000 cargo trucks passing daily through inner-city roads in São Paulo, we examine the spatially differentiated impacts on the megacity's traffic, air quality and public health. We combine rich panel data on road congestion, ambient NO_x concentrations (as a signature of diesel exhaust), and hospital admissions and deaths. The policy reduced congestion, pollution, and hospitalizations, with effects attenuating at increasing distances from a key inner-city corridor used by the transit trucks prior to the beltway opening. The change in congestion was transient, as gasoline-ethanol passenger cars responded by filling the space the diesel trucks left behind. Effects on air and health persisted thanks to the compositional change in road users. We use 2SLS regression, taking policy-induced variation in NO_x to instrument for measured pollution, to quantify about one annual hospitalization for every 10 to 20 trucks – and one annual death for every 100 to 200 trucks – using inner-city roads. Policymakers in megacities where humans and diesel vehicles reside and transit in close proximity may learn from São Paulo's experience. (JEL: H23, I18, Q51, Q53, R11, R41)

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