Breathing inequality: Air pollution widens gap between 'the two Pittsburghs'

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For the first time in more than 15 years, the Pittsburgh region's air quality grew worse, according to the American Lung Association's "State of the Air" report issued recently. The report comes on the heels of a warning by the Environmental Protection Agency instructing Pennsylvania, and Allegheny County in particular, to reduce particulate matter air pollution.

It is well known that air pollution has a panoply of adverse effects on society. What might surprise the casual observer is that air pollution actually contributes to the widening gap between Pittsburgh's haves and have-nots.

The U.S. Census Bureau commonly reports income inequality through statistics like the Gini coefficient. This measure indicates that inequality has been increasing over the past decade. To get a more complete picture of the distribution of economic resources, our research deducts the monetary damages from air pollution exposure from household income and explores the distribution of this adjusted measure of income.

Our research examines about 2 million households across the United States included in the American Community Survey (ACS) — a product of the Census Bureau. To calculate the monetary value of air pollution impacts, we rely on relationships between exposure and health outcomes from the public health literature, valuation techniques from economics, and pollution data from the Environmental Protection Agency. We then subtract these damages from income reported in the ACS.

We find that this adjusted measure of income is much more unequally distributed across households than is market income. The degree to which these impacts are concentrated on lower income groups is startling.

Air pollution functions as a bracingly regressive tax. The symmetry of the impact paints a picture of stark contrast. When pollution impact is factored in, the bottom 20 percent of households lose roughly 10 percent of their share of national income, while the top 20 percent of households gain 10 percent. (The middle percentages see little to no change in income shares.) Pollution exposure effectively transfers resources from people with low incomes to those at the top of the distribution.

While it is true (if not well known) that people with lower incomes are generally exposed to more pollution, we found that this was not the primary driver of the higher impact. Our research found that even if all communities faced the same pollution exposure levels, low-income communities would still suffer more because their residents face a much higher baseline risk of mortality.

A host of other factors — from the availability of affordable health care to the challenges of work, from the incidence of alcohol and tobacco use to educational access and achievement — contribute to higher baseline death rates in these communities. Because residents are already more likely to die young, adding pollutants on top of that elevated baseline risk affects their lives more dramatically than more affluent populations, whose general health is more likely to be good.

What this means is that environmental policy may be an especially effective tool to address income inequality. Reducing pollution benefits everyone, but it most significantly improves the lives of the very poor. Conversely, loosening environmental regulations will only contribute to widening the income gap in our country.

To the extent that widening inequalities reflect differences in opportunities, we should remember that the air we breathe is integral to the pursuit of life, liberty and the pursuit of happiness.