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MAPPING ENVIRONMENTAL INJUSTICE

Race, Class, and Industrial Air Pollution

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East St. Louis, Ill., just across the Mississippi River from St. Louis, Mo., is not your typical American town. It has a hazardous waste incinerator, numerous chemical plants, and multiple “national priority” toxic waste sites. It’s also home to 26,000 residents, 98% of them African-American. The median household income is about \$21,000—meaning that half the households in the city have annual incomes even lower. The rate of childhood asthma is among the highest in the nation.

America’s polluters are not color-blind. Nor are they oblivious to distinctions of class. Studies of environmental inequality have found that minorities and low-income communities often bear disproportionate pollution burdens. One of the reasons was revealed in a consultant report to the California Waste Management Board that surfaced in the 1980s: “A great deal of time, resources, and planning could be saved and political problems avoided if people who are resentful and people who are amenable to Waste-to-Energy projects [a.k.a. incinerators] could be identified before selecting a site,” the report observed. It recommended that “middle and higher-socioeconomic strata neighborhoods should not fall at least within the one-mile and five-mile radii of the proposed site.”

Rather than being distributed randomly across the U.S. population, pollution mirrors the distribution of power and wealth. Pollution disparities reflect conscious

FIGURE 1: INDUSTRIAL AIR TOXICS EXPOSURE BY EPA REGION



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EPA Region	25th percentile	median	75th percentile	90th percentile
New England	~100	~200	~300	~500
Northeast	~100	~200	~300	~700
Mid-Atlantic	~100	~300	~600	~1700
Southeast	~100	~200	~300	~600
Midwest	~200	~400	~1000	~2500
South Central	~100	~400	~1000	~2700
Central Plains	~100	~200	~300	~1300
Central Mountains	~100	~200	~400	~700
West/Southwest	~100	~200	~400	~700
Pacific Northwest	~100	~200	~500	~1100

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decisions—decisions by companies to locate hazardous facilities in vulnerable communities, and decisions by government regulators to give less priority to environmental enforcement in these communities. They can also reflect neighborhood changes driven by environmental degradation: pollution pushes out the affluent and lowers property values, while poorer people seeking low-cost housing move in, either unaware of the health risks or unable to afford alternatives. Even after accounting

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lowers property values, while poorer people seeking low-cost housing move in, either unaware of the health risks or unable to afford alternatives. Even after accounting for differences related to income, however, studies find that racial and ethnic minorities often face higher pollution burdens—implying that disparities are the result of differences in political power as well as purchasing power.

The United States is a big, heterogeneous country. Electoral politics, social movements, industrial structure, residential segregation, and environmental policies differ across regions. So patterns of pollution may vary, too. Our recent study “Regional variation in environmental inequality: Industrial air toxics exposure in U.S. cities” examines these patterns to ask two key questions. First, is minority status or income more important in explaining environmental disparities? Second, does income protect minorities from pollution as much as it protects whites?

To tackle these questions, we used data on industrial air pollution from the U.S. Environmental Protection Agency (EPA). In the 1980s, in the wake of the deadly toxic gas release at a plant owned by the U.S.-based company Union Carbide in Bhopal, India, in which thousands of nearby residents were killed, environmental advocates in the United States demanded disclosure of information on hazards faced by communities near industrial facilities. In response, Congress passed the Emergency Planning and Community Right-to-Know Act of 1986, requiring corporations to disclose their releases of dangerous chemicals into our air, water, and lands. These are reported annually in the EPA’s Toxics Release Inventory. The EPA

FIGURE 2: AVERAGE INDUSTRIAL AIR TOXICS EXPOSURE (EPA SCORE) BY POVERTY AND MINORITY STATUS, 10 EPA REGIONS

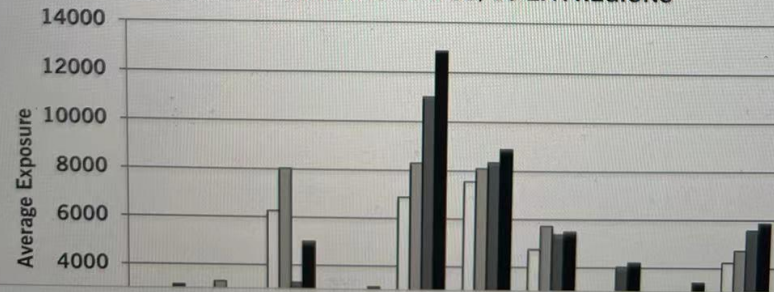
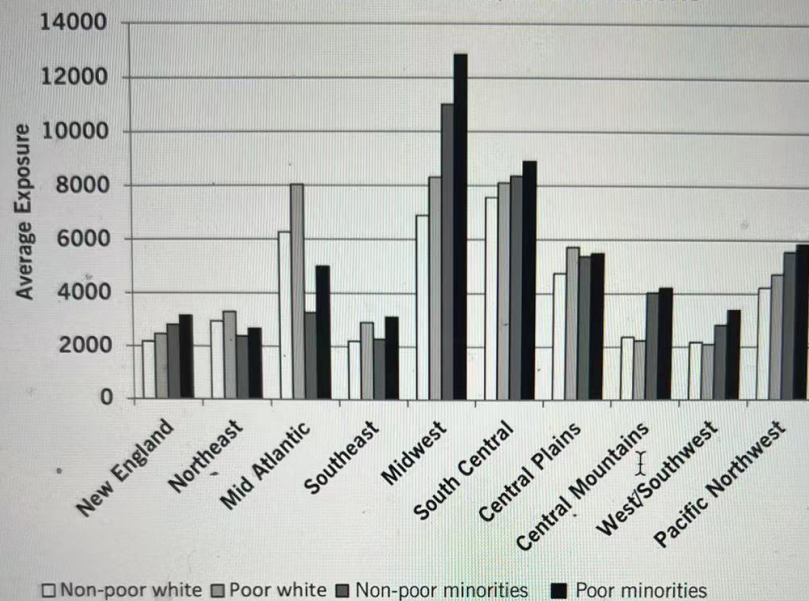


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has combined these data with information on the toxicity and dispersion of hazardous chemical releases to create the Risk-Screening Environmental Indicators (RSEI), the database we use, that estimates the total human health risks in neighborhoods across the country from multiple industrial pollution sources and chemicals.

Industrial air pollution varies greatly across regions of the country. Figure 1 shows the level of health risk faced by the median resident (in the middle of the region's exposure distribution) as well as by more highly impacted residents (in the

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Industrial air pollution varies greatly across regions of the country. Figure 1 shows the level of health risk faced by the median resident (in the middle of the region's exposure distribution) as well as by more highly impacted residents (in the 75th and 90th percentiles of exposure). The Midwest and South Central regions have the highest levels, reflecting historical patterns of both industrial and residential development.

Figure 2 shows average pollution exposure by region for four groups: non-poor whites, poor whites, non-poor minorities and poor minorities. Poor minorities consistently face higher average exposure than non-poor minorities, and in most regions poor whites face higher average exposure than non-poor whites. In general, poor minorities also face higher exposure than poor whites, and non-poor minorities face higher exposure than non-poor whites. But in mapping environmental injustice we do find some noteworthy inter-regional differences—for example, in the contrast between racial disparities in the Midwest and Mid-Atlantic regions—that point to the need for location-specific analyses.

Finally, Figure 3 depicts the average pollution exposure for four racial/ethnic groups across income strata at the national level. The most striking finding here is that racial disparities in exposure are much wider among people who live in lower-income neighborhoods. At the lower-income end of the scale, the average exposures of African Americans are substantially greater than those of whites. The lower average exposures for Hispanics in low-income neighborhoods are largely explained by their concentration in western and southwestern cities with

FIGURE 3: AVERAGE INDUSTRIAL AIR TOXICS EXPOSURE BY INCOME AND RACE/ETHNICITY, NATIONAL LEVEL

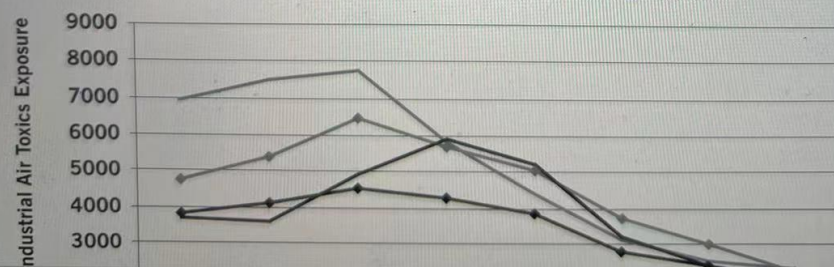
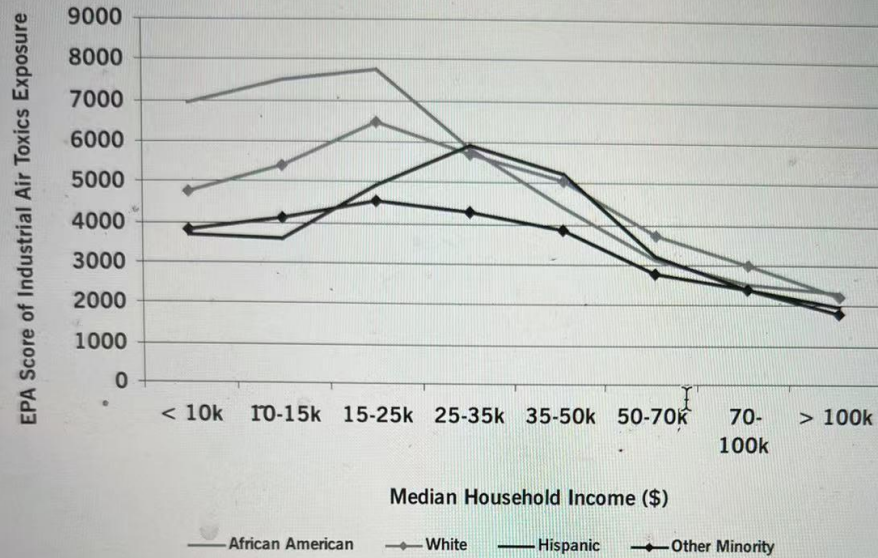


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below-average pollution. Statistical analysis shows, however, that within these cities Hispanics also tend to live in the more polluted neighborhoods.

Pollution risk increases with average neighborhood income for all groups up to a turning point at around \$25,000 per year. This can be explained by the positive association between industrialization and economic development. After that point, however, income becomes protective, and rising neighborhood income is associated

below-average pollution. Statistical analysis shows, however, that within these cities Hispanics also tend to live in the more polluted neighborhoods.

Pollution risk increases with average neighborhood income for all groups up to a turning point at around \$25,000 per year. This can be explained by the positive association between industrialization and economic development. After that point, however, income becomes protective, and rising neighborhood income is associated with lower pollution exposure. Among these higher-income neighborhoods, racial and ethnic disparities in exposure are almost non-existent. But because of the correlation between minority status and income, minorities are more concentrated in lower-income communities whereas whites are more concentrated in upper-income communities. Based on where they live, whites may be more likely to see income as the main factor explaining disparities in pollution exposure, whereas African Americans are more likely to see the racial composition of neighborhoods as what matters most.

Environmental protection is not just about protecting nature from people: it's also about protecting people from other people. Those who benefit from industrial air pollution are the corporations that reap higher profits and their consumers, insofar as avoided pollution-control costs are passed on in the form of lower prices. Those who bear the greatest harm are the residents of nearby communities. Safeguarding the environment requires remedying this injustice and the imbalances of power that lie behind it. □

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