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# Of Racism and Rubbish

## *The Geography of Race and Pollution in Mississippi*

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“Nobody can question that, for far too long, communities across this country—low income, minority communities—have been asked to bear a disproportionate share of our modern industrial life.”

—EPA Administrator Carol Browner, April 22, 1994 (Earth Day)

**T**he notion of racism has recently taken a new twist.<sup>1</sup> Using demographic variables in the description of hazardous-waste sites, the United Church of Christ Commission on Racial Justice (1987) reported a correlation between race and the location of waste-producing facilities. Charges of environmental racism and environmental injustice quickly followed. Robert D. Bullard asserts: “Environmental discrimination is defined as a disparate treatment of a group or community based on race, class, or some other distinguishing characteristic. White racism is a fac-

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1. In the economics of labor markets, racial prejudice may lead firm owners, managers, workers, or even customers to practice discrimination in a way that leads to lower wages for minorities. Gary Becker (1971) argued that under general conditions, the forces of competition would cause the negative effects on minority wages to disappear. Other theories of discrimination in the labor market are not so optimistic (see Cain 1986).

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tor in the impoverishment of black communities and has made it easier for black residential areas to become dumping grounds for all types of health-threatening toxins and industrial pollution” (1994, 7).

Anecdotal evidence providing *prima facie* support of this proposition certainly exists. The area around Baton Rouge, Louisiana, and extending south along the Mississippi River—an area of high minority population—has been called “cancer alley” or the “toxic corridor.” Likewise, the so-called Devil’s Swamp, one of Louisiana’s largest hazardous-waste dump sites, is located near the low-income, high-minority population of Scotlandville (Adeola 1994).

The charge of environmental injustice has been taken seriously. At least two national conferences have been held to review the existing research on the subject and to propose policies to alleviate the problem.<sup>2</sup> The Clinton administration took steps to outlaw environmental discrimination. A 1994 executive order instructed all federal agencies to be on the lookout for evidence of such discrimination. In 1998, the Environmental Protection Agency (EPA) was instructed to investigate facilities whose emissions have a disparate impact on minorities. Any state agency that approves such facilities is to be found in violation of Title VI of the Civil Rights Act of 1964 (Payne 1997).

In this article, we add to the growing literature investigating the link between environmental waste and both minorities and the poor. We consider data on pollutants emitted in the state of Mississippi. The next section provides a brief description of externalities and an overview of the benefits and costs of government intervention. Next we provide a review of the existing pertinent literature, then present pollution and racial-demographic data, and follow that with a conclusion and final comments. An appendix contains additional statistical analysis.

## Externalities

A negative externality involves the imposition of a cost on a third party who is neither the buyer nor the seller in a transaction—a cost the contracting parties disregard. Thus, the true cost of the activity is not reflected fully in the standard supply curve. In the case of pollution, third-party residents suffer from the emissions, but the market ignores their suffering. Government can seek to correct the externality by regulating the activity or by applying a tax on the polluter, the revenue from which can be transferred to the residents who bear the pollution burden.

Ronald Coase (1960) advocates an alternative solution that calls for the harmed parties to negotiate with the polluter. The residents may be willing to “sell” some of

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2. The following statement is from the Proceedings to the First National People of Color Environmental Leadership Summit: “We, the people of color, gathered together at this multinational People of Color Environmental Leadership Summit, to begin to build a national and international movement of all peoples of color to fight the destruction and taking away of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth.” October 24–27, 1991, Washington, D.C. Address: United Church of Christ Commission for Racial Justice, 475 Riverside Drive, Suite 1950, New York, N.Y.

their clean environment to the polluting firm. Although exposure to toxic chemicals is thought to be associated with a host of human health problems, residents may focus instead on the benefits of heavy industry. A recent example is worthy of consideration.

In 1997, Greenpeace and other political organizations blocked a Shintech factory from locating in St. James Parish, Louisiana, by making use of the EPA's Title VI rule forbidding new pollution sources in areas that have a greater minority representation than the rest of the state. The plastics plant ended up being located in another state in a predominantly white community. This shift occurred even though an overwhelming majority of the citizens of St. James Parish expressed a desire for the facility in a poll conducted by the local chapter of the National Association for the Advancement of Colored People (NAACP) (Payne 1998).

According to the proponents of environmental justice, minority residents' willingness to accept polluting plants serves only to illustrate the desperation of the poor: "Polluting industries exploit the pro-growth, pro-jobs sentiment exhibited among the poor . . . and minority communities. Industries such as paper mills . . . and chemical plants, searching for operation space, found these communities to be a logical choice for their expansion" (Bullard 1994, 29).

Bryant and Mohai (1992) contend, however, that rather than exploiting a desperation for jobs, companies target minority communities because such communities have less political clout and therefore represent the path of least resistance. Still, whatever one's views on job desperation or paths of least resistance, the question remains: Are minorities and the poor actually subject to greater exposure to hazardous waste from polluting plants?

## Existing Literature

As Friedman (1998) points out, many believe that "environmental justice" initially became a topic of policy analysis in 1982, when efforts to block the movement of a hazardous-waste landfill into a predominantly minority-populated area of North Carolina were unsuccessful. The fight over this toxic landfill led to the involvement of various politicians and ultimately of the EPA. EPA involvement in the form of issue statements and guidelines was most likely the impetus for studies that sought to find evidence of environmental injustice. Although such evidence exists, Holmes, Slade, and Cowart (2000) caution that much of it adduced thus far is advocacy based and should be viewed skeptically.

Daniels and Friedman (1999) have provided a comprehensive review of the literature. In these studies, the most common unit of analysis for data is the county, the zip code area, the region, or the census tract. Some of the studies that examined the entire United States and found a positive correlation between minority population and pollution are the United Church of Christ 1987, Zimmerman 1993, Perlin and Setzer 1995, Been 1997, Brooks and Sethi 1997, Ringquist 1997, Hite 2000, and Allen 2001. The United Church of Christ study is one of the most widely cited empirical

studies, and it concluded that race was a significant factor in determining the location of polluting facilities. On the other hand, in the first comprehensive study of toxic-waste facilities to use census-tract data, Anderton and colleagues (1994) did not find any nationally consistent correlation between minorities and pollution.

Other studies have not examined the nation as a whole, but have focused instead on particular regions, states, or still smaller units of observation. The U.S. General Accounting Office (GAO) completed one of the first regional studies in 1983. It compiled data on four hazardous-waste facilities in EPA Region 4 (see U.S. GAO 1983). The study concluded that the population surrounding three of these facilities was predominantly black. Bryant and Mohai (1992) studied the demographic characteristics of populations surrounding commercial hazardous-waste facilities in a three-county area around Detroit. They concluded that race is a more important factor than income in the distribution of these facilities. Burke (1993), Boer and Pastor (1997), and Sadd and colleagues (1999) found a positive correlation between minorities and pollution in Los Angeles County and in the Los Angeles metro area. Studies of Ohio (Bowen and colleagues 1995) and Florida (Pollock and Vittas 1995) also yield a positive correlation. Neither Cohen (1997) nor Cutter, Holm, and Clark (1996) found a relationship between minority population and pollution. Likewise, Holmes, Slade, and Cowart (2000) found that the racial composition of the area did not influence the geographic distribution of pollutants or polluting facilities in Birmingham, Alabama.

Additional research suggests that economic factors rather than race itself account for apparent environmental racism. Mitchell, Thomas, and Cutter (1999) point out that merely finding a correlation between large minority communities and industrial pollution is not necessarily evidence of environmental injustice. Does the correlation arise because polluting industries target minorities in their site selection, or do existing industries attract minorities because of job opportunities and lower property values? The researchers conducted a longitudinal analysis of industry and racial demographics in the state of South Carolina and found that the industries came first. That is, when the industrial plants were first constructed, minorities were not present in disproportionate number. Over time, however, the process of migration caused those areas to have a greater proportion of minorities. Thus, where industries came first, as in South Carolina, the public-policy implications of a correlation between minorities and pollution are unclear.

Hamilton (1995) tested three economic theories: pure discrimination in siting decisions; differences in the willingness to pay for environmental amenities based on income and education; and differences in the probability of communities to engage in collective action against the location of the polluting site. Hamilton concluded that in terms of the distribution of externalities, from 1987 to 1992 the zip code areas targeted for toxic-facility expansion had a higher percentage of nonwhite residents than the zip code areas without net expansions. He also concluded that differences in the probability of collective action helped explain the distribution of pollution across communities. Lambert and Boerner found that in the case of St. Louis

and Houston, “to the degree that environmental disparities exist, it is economic factors—not siting discrimination—that are behind many claims of environmental racism” (1997, 197). For example, toxic facilities initially located in white areas often become surrounded by minority residents who are attracted by falling housing prices.

### Mississippi Pollution and Race

The study we report here is based on a single state. In studies of discrimination, we may find that different regions of the country exhibit different levels of discriminatory behavior. The reasons for these differences include, but are not limited to, the cultural history, the laws, and the minority makeup of the different regions. Because the proponents of environmental racism claim that minorities lack both the financial means and the political clout to resist the siting of a polluting plant, state-by-state analysis is needed to control for the differing political structures that exist across the states. Further, because of likely differences in the distribution of education, income, and cultural preferences between minority groups of different regions, the ability of minorities as a group to avoid living in polluting areas may differ from state to state.

Studies investigating the nation as a whole can produce misleading findings and interpretations. The large number of Midwestern rural counties with a small minority population and little industry creates bias in a coast-to-coast study. Perlin and Setzer issue this caveat: “an analysis looking only at the national picture will miss important information which may lead to erroneous conclusions” (1995, 79). Although an unusually rich data set might allow the researcher to control for these differing conditions, such a data set does not exist.

Here we investigate the claims of environmental injustice by focusing on Mississippi. Bullard has asserted, “the entire Gulf Coast region, especially Mississippi, Alabama, Louisiana, and Texas, has been ravaged by ‘lax regulations and unbridled production’” (1994, 29). Therefore, Mississippi—a state with an unpleasant race-relations history—serves as an excellent test case.

Like previous researchers, we use proximity to a polluting industry as a proxy for exposure. Researchers must take care to match the geographic unit of observation with the etiology of diseases. Following Perlin and Setzer (1995), we use the county as the unit of analysis. The pollution data we consider are allowable emissions by firm, obtained on a county-by-county basis from the Mississippi Department of Environmental Quality, Title 5: Operating Permit Program. Pollution is measured in this data set as tons per year. The permit amount considered is the maximum allowed for the period from September 1, 1995, to August 31, 1996. Although the actual pollution may differ from the allowable amount, a charge of discrimination could hardly be sustained because some plants chose to produce less pollution than allowed.

We used two measures of pollution: total air pollutants and hazardous air pollutants (HAPs), a subset of total air pollutants. HAPs constitute an especially nasty

group of chemicals thought to be responsible for the most significant risk of disease. By comparing the geographic pattern of pollutant emissions by county to the racial makeup of each county, we can assess whether the claims of environmental injustice hold up for the state of Mississippi.

Figure 1 shows the proportion of black representation in each Mississippi county. The counties with a relatively large black population are those along the northern and central portion of the state's western border (the Mississippi Delta), two counties near the center of the eastern border (Noxubee and Kemper Counties), and one county in the southwest corner (Wilkinson County).

Figure 2 shows the level of HAP emissions in each county. Seven counties emitted the highest amount of these substances. Of the eighteen counties shown in figure 1 to have the highest black representation, only one—Washington County—had high levels of hazardous toxins. A comparison of figures 1 and 2 demonstrates little support for a positive correlation between high levels of hazardous toxins and black population.

Figure 3 shows the level of total-air-pollution emissions for each county. Three counties along the northern portion of the state's western border did contain higher levels of pollutants and did have high black representation. A look at the rest of the state, however, reveals that the vast majority of high-pollution counties had very low black representation. Thus, as with hazardous toxins, no pattern of high levels of total pollution along with high black representation appears to have existed.

Although the general absence of an association between black population and pollution can be seen by examining figures 1, 2, and 3, another way to look at the data is by examining deciles. Table 1 groups all the counties in Mississippi into ten groups based on the proportion of the population that is minority. The first group includes the counties with the highest percentage of minorities. Table 1 shows relatively higher levels of HAPs and total air pollution in counties with the lowest proportion of minorities.

## Conclusion

Based on the foregoing analysis, we conclude that no positive association exists between heavy black population and large amounts of air pollution in the state of Mississippi. If anything, the tables and graphs show less pollution in counties with higher black representation. We offer additional empirical analysis—multiple-regression estimates—in the appendix of this article, which likewise provides little support for the notion of environmental racism.

These results suggest, at least with regard to Mississippi, that charges of environmental racism are highly exaggerated. Daniels and Friedman (1999) point out that two types of counties tend to have low levels of pollution: poor counties with little economic activity and wealthy counties that derive their income primarily from non-industrial sources. Lower levels of economic activity may explain why, in investigations of Mississippi county data, blacks as a group appear to be less exposed to pollution than nonblack residents.

Figure 1

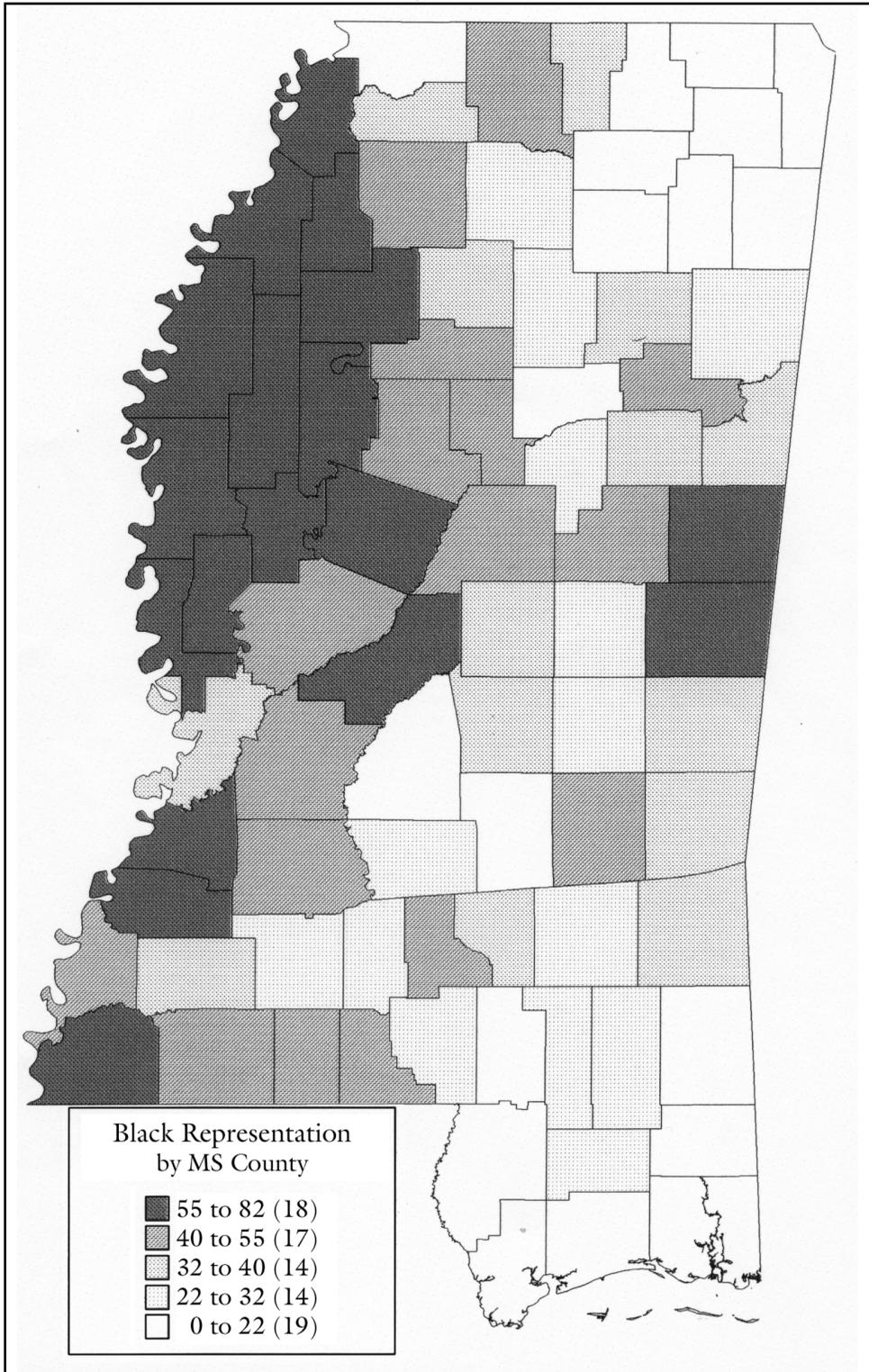


Figure 2

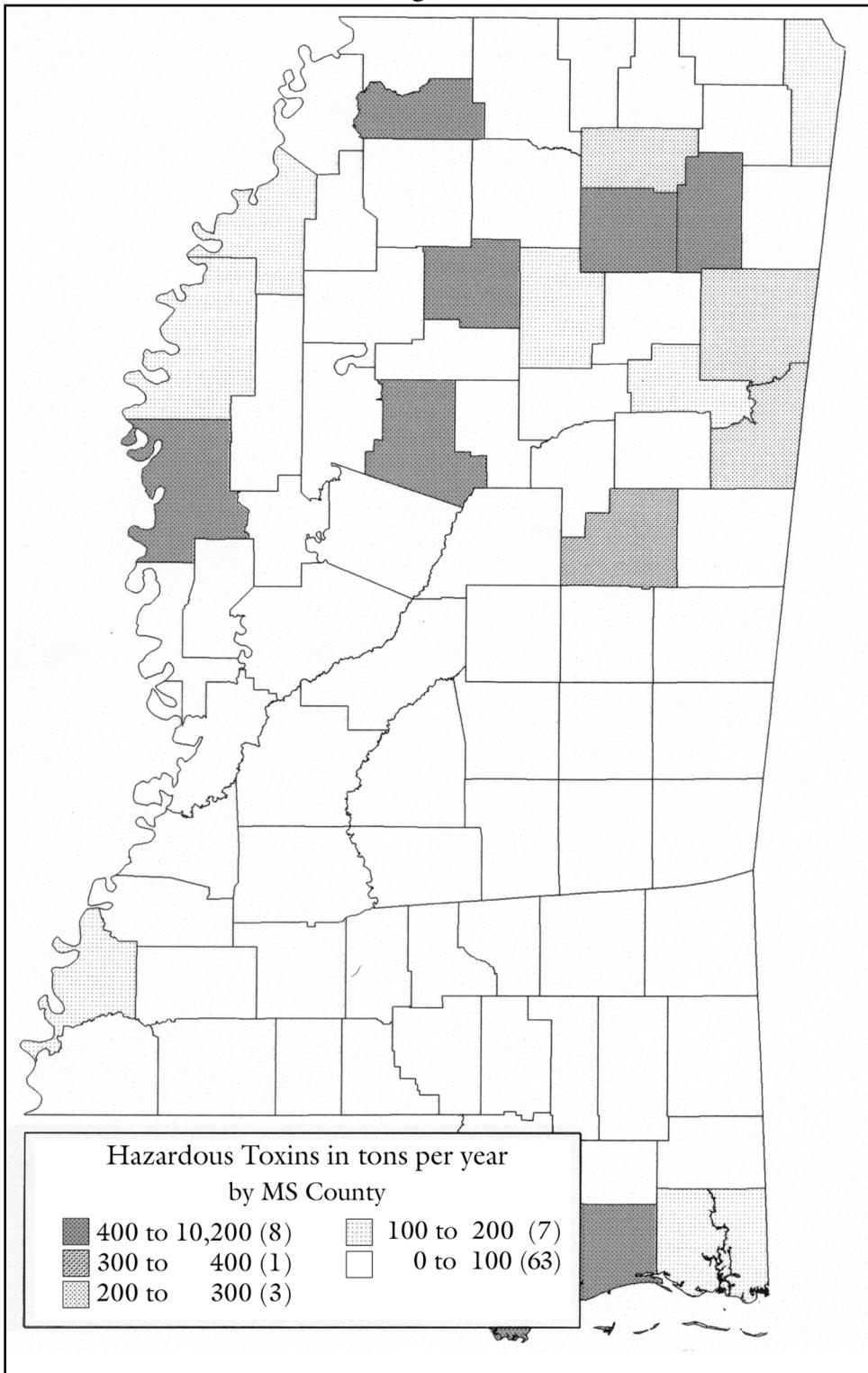
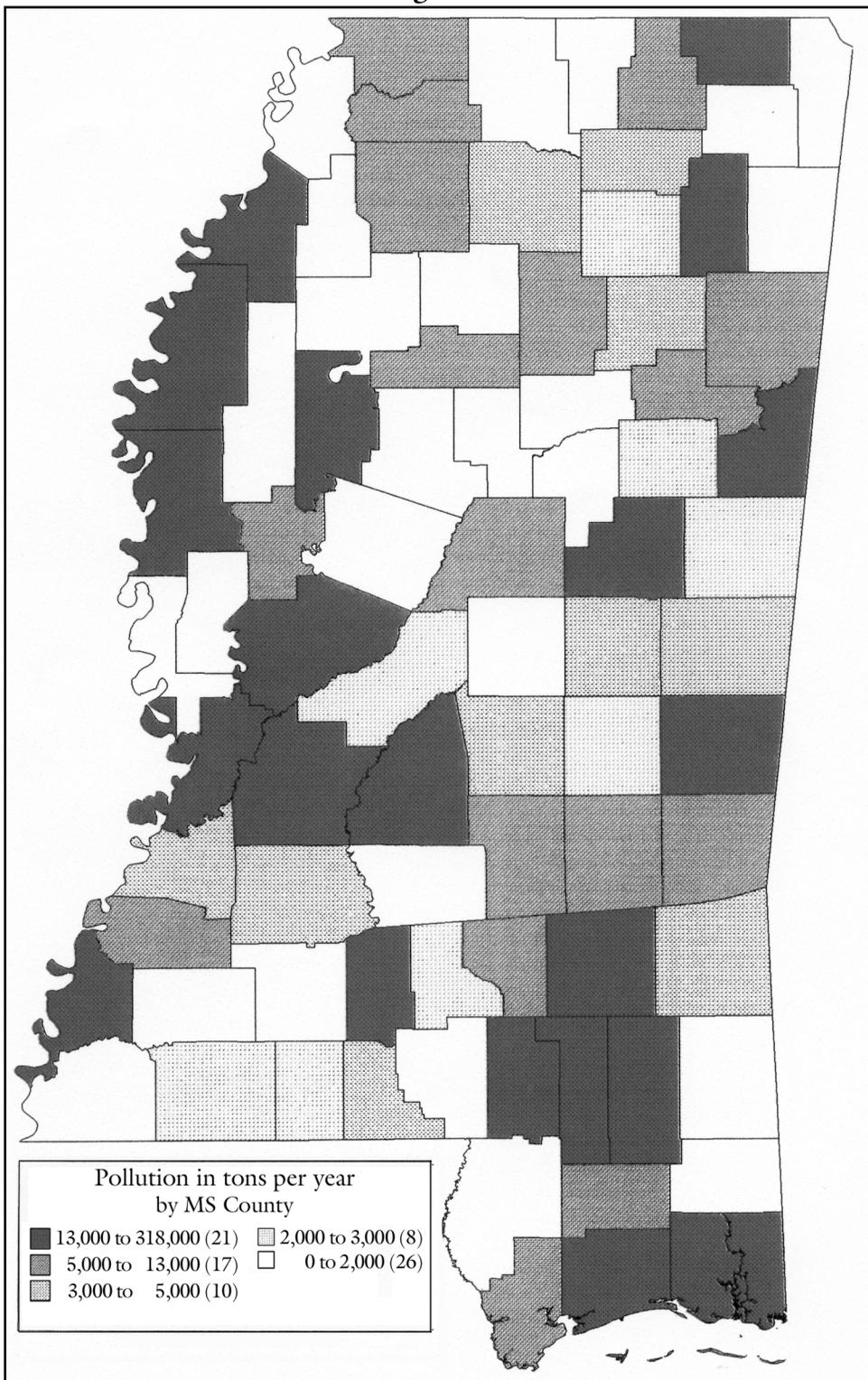


Figure 3



**Table 1: County Pollution Deciles, by Race, Mississippi**

Decile	Percent Black	HAPs (Tons)	Total Air Pollution (Tons)
1	70.6	180	34,889
2	59.6	1,342	283,133
3	52.4	333	184,933
4	45.5	998	73,341
5	39.0	1,405	318,285
6	34.2	307	177,693
7	29.5	337	63,042
8	22.9	10,702	464,935
9	18.0	904	269,629
10	9.1	972	81,258

*Source:* Percent black from *Statistical Abstract of the United States*, various years.

If lower levels of economic activity are driving these results, then blocking new industry may be counterproductive in seeking to improve the lives of those living in predominantly minority counties. In response to the St. James Parish Shimtech controversy, the local president of the Black Chamber of Commerce said, “I’m trying to think of a policy that would be more effective in driving away entrepreneurs and jobs from economically disadvantaged areas—and I can’t do it” (Payne 1998, 30). Indeed, in April 2001, the St. James Parish Council applied for a grant to study why its unemployment rate is so high. Dale Hymel, the St. James Parish president, sees no need for such a study: “When an industry looks at St. James Parish, and they find out Shintech was run out of St. James, they don’t even want to look at us any further” (qtd. in Castay 2001, 9A).

The final determination of the best public policy depends on how much weight is given to the benefits of jobs as against the cost of pollution to the area. Whatever the weight given to a clean environment, Mississippi’s pattern of county-level air pollution hardly supports the notion of environmental injustice.

## Appendix

The results of our multiple-regression analysis are consistent with other evidence presented in this article. Dependent variables are HAPs by county per square mile and total pollution by county per square mile. The HAPs data contains an outlier. Whereas the HAPs level in other counties range from 0 to 1,087 tons per year, Lee County’s HAPs level is 10,123.5 tons per year. Equation 2 excludes Lee County,

**Table 2: Multiple Regression Coefficients**

	HAPs Equation 1	HAPs Equation 2	Pollution (Total)
Constant	-1.04 (4.06)	0.29 (0.58)	-178.3 (120.86)
Percent Black	-0.00015 (0.0029)	-0.00015 (0.0029)	0.25 (0.60)
Unemployment	0.050 (.13)	-0.0026 (0.018)	4.14 (3.83)
High School	-0.038 (0.063)	-0.014 (0.009)	2.93 (1.87)
Density	0.0090 (0.0082)	0.0015 (0.0012)	0.97*** (0.24)
Median Family Income	0.00012 (0.00011)	0.000024 (0.000016)	-0.0012 (0.0033)
N	82	81	82
R Square	0.06	0.077	40

*Note:* Standard errors in parenthesis. HAPs are measured in tons per year per square mile; total pollution is measured in tons per year per square mile.

\*\*\*Denotes 1 percent level of statistical significance.

bringing the sample size down to 81 from 82. Other factors thought to attract industry serve as independent variables in the model and include the county's unemployment rate, the percentage of adults in the county who are high school graduates, median family income, and the population density of the county (persons per square mile). All data are taken from the *Statistical Abstract of the United States* for various years.

Regression results are shown in table 2. A positive coefficient on the percentage-black variable is interpreted as an indication that counties with larger minority populations had greater pollution. The results of both estimations are similar except that the density coefficient becomes statistically significant at the 10 percent level in equation 2. In both specifications, the coefficient on percentage black is negative but statistically insignificant. Table 2 also includes a third estimate in which total pollution by county per square mile serves as the dependant variable. Here the coefficient of percentage black is positive but again statistically insignificant.

Finally, a simple-regression model with only percentage black was investigated. The coefficient of the independent variable, percentage black, is negative but statistically insignificant. In no case is pollution statistically significantly related to minority population.

The results of regressions utilizing as dependent variables total HAPs and total pollution per county are very similar to the results using per-square-mile pollution measures. Taken as a whole, the results do not support the contention that pollution is heavier in Mississippi counties that have a higher proportion of black residents. In addition, median family income is statistically insignificant in each of the specifications.

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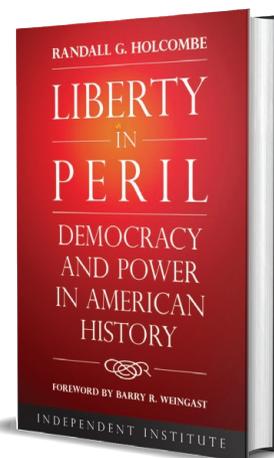
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