



Toxic Industrial Air  
Pollution's Links to  
Trust and Civic  
Engagement:  
A Nationwide Study of  
the Socioenvironmental  
Nature of Social Capital

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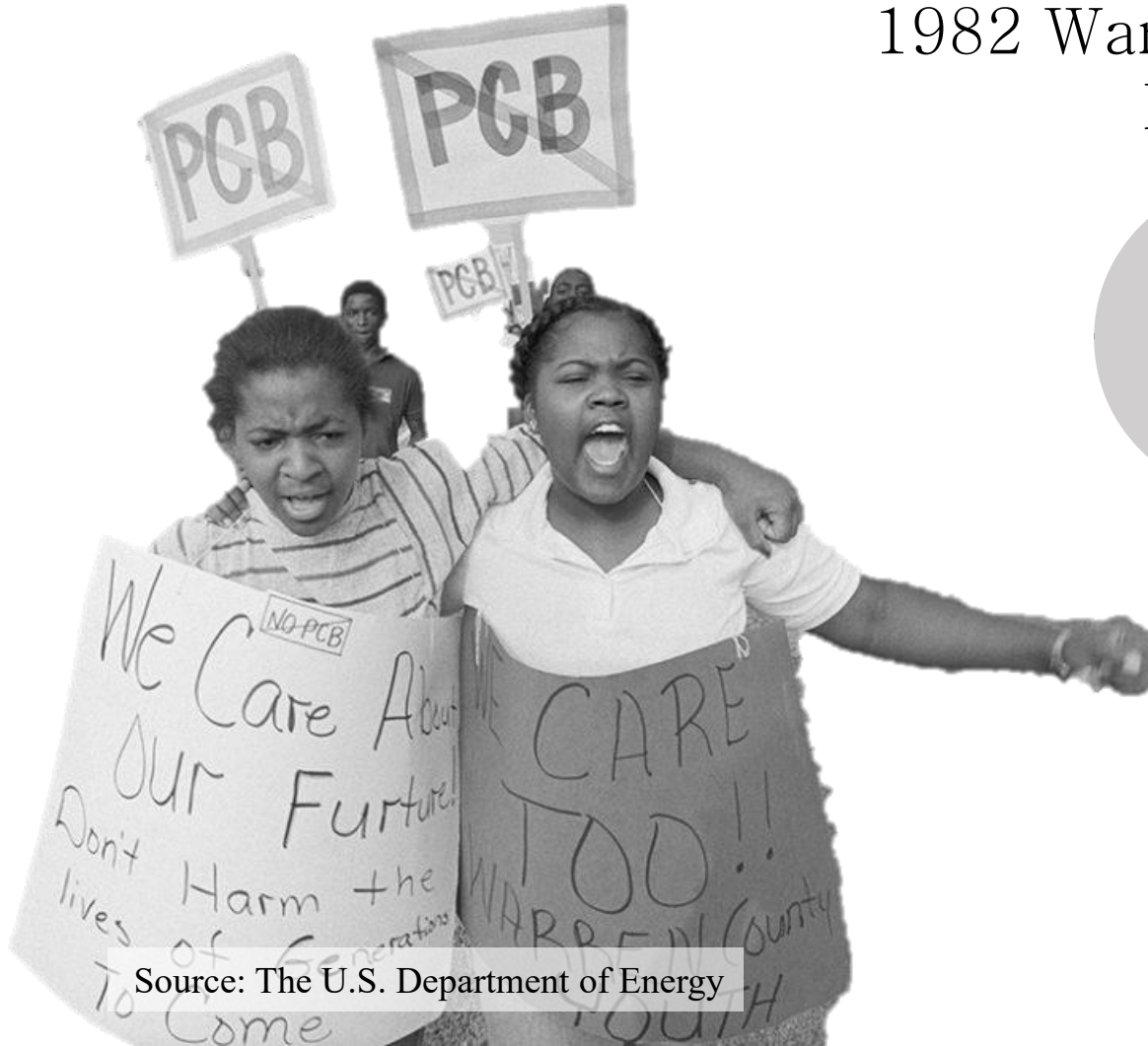
Source: The U.S. Department of Energy

# INTRO

## Progressive environmental movements:

1982 Warren County, NC  
Protest

EJM



Source: The U.S. Department of Energy

# Regressive environmental movements:

Madison County, KY  
protest

NIMBY



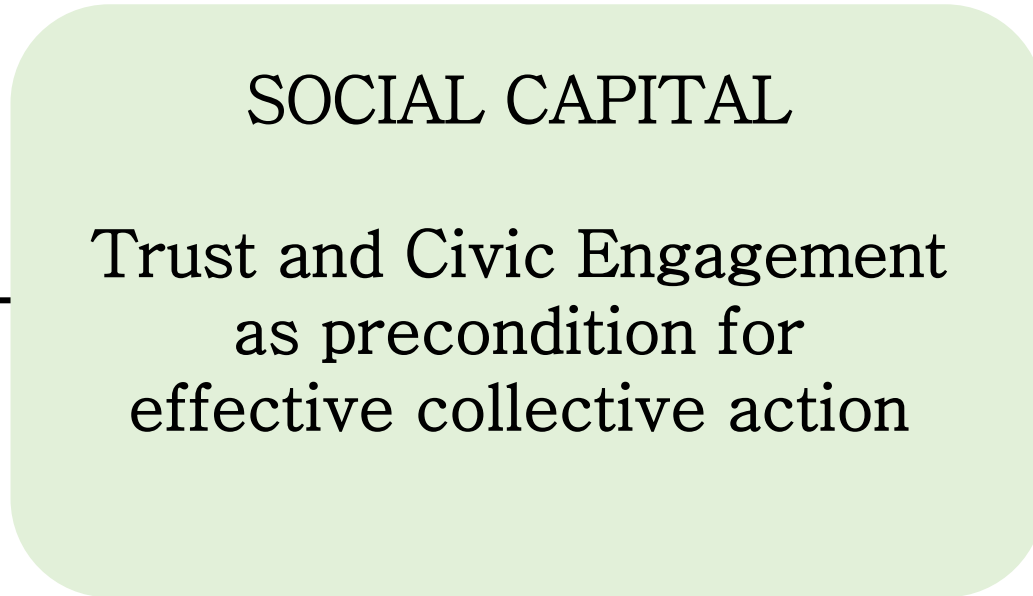
Source: Hoptown Chronicle

Progressive  
environmental  
movements

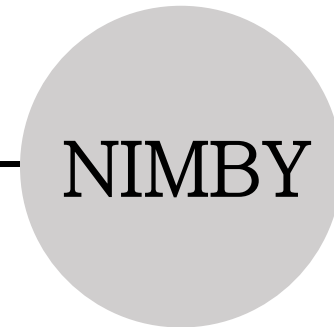
Regressive  
environmental  
movements



Progressive  
environmental  
movements



Regressive  
environmental  
movements



01

EJM / NIMBY

Environmental  
threats *promote*  
social capital

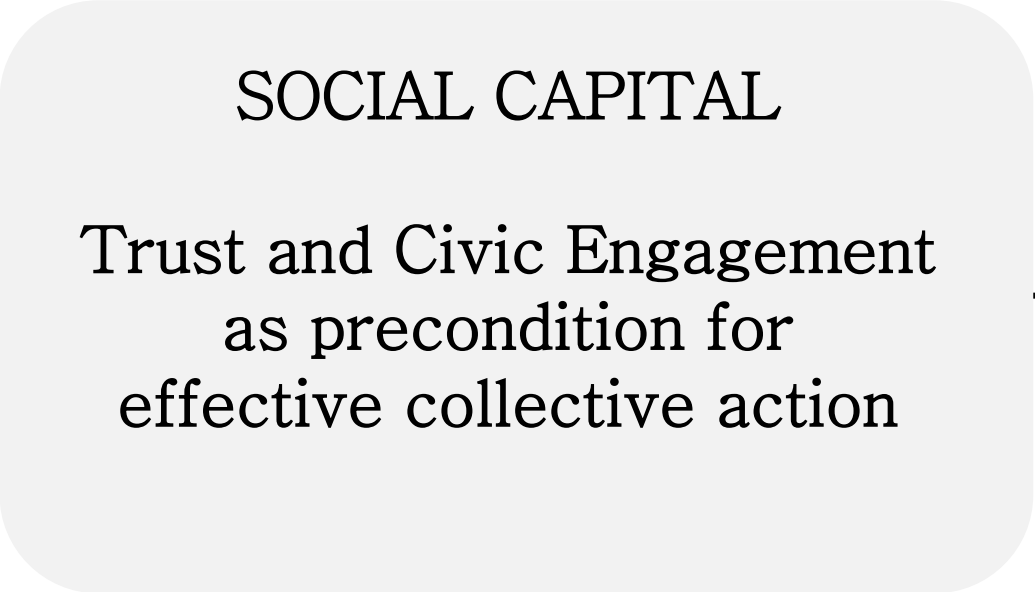
02

CORROSIVE  
COMMUNITY

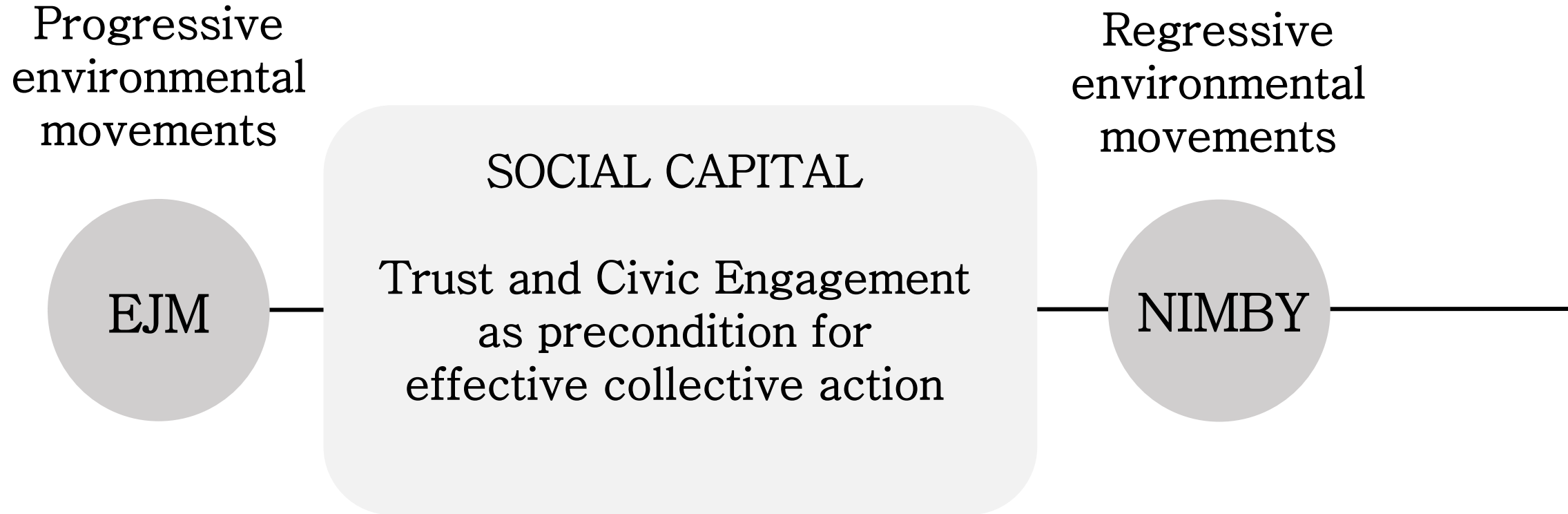
Environmental  
threats *dilute*  
social capital



Progressive  
environmental  
movements



Regressive  
environmental  
movements





CORROSIVE  
COMMUNITY



Uncertainty of  
harms



CORROSIVE  
COMMUNITY

Uncertainty of  
harms



Competing  
perspectives

Uncertainty of  
harms

Litigation  
stressors

Competing  
perspectives

CORROSIVE  
COMMUNITY

01

EJM / NIMBY

Environmental  
threats *promote*  
social capital

02

**CORROSIVE  
COMMUNITY**

Environmental  
threats *dilute*  
social capital



01

Does industrial  
pollution  
promote social  
capital?

02

Or, are EJMs  
exceptions  
rather than  
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# RESEARCH QUESTION

How does toxic industrial air pollution and its producers associate with community trust and civic engagement?



Source: Scientific American & The  
U.S. Department of Energy

# DATA



TRUST &  
CIVIC  
ENGAGEMENT



## Harvard University 2000 Restricted-access Social Capital Community Benchmark Survey (SCCBS)

- ❖ Fielded in 49 communities nationwide from July to November 2000
- ❖ Nationally representative sample of n=28,147 individuals in 9,610 census tracts





Components of  
social capital  
integral for  
collective  
action

Trust

Trust in Neighbors

Interracial Trust

Trust in Local  
Governments

Civic  
engagement

Electoral Political  
Participation

Non-electoral Political  
Participation

Organizational Activism



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# DATA



TOXIC  
INDUSTRIAL  
FACILITIES



## Environmental Protection Agency (EPA) Toxic Release Inventory (TRI), 1995– 1999

- ❖ Facility-level emission release data reported by large industrial facilities across the U.S.
- ❖ N=25,187 facilities that were in operation for at least a year in 14,147 census tracts

# DATA

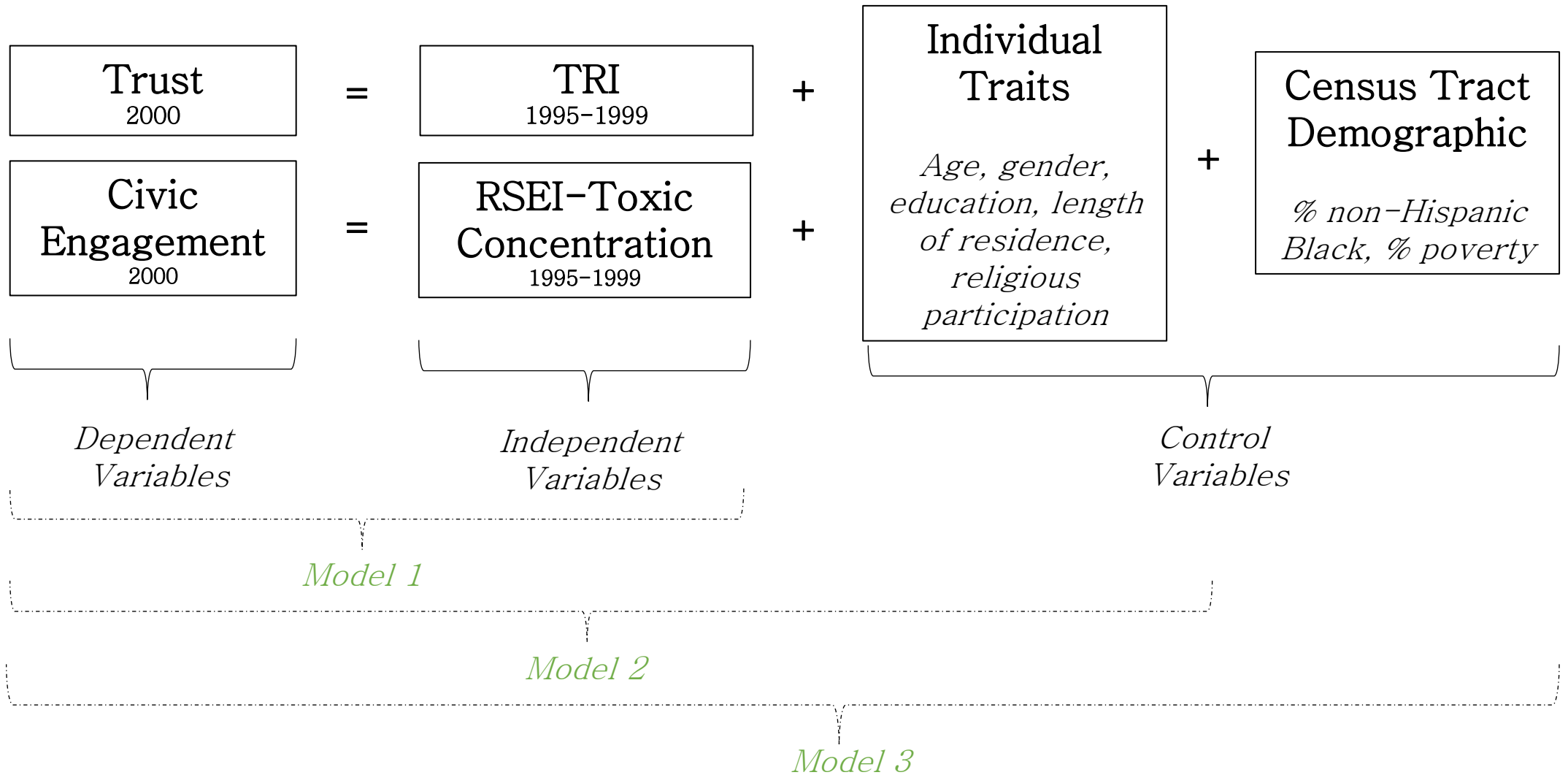


TOXIC  
POLLUTION

## Environmental Protection Agency (EPA) Risk Screening Environmental Indicators Geographic Microdata (RSEI-GM), 1995-1999

- ❖ Builds on TRI data to model localized exposures from toxic industrial air emissions, creating toxicity-weighted concentration values at micro-scales
- ❖ N=60,273 neighborhoods with recorded RSEI-toxic concentrations

# ANALYTIC APPROACH

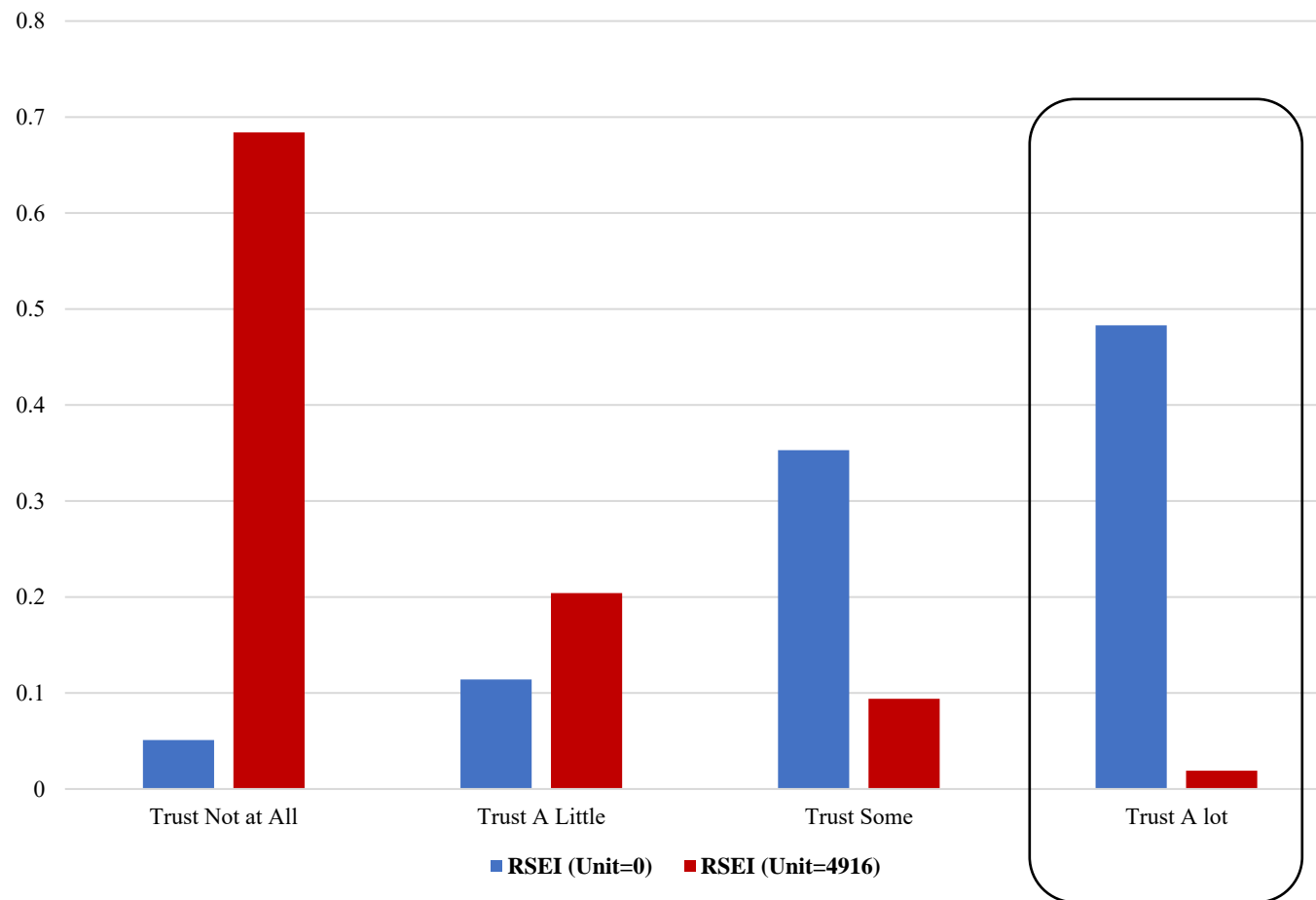


# RESULTS

Toxic air pollution  
and facility  
associations with  
trust



Increases in RSEI-toxic concentration negatively associate with trust in neighbors

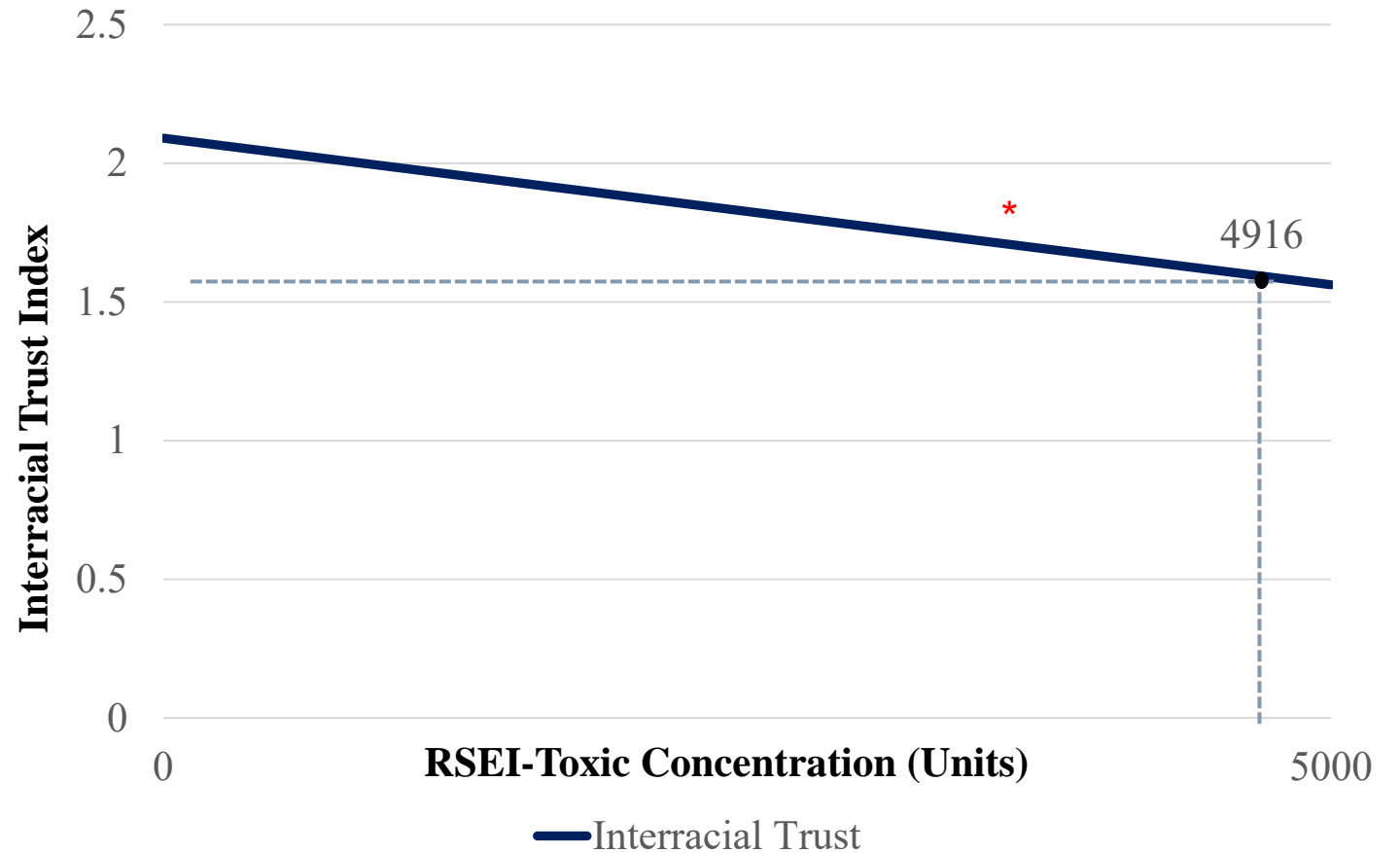


\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Source: Model 3A of Table 2; with all variables held at their sample means



Increases in RSEI-toxic concentration negatively associate with interracial trust



\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

Source: Model 3C of Table 2; with all variables held at their sample means

## Increases in TRI facilities not significantly associated with trust

	Model 1	Model 2	Model 3
	No Controls <sup>[1]</sup>	Individual-level Controls <sup>[2]</sup>	Tract-level Controls <sup>[3]</sup>
<b><i>Trust in neighbors</i><sup>1</sup></b>			
A. RSEI-Toxic Concentration	-.00084*** (.00011)	-.00072*** (.00010)	-.00038*** (.000069)
B. Number of TRI-Facilities	-.0032 (.0045)	.0022 (.0045)	.00015 (.0040)
<b><i>Interracial Trust Index</i><sup>2</sup></b>			
C. RSEI-Toxic Concentration	-.00032*** (.000065)	-.00025*** (.00006)	-.00011* (.000052)
D. Number of TRI-Facilities	-.0075** (.0033)	-.0039 (.0031)	-.0047 (.0029)
<b><i>Trust in local government</i><sup>3</sup></b>			
E. RSEI-Toxic Concentration	-.00021*** (.000034)	-.00017*** (.000031)	-.000048 (.000029)
F. Number of TRI-Facilities	.0012 (.0034)	.0027 (.0035)	.0023 (.0033)

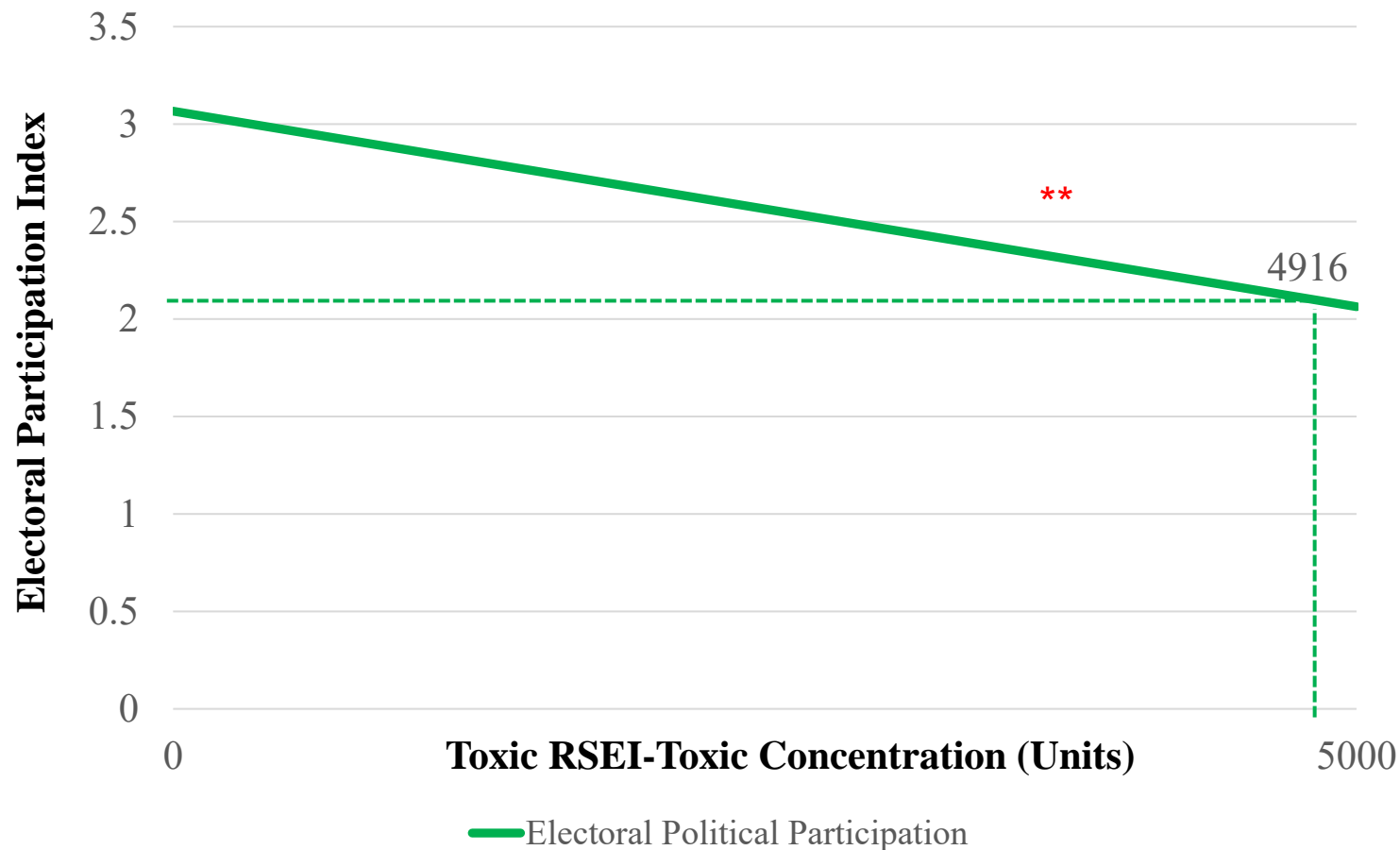
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# RESULTS

Toxic air pollution  
and facility  
associations with  
civic  
engagement



Increases in RSEI-toxic concentration negatively associate with electoral political participation



\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

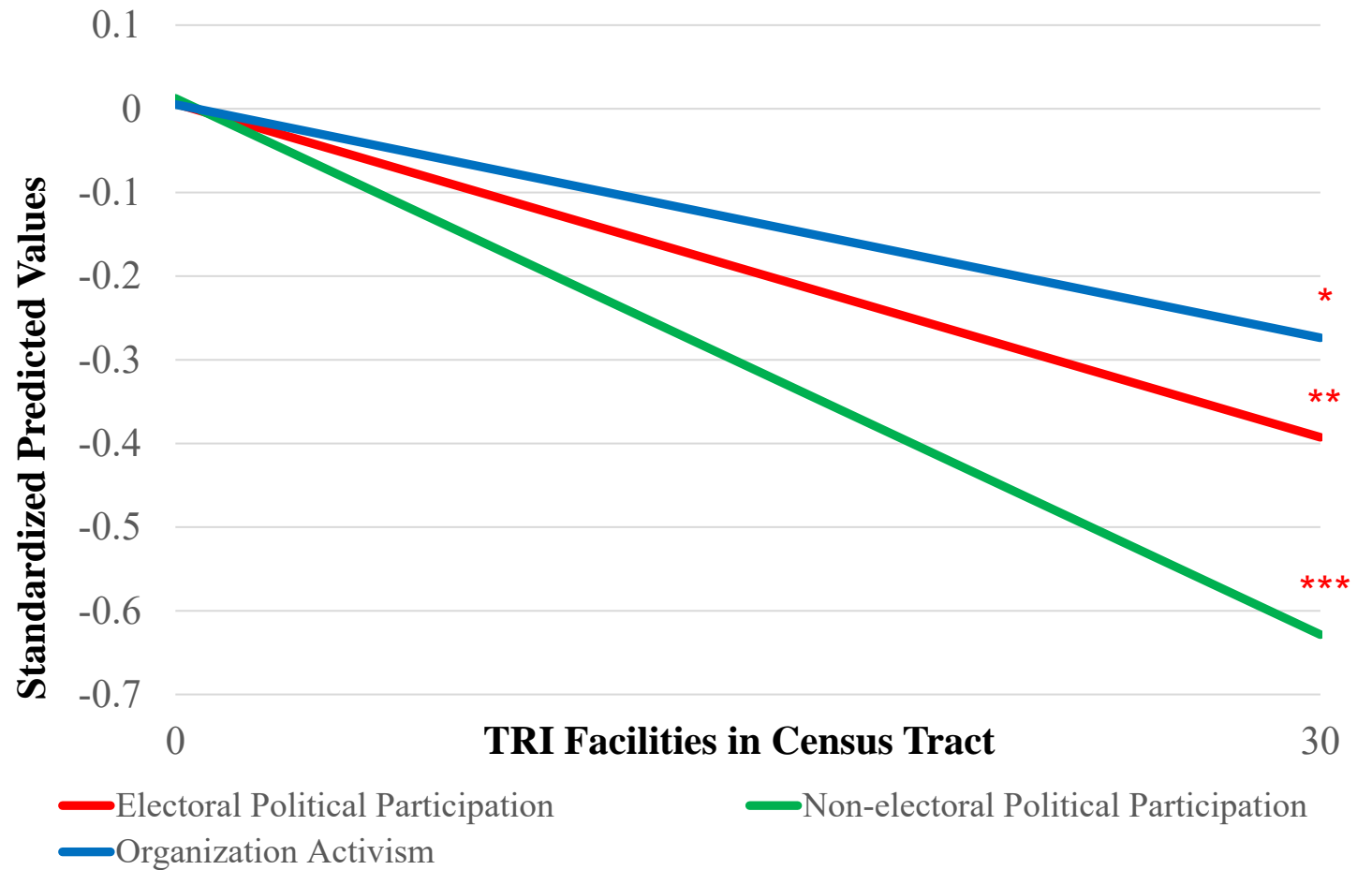
Source: Model 3A of Table 3; with all variables held at their sample means

# Increases in RSEI-Toxic concentration not significantly associated with non-electoral participation and organizational activism

	Model 1	Model 2	Model 3
	No Controls <sup>[1]</sup>	Individual-level Controls <sup>[2]</sup>	Tract-level Controls <sup>[3]</sup>
<b><i>Electoral Participation Index</i><sup>1</sup></b>			
A. RSEI-Toxic Concentration	-.00066*** (.00012)	-.00030*** (.000078)	-.00020** (.000073)
B. Number of TRI-Facilities	-.031*** (.0066)	-.016** (.0051)	-.018** (.0051)
<b><i>Non-electoral Participation Index</i><sup>2</sup></b>			
C. RSEI-Toxic Concentration	.0001 (.000071)	.00024*** (.000065)	.00012 (.000064)
D. Number of TRI-Facilities	-.041*** (.0063)	-.030*** (.0051)	-.029*** (.0051)
<b><i>Organizational Activism Index</i><sup>3</sup></b>			
E. RSEI-Toxic Concentration	-.00015** (.000048)	-.000021 (.000041)	-.000056 (.000042)
F. Number of TRI-Facilities	-.017*** (.0044)	-.0094* (.0040)	-.0096* (.0040)

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

Increased TRI facilities has greatest negative impact on non-electoral political participation



\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

Note: Variables standardized to SD=1 for comparison

Source: Model 3B, 3D, and 3F of Table 3; with all variables held at their sample means

# Summary:

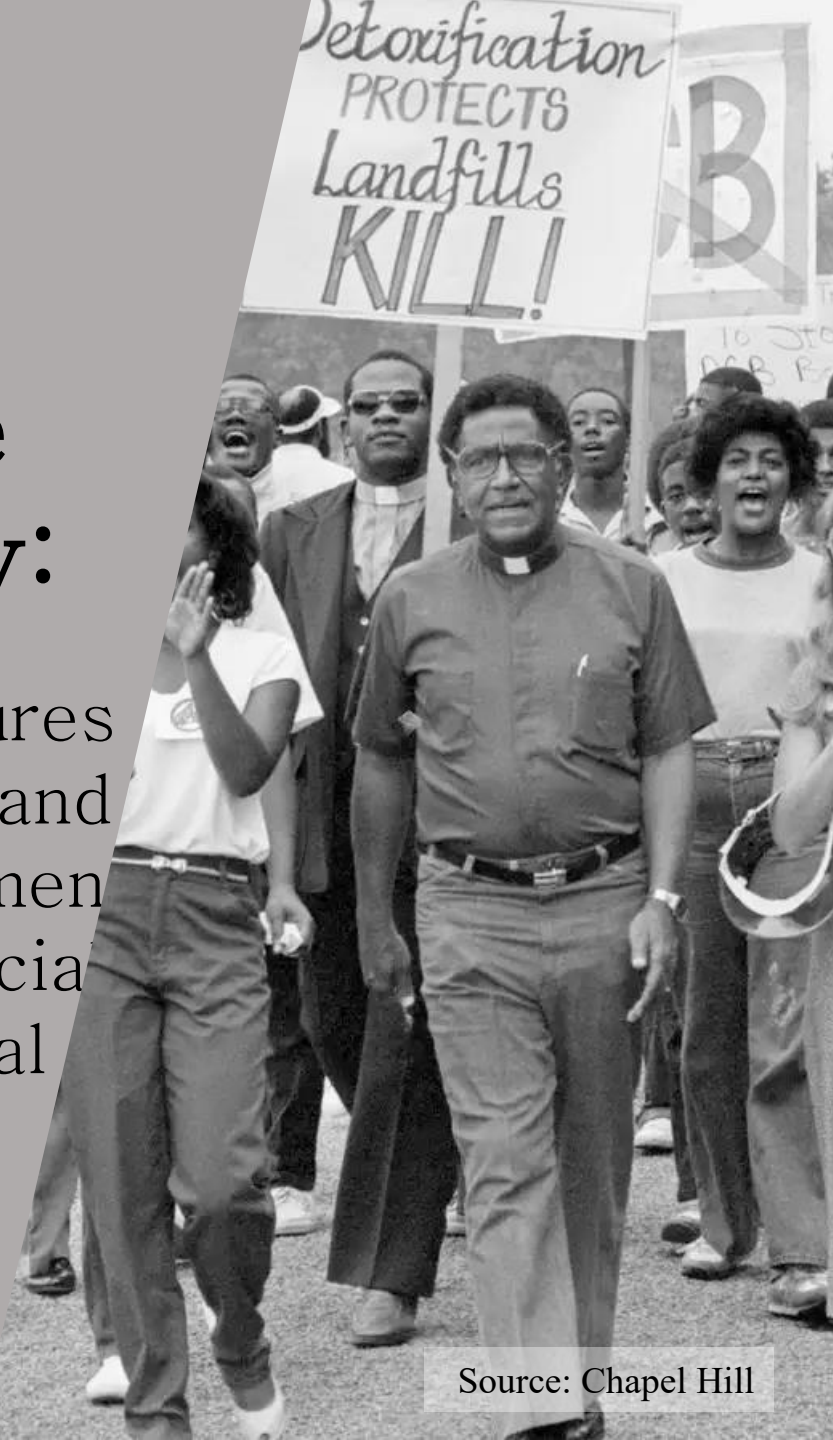
Invisible toxicity  
reduces trust; and  
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## Summary:

Invisible toxicity  
reduces trust; and  
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civic engagement

## Corrosive Community:

Long term exposures  
to toxic pollution and  
facilities can fragment  
a community's social  
fabric and capital





# TRUST



**Auyero and Swistun (2008):**  
(invisible) environmental  
toxicities heightens sense of  
uncertainty and suffering,  
turning individuals inward

**Gong et al (2017):**  
Uncertainty about one's  
health and divergent  
interpretation of harms  
exacerbate feelings of  
distrust and isolation

Gaventa (1980):

Quiescence – Prioritization of industrial, rather than community interest can lead to normalization of collective disempowerment



CIVIC  
ENGAGEMENT

# IMPLICATIONS

01

EJMs are the  
exception  
rather than the  
rule

02

“Exposure to  
pollution” can  
take many  
forms



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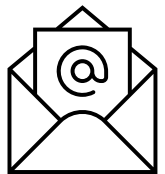


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