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Environmental Equity in Illinois: A County-Level Comparison of Toxic Releases

Ted Richards '11
Illinois Wesleyan University

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Abstract

A large body of research exists covering a variety of topics that can be classified under environmental justice. Studies examine air pollution, water pollution, and locally unwanted land uses (LULUs) – such as landfills or hazardous waste sites – to conclude whether or not their environmental burdens are shared equally between individuals of different income levels or race. Research has also been done to determine whether TRI facilities are disproportionately located in low-income and minority communities. These take the form of nation-wide studies, state level studies, county level studies, or those that look at specific communities. The purpose of this study is to examine the distribution of pollution produced by TRI facilities in the state of Illinois, an area not yet researched using a state-wide, county-level study. In this proposal, I hypothesize that:

1) In Illinois there is an inequitable spatial distribution of facilities that produce hazardous wastes.

2) Emissions of hazardous wastes are more prevalent in Illinois counties where higher proportions of minority and low income individuals reside.

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I. Introduction

In 2008, 21,695 industrial facilities reported to the US Environmental Protection Agency's Toxic Release Inventory (TRI) Program. Collectively, these facilities reported releasing 3.86 billion pounds of toxic chemicals into the local environment; chemicals ranging from heavy metals such as lead, to cancer-causing dioxins (US EPA). Although these toxic releases are subject to regulation in current times, this was not always the case. Before 1986, U.S. citizens were not provided with information regarding the toxic chemicals that federal and private industrial facilities were releasing within their local communities. Until Congress inserted a new provision, Title III: Community Right to Know, into the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, the disposal of these chemicals went largely undocumented (Szasz et al, 1997).

These reporting guidelines began a process of documentation that allowed detailed data on hazardous waste emissions to be shared with the public and concerned community residents. Not only is this data available on a national level, it tracks the quantity of hazardous waste emissions in specific states and counties as well. For example, using this data, one can find that the natural environment of Illinois is currently the storage space for 78.7 million pounds of these toxic pollutants, or roughly 2% of the 2008 national total (US EPA). Once these statistics are reduced to county-level measures, vast differences in the quantity of hazardous waste emitted in each Illinois county becomes apparent. For example, in 2008, the US EPA reported that 21 Illinois counties contained no TRI facilities within their borders, while they reported that Cook County housed 1,232 TRI facilities (US EPA). This skewed distribution of TRI facilities demonstrates an unequal distribution of pollution in Illinois. The example of Illinois reflects a common trend observable across the US and worldwide; a topic studied extensively by many researchers. Environmental pollution is almost never distributed equally among society. This branch of research is concerned with whether the burden of environmental pollution is shared equally by individuals and communities of different race or income level. The terms "environmental equity" or, "environmental justice" are used to refer to this issue (Burke 1993).

A large body of research exists covering a variety of topics that can be classified under environmental justice. Studies examine air pollution, water pollution, and locally unwanted land uses (LULUs) – such as landfills or hazardous waste sites – to conclude whether or not their environmental burdens are shared equally between individuals of different income levels or race. Research has also been done to determine whether TRI facilities are disproportionately located in low-income and minority communities. These take the form of nation-wide studies, state level studies, county level studies, or those that look at specific communities. The purpose of this study is to examine the distribution of pollution produced by TRI facilities in the state of Illinois, an area not yet researched using a state-wide, county-level study. In this proposal, I hypothesize that:

1) In Illinois there is an inequitable spatial distribution of facilities that produce hazardous wastes.
2) Emissions of hazardous wastes are more prevalent in Illinois counties where higher proportions of minority and low income individuals reside.

II. Theory

Understanding why minority and low-income communities might be disproportionately located near TRI facilities that produce hazardous waste requires an understanding of pollution as an externality. Sometimes, parties not directly involved in a transaction for goods or services incur external costs, or externalities, as a result of a transaction between two or more separate parties. In this case, hazardous waste is an external cost of production, or negative production externality, experienced by local community residents in transactions between TRI facilities and purchasers of their goods or services. While external costs are common, social justice suggests that they should not be disproportionately borne by the poor or certain ethnic or racial groups. Although some pollution, specifically those pollutants released into the atmosphere or bodies of water, can diffuse away from the source; pollution often accumulates, or is most potent, near the source where it is released. Residents living in housing situated near heavily polluting industries will therefore experience higher levels of pollution, and are at greater risk for the negative effects it causes.

As a result, residents that can move away from polluted environments to cleaner, often suburban residences, may choose to do so; therefore reducing demand for housing in polluted environments. With this reduction in demand for houses, prices in the real estate market fall to restore market equilibrium, attracting a new supply of residents. Attracted

by affordable housing, an influx of new individuals occurs from lower income levels, which are in turn disproportionately represented by minority populations.

Other theories exist that attempt to explain the uneven distribution of hazardous waste facilities in low-income and minority communities; one of these is known as the theory of collective action. The theory of collective action suggests that firms and industries carefully consider what communities they should site their facilities within. Firms and industries would prefer to locate in an area where residents will not raise concern over any environmental harms they cause, such as release of hazardous wastes. Scholars suggest that low income and minority communities often have the least ability to oppose the location of an undesirable facility. In low-income communities, public focus is often centered on more pressing problems (Burke, 1993). Further, some suggest that low income and minority communities tend to be unaware of policy decisions affecting them; are not organized; lack the resources (time, money, contacts, and knowledge of the political system) for taking political actions; and tend to be underrepresented on governing bodies (Mohai & Bryant, 1992). Due to the aforementioned factors, firms and industries would choose these communities to locate within if political and collective action are of concern.

Another theory that attempts to explain this discrepancy also focuses on the possibility that firms and industry are drawn to locate in low-income minority communities by the low cost of doing business. Land values and labor costs tend to be lower in poor neighborhoods, thus attracting industries seeking to reduce the cost of doing business (Mohai & Bryant, 1992). Also, some environmental justice scholars argue that some low-income and minority communities provide incentives that attract polluting industries to locate in their municipalities. In order to improve economic conditions in a community, many civil rights, business, and political leaders relax enforcement of pollution standards and environmental regulations, or just ignore violations, to attract industries and employment opportunities (Bullard, 1990). As a result, these communities may trade jobs, or higher levels of economic activity, for higher levels of environmental pollution.

In conclusion, all of the theories suggest that, ceteris paribus, pollution from TRI facilities will be more concentrated in low income and minority populations. Accordingly, they all support the hypothesis that:

1. In Illinois there is an inequitable spatial distribution of facilities that produce hazardous wastes.
2. Emissions of hazardous wastes are more prevalent in Illinois counties where higher proportions of minority and low income individuals reside.

III. Review of Literature

Over the last few decades, many different studies have been conducted that use empirical analysis to examine social issues under the environmental justice framework. One of the earliest and most commonly cited studies in environmental justice literature is the 1987 United Church of Christ (UCC) Commission for Racial Justice. In the UCC study's main analysis, researchers examined the relationship between the social and economic characteristics of residents living in specific U.S. ZIP codes, and the presence of hazardous waste treatment, storage, and disposal (TSD) facilities. The 35,406 ZIP codes included in the study were divided into four separate categories: ZIP codes without a facility, ZIP codes with one facility that is not a landfill, ZIP codes with one landfill facility , and ZIP codes with one of the five largest hazardous waste landfills in the U.S. (UCC, 1987: 9-12). The researchers then examined the racial composition of each of the four ZIP code categories. They found that ZIP codes with no TSD facilities contained a 12.3 percent minority population; ZIP codes with one TSD facility had double that amount; and ZIP codes with more than one TSD facility – or with one of the largest five landfills in the US – contained a 37.6 percent minority population (UCC, 1987).

In the first published review of existing environmental justice literature, Mohai and Bryant (1992) reviewed fifteen studies. They found that over a wide range of geographical areas (local, regional, national), race and class, especially race, were associated with increased exposure to environmental hazards (1992). Eight of these studies looked at both race and class, and five of the studies determined that the effect of race was more powerful (Brown, 1994). The conclusions resulting from Mohai and Byant's review of literature also resembled the findings from their own study using individual-level survey data to examine the relationship between race and proximity to hazardous waste facilities. The researchers gathered two data samples – a random probability sample of 504 Detroit-area residents and an oversample of 289 individuals living within 1.5 miles of a Detroit-area TSD facility. When modeling proximity to these TSD facilities as a function of residents' race and income in two separate linear regressions, the researchers found "[t]he relationship between race and the location of commercial hazardous waste facilities in the Detroit area is independent of income in each of the analyses. And…it is race which is the best predictor." (1992: 174).

However, other research has found results that contradict these findings. A 1994 analysis by Anderton, et al. found that "[E]vidence of racial and ethnic inequity in location of hazardous waste facilities is almost non-existent" (1994: 242). Several aspects of this study's methodology differentiated it from previous research. First, the researchers analyzed data at the census tract level; a lower level of aggregation than ZIP code (1994). Also, the researchers controlled for more background factors in their analysis, including variables like percentage residents employed in manufacturing and industry, mean value of housing stock, and percentage of families below poverty line. These were included to better describe the economic and industrial conditions of a specific population (1994: 234).

The aforementioned studies did not necessarily use pollution from TRI facilities in their analysis, but instead used facilities that treat, store, or dispose of hazardous waste as dependent variables. Regardless, they represent the historical base of research on which many other environmental justice studies were modeled. As mentioned in the introduction, TRI data did not become available for studies until 1986; after the Community Right to Know provision was inserted into the 1980 CERCLA legislation. Once this data was made available to the public, a new category of research formed which used TRI

data to analyze social issues within the environmental justice framework.

Studies that use TRI data

In one of the first studies using TRI data, Szasz et al. (1993) examined TRI facility distribution in Los Angeles County. The researchers looked at median household income and race/ethnicity by census tract; these independent variables were compared between the 217 census tracts in which there were no TRI air emissions and the 1435 tracts with TRI air emissions. They found most TRI facilities to be located in census tracts with a median household income of $20-40,000 range (1993: 6). Additionally, they found a significant difference between the average Latino populations of the two census tract groupings: a mean population of 45% in tracts with emissions and a mean population of 32% in those without (1993: 5).

Burke (1993) also examined the distribution of TRI facilities by class and race/ethnicity in Los Angeles County. Burke's analysis differed from Szasz et al.'s study in that she used number of TRI facilities per census tract as a dependent variable (1993: 10). Burke found that the number of TRI facilities in a census tract increases with a decrease in population density, an increase in minority percentage, or a decrease in per capita income (1993: 47). Additionally, she found most TRI facilities to be located in Hispanic-dominated tracts, replicating the significant Hispanic population discrepancy found by Szasz et al. in their study (1993: 47).

In a statewide study of Florida, Pollock and Vittes (1995) used census blocks, a smaller measure than census tracts, to analyze what income levels and races/ethnicities are most common near TRI facilities. They found that 27.8 percent of low-income Latino households were located within a mile of a TRI facility, compared with 14.6 percent of low-income white households (1995: 307). They also controlled for other factors that could possibly influence TRI facility siting, including variables for urbanization, industrialization, and housing prices. In a nationwide study of TRI air emissions, Perlin et al. (1995) found that TRI facilities are not uniformly distributed across the U.S., and, with the exception of Native Americans, minority groups tend to live in counties where emissions are higher than in counties occupied by a white majority (1995: 74). Additionally, many other studies find similar significant, positive relationships between TRI facilities/emissions and high proportions of minority and/or low income residents (Cutter, 1994; Glickman and Hersch, 1995; Rinquist, 1997; Daniels and Friedman, 1999).

There are, however, studies whose results do not suggest a significant relationship between either race or income and proximity to TRI facilities/emissions. In a study of Cuyahoga County, located near Cleveland, Ohio, Bowen et al. found that minorities in Cuyahoga County do not reside in neighborhoods with greater industrial toxic chemical releases than do non-minorities (1995: 657). The study did find some evidence of disparity by income, however, with toxic industrial release facilities more likely to be located in poorer and less affluent areas (1995: 657).

Overall, one can see that in the majority of past environmental justice studies, minority and low income populations are disproportionately located near facilities that produce, transport, store, or dispose of hazardous – resulting in higher exposure to hazardous waste emissions. Similar conclusions are reached by many different studies; regardless of the study's geographical scope (nationwide, county, census tract, census block) or dependent variable (TSD facilities, TRI facilities, TRI emissions), a common trend of environmental injustice persists.

IV. Data

This study uses the same data sets as most of the previously cited environmental justice research - although for different years. The US EPA's TRI database supplies the measures for hazardous waste that are included in this analysis. Data were obtained from a third party database run by the non-profit organization, "Right-To-Know Network". This database was chosen as it easily allows for manipulation of data into aggregate pounds of TRI emissions by Illinois counties. The data are from reporting years 2000 and 2008 and the measure used is total onsite air emissions (lbs.) per county (TRI). Total onsite air emissions per county is calculated by aggregating the categories "Fugitive On-site Air Emissions" and "On-site Air Emissions" at the county level for TRI data.

The TRI data come from two reporting years so that this study provides both accurate and current results. Because US Census data from the year 2000 are used in this study, TRI data from 2000 are used as well to provide an accurate assessment of emission distribution among race/ethnicity and income levels in that specific year. In order to provide a current assessment of emission distribution, the 2008 TRI data are used in the analysis as well, and it is assumed that all independent variables remained relatively constant in the years that passed. The quantity of total onsite air emissions is used as the dependent variable to provide a more consistent proxy for localized production externalities. For example, all air emissions will easily find their way in to the local ecosystem once released; theoretically, these emissions have the best chance of being distributed evenly in the community because they will diffuse into the atmosphere. Including solid TRI emissions in this study might not properly represent the equivalent measure of emissions experienced by county residents. For example, if a block of lead, or other solid hazardous waste is stored inside a proper container, the local community may not experience any harm from its presence. Similarly, TRI emissions released into waterways might expose residents of a specific county to more or less emissions, based on their geographical location. Accordingly, solid waste and emissions to wells or waterways from TRI facilities are not included in the dependent variable for this study.

However, the TRI data have many limitations. Studies using only TRI data leave out key phases of the industrial cycle: transportation, offsite storage, offsite disposal (Superfund sites), and consumer and post-consumer toxics (lead paint, household wastes). In order to gain a complete understanding of whether or not low-income and minority populations are affected disproportionately by hazardous wastes, all these measures would have to be accounted for. Also, not all chemicals known to be toxic are reported under the Community Right to Know Provision; new chemicals are being manufactured every year, and negative health or environmental effects are often not known until years after they have been used by industries.

Additionally, TRI numbers are self-reported (US EPA), meaning facilities have the option to underreport data if they fear public scrutiny for pollution activities. TRI data is also not a complete inventory of all facilities that produce or handle hazardous waste. EPA regulation requires that only companies that treat, recycle, or dispose of more than 500 pounds of a toxic chemical must file their activities in the Toxic Release Inventory (US EPA). Unfortunately, this means that there could be vast amounts of toxic releases from smaller companies or facilities that are not accounted for.

The most significant drawback to using TRI data to quantify hazardous waste pollution is the fact that all chemicals, regardless of their toxicity to humans or the environment – or method of dispersal – are measured in the same units: pounds. Even if hazardous waste is more concentrated around low-income or minority neighborhoods, it does not necessarily mean the neighborhood residents are being exposed to more environmental harm than neighborhoods with lower levels of hazardous waste. For example, according to the World Health Organization, chemicals categorized as dioxins can be toxic to humans in trace amounts found accumulated in food sources. The presence of trace amounts of dioxins in the human body can cause reproductive and developmental problems, damage the immune system, interfere with hormones and also cause cancer (WHO). On the other hand, other hazardous wastes reported under TRI standards, such as zinc, are not normally toxic to humans, but when released as a fine dust, may cause respiratory problems in humans. With these two examples, one can see how the toxicity of chemicals included under TRI reporting varies greatly.

The independent variables in this study include demographic and economic data from the 2000 US Census. Variables included for demographic data are the proportions of black, Hispanic, Asian, and Native American residents in each Illinois county. Median household income and percentage of households under the poverty line per county are included as measures for social class. The mean value of owner occupied housing per county is included as a proxy for land value under the assumption that counties with higher values of owner occupied will be more expensive for industry to locate within. The number of county residents employed in manufacturing jobs is also included to serve as a proxy for the size of the manufacturing industry in a particular county. As with any other studies conducted using Census data, social and economic data may be biased due to undercounting or the under-representation of certain ethnic or racial populations.

V. Empirical Design

This study uses two different empirical models to identify if low income and minority populations are exposed to higher levels of hazardous air emissions in Illinois. First, a statistical analysis is used to examine the relationship between the various race/ethnic groups and levels of TRI air emissions. The 99 Illinois counties included in the analysis are divided into three categories based on total onsite air emissions: LOW, MID, and HIGH. The mean proportion of the four different ethnic/racial groups in each category is then compared with the state average. A one tailed t-test comparing the sample means to the Illinois (population) means is used to determine if any differences that arise between values are significant. This test is performed for both the 2000 TRI data and the 2008 TRI data. This test is run for income characteristics as well, using the three categories of counties and comparing the average median household income in Illinois with the average median household income for the counties in each category. The statistical model is demonstrated in Figure 1 below.

Figure 1:

H0: plow-black = πstate-black *Reject H0 if |Zcl > 1.75 (α=.05)*

Ha: plow-black ≠ πstate-black

The other form of analysis used in this study is an ordinary least squares regression. The regression will be run for both the 2000 and 2008 data sets, with total onsite air emissions as the dependent variable. Model 1 runs a regression with only variables for race/ethnicity: % black, % Hispanic, % Asian, and % Native American. This regression captures the effects of race on total air emissions. Model 2 includes both variables for race/ethnicity and economic variables: Mean value of owner occupied housing, percentage of households below poverty line, number of manufacturing jobs, and median household income. This regression captures the effects of race on total air emissions while controlling for income characteristics. Finally, Model 3 removes variables that are insignificant and/or not robust; it demonstrates the best fit for the data. Table 1 lists variables and their expected signs.

VI. Results and Discussion

Table 2 presents the results of the statistical analysis for the county categorization for the 2000 air emissions data. For each ethnicity or race category, the results show that minority population percentages tend to trend upwards as emissions increase. However, the only statistically significant test result was the black population in the “medium” emissions category. The average black population of five percent in these counties was significantly less than the 16.4 percent average in the entire state of Illinois. This confirms when looking just at race variables, the average state black population is higher than the average black population in the thirty-three counties in the “medium” emissions category.

Table 3 presents the results of the same test for the 2008 air emissions data. These results are very similar to the test of 2000 air emissions data. Again, for each ethnicity or race, the results show that minority population percentages tend to trend upwards as emissions increase. However, this test finds significant differences in the “low” black and Hispanic categories as well as the “medium” black category. Once again, all average populations in these categories are significantly lower than their respective state averages, demonstrating that when looking at just race variables, some minorities are underrepresented in counties with “cleaner” environments. This test was also run to see if median household income differed between the three categories and the state average. There was no general trend to this data and no category average was found to be significant.

The results of the ordinary least squares regression are shown in Table 4. For both sets of data, black residents of Illinois were more likely to be located near hazardous air pollution. In the 2008 data, there was a high correlation, significant at the

.001 level. For every one percent increase in a county's black population, the model suggested that hazardous air emissions would rise by 6,308 pounds. In both data sets, the variable for the Native American population exhibited the opposite sign than was expected; this happened in the 2008 data for the Asian variable as well. These regression results mirror those of the comparison of means test, showing that without controlling for other variables, the black population in Illinois is disproportionately exposed to hazardous waste.

Table 5 shows the results of four different regression analyses: two different models run for both data sets. Model 2 uses all race and ethnicity variables and Model 3 is an attempt to remove non-robust and highly insignificant variables to result in a more stable, accurate analysis.

Model 2 run with the 2000 hazardous air emissions data shows that all race variables exhibit the hypothesized relationship with emissions except for Native American population. No race variables were significant; in fact the only significant variable was the squared term of median household income, suggesting a curvilinear relationship with hazardous air emissions. Model 2 run with the 2008 hazardous air emissions data shows a relationship between a county's black population and higher levels of emissions; it is significant at the .01 level. Once again, the squared median household income variable is significant, but other explanatory variables do not appear to have a relationship with emissions levels. With the exception of the manufacturing variable, Model 3 finally obtains similar results between the 2000 and 2008 data. In both regressions, the proportion of black Illinois residents still exhibits a positive relationship with higher levels of hazardous air emissions. For every one percent increase in a county's black population, hazardous air emissions increase by 6,756 pounds according to Model 3.1, and by 7,461 pounds according to Model 3.2. Surprisingly, median household income exhibits a relationship with emissions opposite of that predicted in the hypothesis. According to Model 3.2 for every one dollar increase in income, emissions increase by .179 pounds. An explanation for this might be that at higher income levels, more money is being exchanged for goods and services. This increase in economic activity might result in higher levels of industrial activity, therefore causing more emissions of hazardous wastes.

VII. Conclusion

The results of this study show that Illinois counties with higher populations of black residents are more likely to have higher levels of hazardous air emissions even after controlling for class variables. These results are particularly troubling when comparing them to some of the earliest research focusing on environmental justice issues. Over thirty years have passed since the original UCC study on environmental justice in the United States, still the problem of environmental injustice persists. However, this study did not find conclusive evidence linking other ethnic groups to counties with higher levels of hazardous air emissions. Additionally, lower income levels did not exhibit the expected positive relationship with higher emission levels. Therefore, the hypothesis is not fully supported; although there is an inequitable special distribution of hazardous waste emissions across Illinois counties, only the black population seems to be disproportionately exposed to higher levels of emissions.

However, this study has its limitations. With these results, one cannot prove whether industry locates in communities with high black populations, or whether these individuals move to more heavily polluted areas. Further, this study does not differentiate between different toxicity levels emitted by TRI facilities. It could be that other populations in Illinois are exposed to more toxic chemicals, something that is not accounted for when measuring all pollution in pounds. Future research might address this problem by using a hazardous waste index to weight chemicals by their level of toxicity. Also, one might consider pursuing a similar study using a different level of aggregation, such as census tract, to see if similar results are obtained. Still, this study represents the first county-level analysis of hazardous TRI air emissions across Illinois, providing a "first-look" at the issue and laying the groundwork for further research.

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Table 1: OLS Regression for Total TRI Air Emissions

Independent Variable and Predicted Sign	Definition	Source
Native American (+)	Proportion Native American residents in county	2000 US Census
Asian (+)	Proportion Asian residents in county	2000 US Census
Black (+)	Proportion black residents in county	2000 US Census
Hispanic (+)	Proportion Hispanic residents in county	2000 US Census
Mean Value OOH (-)	Mean value of owner occupied housing in county	2000 US Census
Households Poverty (+)	Percentage of households under poverty line in county	2000 US Census
Median Household Income (-)	Median household income in county	2000 US Census
Manufacturing (+)	Number of residents employed in manufacturing jobs in county	2000 US Census

Table 2: Descriptive Statistics (County Population %, 2000 Rank)

	State Average	Low	Medium	High
Native American	.2542	.2133 (.0466)	.2140 (.0459)	.2664 (.0140)
Asian	3.107	.9483 (.7147)	1.357 (.5794)	3.695 (.1948)
Black	16.425	8.846 (1.1751)	**5.035*** **(1.7660)**	19.317 (.4484)
Hispanic	12.184	3.120 (1.5919)	2.917 (1.6276)	14.957 (.4870)
Sample Size	99	33	33	33

*indicates sig at α=.05

Table 3: Descriptive Statistics (County Population %, 2008 Rank)

	State Average	Low	Medium	High
Native American	.2542	.2038	.2046	.2654
		(.0574)	(.0565)	(.0128)
Asian	3.107	.275	1.5895	3.531
		(.9376)	(.5024)	(.1403)
Black	16.425	**1.8754***	**4.1296***	19.338
		(2.2558)	(1.9063)	(.4518)
Hispanic	12.184	**1.247***	4.022	14.198
		(1.9208)	(1.4335)	(.3536)
Sample Size	99	33	33	33

***indicates sig at α=.05**

Table 4: OLS Regression for Total TRI Air Emissions

	Model 1: AIR2000D	Model 1: AIR2008D
Constant	542.8	336.4
	(1.163)	(1.430)
% Native American	-69299.2	-43042.4
	(-.359)	(-.041)
% Asian	37230.0	-2186.8
	(1.891)	(-.220)
%Black	**7106.8***	**6304.8*****
	(2.306)	(4.059)
% Hispanic	4059.5	3549.4
	(.670)	(1.163)
Adjusted R^2	**.118**	**.148**
Sample Size	99	99

***significance at the .001 level**
****significance at the .01 level**
*****significance at the .05 level**

Table 5: OLS Regression for Total TRI Air Emissions

	Model 2.1 AIR2000D	Model 2.2 AIR2008D	Model 3.1 AIR2000D	Model 3.2 AIR2008D
Constant	-10351.3 (-1.511)	-5925.3 (-1.746)	-4104.3 (1.169)	-4040.4* (-2354)
% Native American	-132789.0 (-.645)	16083.9 (.158)	-	-
% Asian	36747.9 (1.378)	-6723.0 (-.509)	**53766.6*** (2.564)	92.74 (.009)
%Black	1761.0 (.389)	**6493.2**** (2.893)	**6756.3*** (2.072)	**7461.0***** (4.679)
% Hispanic	2119.5 (.255)	-2768.3 (-.673)	-	-
Mean Value OOH	.027 (.983)	.014 (1.073)	-	-
% Households Poverty	223.317 (1.402)	60.632 (.769)	-	-
Median Household Income	.401 1.538	.215 (1.662)	.230 (1.393)	**.179*** (2.213)
Median Household Income^2	**-4.896E-6*** (-2.047)	**-2.399E-6*** (-2.025)	-2.642E-6 (-1.436)	-1.738E-6 (-1.931)
Manufacturing	-2783.446 (-.350)	2739.9 (.695)	-3057.8 (-.406)	1429.1 (.388)
Adjusted R^2	**.128**	**.187**	**.124**	**.203**
Sample Size	99	99	99	99

***significance at the .001 level
**significance at the .01 level
*significance at the .05 level