

External costs from pollution assignment



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Ozone pollution, more commonly known as smog, is one of our most persistent environmental problems. Smog results from the mixing of several pollutants, including nitrogen oxides, sulfur dioxide, and volatile organic compounds. Smog causes health problems, triggering asthma attacks in the 15 million people in the United States who suffer from asthma and causing other respiratory problems, leading to premature deaths. Smog also retards plant growth and decreases agricultural productivity.

Because of health and there problems created by smog, the EPA has established standards for smog concentrations in urban areas. Nonetheless, in many cities ozone pollution levels rise above these healthful levels. The Breathable provides a visible reminder Of the health effects Of smog. Started in Los Angeles in 2000, the mobile asthma clinic, housed in a 34-foot recreational vehicle, provides free diagnosis and treatment for asthmatic schoolchildren. The clinic identifies and treats children who experience aggravated asthma symptoms on smoggy days.

The Breathable program started in low-income neighborhoods and has since spread to other cities. The automobile is by far the biggest source of smog-causing pollutants. We currently use a command-and-control approach to regulate automobile pollution: The EPA tells automakers what abatement equipment to install in cars. The equipment does not control the total emissions of the car, just the pollution per mile driven. If people buy cleaner cars but then drive more miles, total emissions can actually increase. The economic approach to air pollution is to internalize the external cost with a elution tax.

Under such a tax, a car owner would have the car tested at the end of the year to determine how much pollution it generated per mile and then pay a tax equal to the miles driven times the external cost per mile. For example, if the external cost for a particular car is \$0.02 per mile and the mileage for the year is 10,000 miles, the pollution tax for the year would be \$200. The pollution tax would encourage people to buy cleaner cars, maintain their emissions equipment, drive less, and use alternative modes of transportation.

The tax is consistent with the idea that people should pay the full cost of driving their automobiles, including the external costs. One alternative to a direct pollution tax on automobile travel is a gasoline tax. According to a recent study, smog-related damages from automobiles average about \$0.02 per mile driven, which translates to an average of \$0.40 per gallon of gasoline. Burning gasoline also contributes to global warming and if the appropriate carbon tax is \$1.00 per ton of carbon, the associated gasoline tax would be about \$0.28 per gallon.

Adding the \$0.40 tax for smog damage and the \$0.28 tax for global warming, the gasoline tax would be \$0.68 per gallon. This tax would be added to the current gasoline taxes (a federal tax of \$0.18 and state taxes that average about \$0.22), which pay for highway construction and maintenance. A gasoline tax would be inferior to a real pollution tax because a driver's gasoline tax bill would not depend directly on pollution, so there would be less incentive to drive cleaner cars.