

Is airborne lead pollution salient and costly to homeowners? National evidence from sales near US airports

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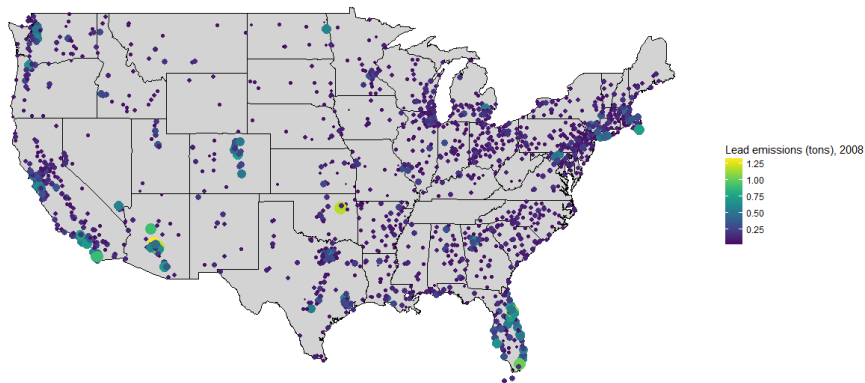
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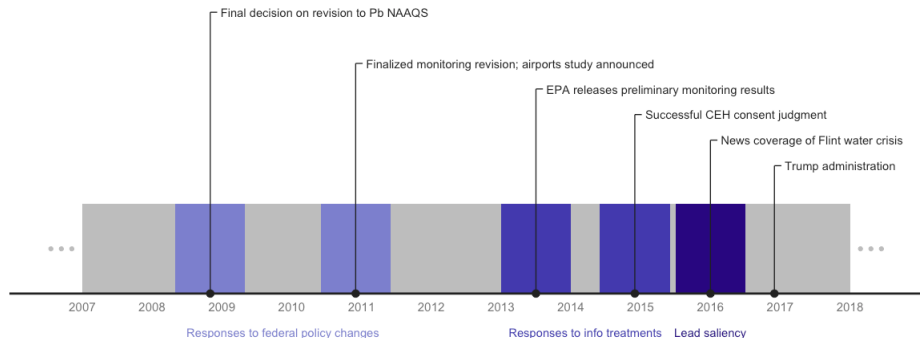
Motivation

- As of 2014, aviation gasoline (avgas) accounts for $\approx 60\%$ of annual airborne lead emissions in the US
- Recent causal evidence that use of leaded avgas is elevating blood lead levels in airport-proximate children
- Separate estimates have converged on a value for resulting US human capital loss: $\sim \$1$ billion annually
- When aware of the hazard, homeowners have proven averse to local lead exposure through several media:
 - Paint: Billings & Schnepel, 2017, *JPubE*; Gazze, 2018
 - Pipes: Christensen et al, 2018; Theising, 2018
 - Industrial pollution (Mastromonaco, 2015, *JEEM*)

Airport sample



Information events and research design:



$$\ln(p_{ijkt}) = \beta f(\mathbf{X}_{ikt}) + \alpha D_i + \gamma(\text{post}_t \times D_i) + \zeta_k + \zeta_j * t + \tau_t + \varepsilon_{ikt}$$

Federal policy revisions (2008, 2010)

ln(Sale price)	Reduction to 0.15 $\mu\text{g}/\text{m}^3$		Announcement of monitoring study	
	(1)	(2)	(3)	(4)
Post-policy x within 1500m	0.00101 (0.00808)	0.00262 (0.0110)		
Post-policy x heavy wind		0.00120 (0.0238)		
Post-policy x within 1500m x heavy wind		-0.00629 (0.0364)		
Post-revision x monitored airport			-0.00593 (0.0146)	0.00768 (0.0162)
Post-revision x within 1500m				0.00599 (0.0426)
Post-revision x monitored airport x within 1500m				-0.0907 (0.0562)
Observations	98,285	70,352	16,204	16,204
Airports	783	521	47	47
Adjusted R-squared	0.700	0.699	0.771	0.771
House chars	yes	yes	yes	yes
State x time trend	yes	yes	yes	yes
Month FEs	yes	yes	yes	yes
Airport FEs	yes	yes	yes	yes

Standard errors clustered by airport.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Release of ambient lead monitoring results

ln(Sale price)	(1)	(2)	SQL vs. PAO		CRQ vs. SEE	
			(3)	(4)	(5)	(6)
Violation	-0.0570* (0.0310)	-0.0457* (0.0235)	-0.158* (0.0951)	-0.166 (0.101)	-0.0674** (0.0267)	-0.0626** (0.0284)
Compliance	0.0214*** (0.00799)	0.0287*** (0.0111)				
Uncertain	0.00306 (0.0121)	0.00233 (0.0114)				
Violation x w/in 1500m		-0.191*** (0.0195)		-0.0293 (0.194)		-0.172*** (0.0453)
Compliance x w/in 1500m		-0.0423 (0.0410)				
Uncertain x w/in 1500m		0.00514 (0.0271)				
Observations	96,917	96,917	373	373	876	876
Airports	817	817	2	2	2	2
Adjusted R-squared	0.694	0.694	0.521	0.519	0.879	0.879
House chars	yes	yes	yes	yes	yes	yes
State x time trend	yes	yes	no	no	no	no
Month FEs	yes	yes	yes	yes	yes	yes
Airport FEs	yes	yes	yes	yes	yes	yes

Standard errors clustered by airport in (1) and (2), robust in (3)-(6).

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Direct information treatment and cross-source saliency

ln(Sale price)	CEH consent judgment		Flint, MI news release	
	(1)	(2)	(3)	(4)
Post-treatment x CEH airport	-0.0104 (0.0111)	-0.00446 (0.0115)		
Post-treatment x within 1500m		0.00482 (0.0128)		
Post-treatment x within 1500m x CEH airport		-0.0380** (0.0182)		
Post-news x within 1500m			-0.00867 (0.00766)	-0.00834 (0.0137)
Post-news x >0.5 tons emitted				-0.0199 (0.0217)
Post-news x <0.2 tons emitted				-0.00149 (0.00779)
Post-news x within 1500m x >0.5 tons emitted				-0.0104 (0.0242)
Post-news x within 1500m x <0.2 tons emitted				-0.000302 (0.0175)
Observations	24,333	24,333	93,578	93,578
Airports	110	110	817	817
Adjusted R-squared	0.740	0.740	0.733	0.733
House chars	yes	yes	yes	yes
County x time trend	yes	yes	no	no
State x time trend	no	no	yes	yes
Month FEs	yes	yes	yes	yes
Airport FEs	yes	yes	yes	yes

Standard errors clustered by airport.

*** p<0.01, ** p<0.05, * p<0.1