The Benefits of Brownfield Remediation: Estimating Cleanup Impact on Housing Property Values

Lala Ma[1]

[1]Department of Economics
Duke University

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Background

- ***Brownfield*** - A real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. - Environmental Protection Agency (EPA)

- Sites cannot be used until the hazardous substances are cleaned. No parties are responsible for their cleanup.
- Brownfields are generally low-risk and diverse in nature - old dry cleaning shops, gas stations, industrial plants.
- There are approximately 450,000 Brownfields in the U.S.

- In 2002, "the Brownfields Law"[1] was enacted to assist organizations in revitalizing brownfields through the provision of grants.

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- Provision of grants form the basis of the Brownfields Program - there are four types of grants (assessment grants, cleanup grants, Revolving Loan Fund (RLF) grants, and Job Training grants).
- This paper focuses on the benefits from cleanup grants, which provide direct funding for cleanup activities at specific properties.
- For the fiscal year 2011, the EPA anticipates awarding around 147 cleanup grants for a budget of $29.5 million

Research Question:

- How much welfare is being generated by brownfield remediation?
- Viewed as a neighborhood disamenity, do housing prices reflect brownfield cleanup?

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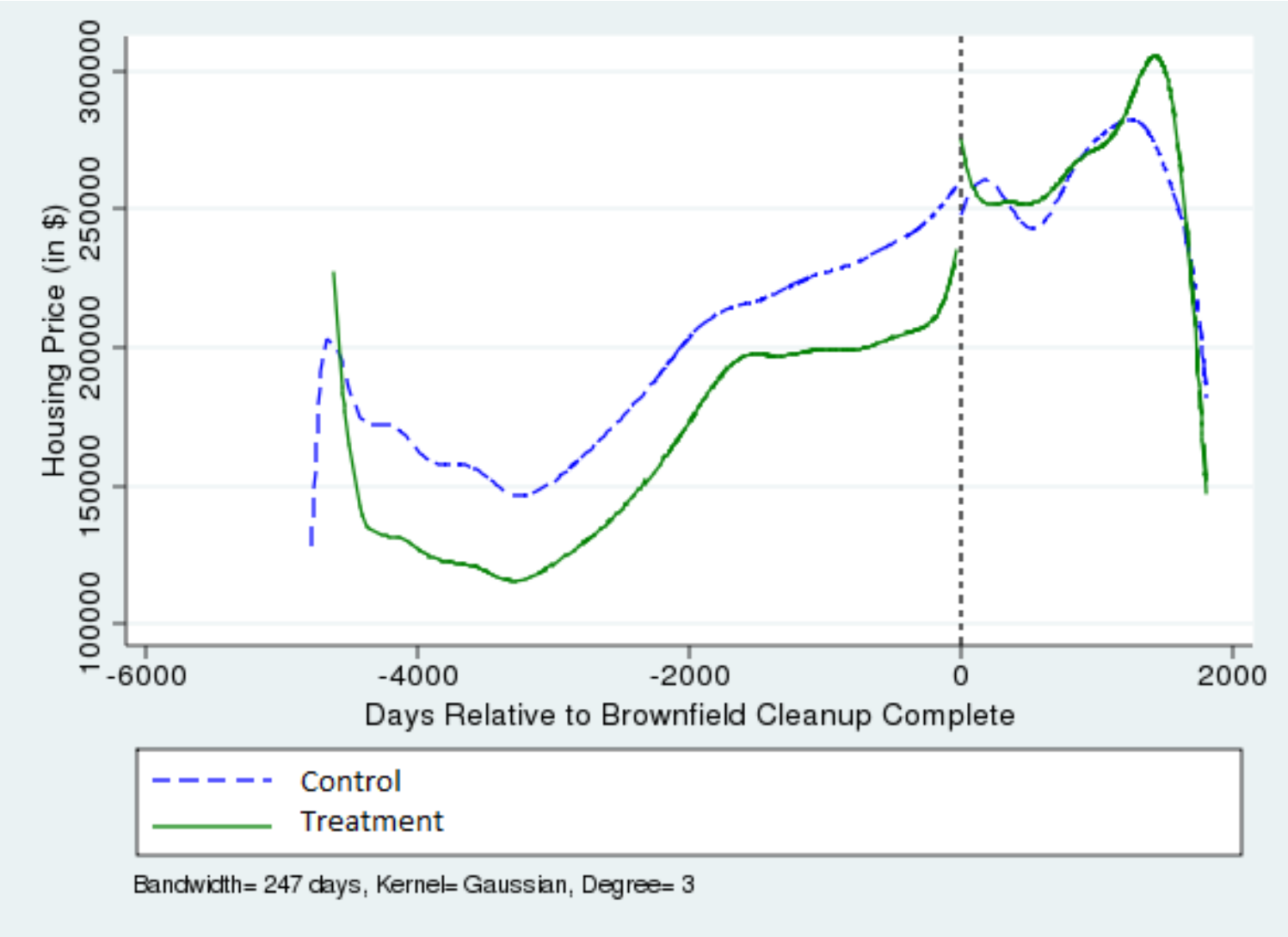
Data and Approach

- Two data sources
  - EPA: Location and attributes of funded Brownfield sites between 2003 - 2008
  - Dataquick: Location and attributes of houses sold between 1998 - 2009
- Effects of hazardous waste sites found to decrease rapidly with distance
  - Find distance, d, at which brownfields do not affect house prices
- Use Difference-in-Differences
  - Treatment = houses located within d miles of site
  - Control = houses located farther than d miles.
  - Distance used: 1.2 km

Graphical Evidence

- Validity of the Common Trend Assumption: Compare price trends of treatment and control groups pre- and post- treatment.



Results: Difference-in-Differences

Dep. Var.: *log (price)*	(1)	(2)
$Treat_i$	-0.0500***	-0.0992***
	(0.009)	(0.006)
$Post_t \times Treat_i$	**0.132*** **	**0.0311** **
	(0.021)	(0.015)
Year FE	x	x
House Controls	x	x
Brownfield FE		x
BF Linear Time Trends		x
Observations	163,790	163,790
R-squared	0.502	0.650

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

- Controlling for differences in house attributes and year FE, prices of homes within 1.2 km (or around 0.75 miles) appreciated by roughly 13.2 percent.
- Additionally, controlling for brownfield FE and brownfield-specific linear time trends, prices of homes appreciate by 3.1 percent.
- Specification (2) is robust to artificially moving the cleanup duration earlier $\longrightarrow$ the treatment effect becomes insignificant.

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†Post-treatment period defined as after assessment completed.

- Brownfield assessments, conducted before cleanup, may be causing prices of treated houses to trend differently.
- To check, further distinguish houses sold before assessment completed.
- Col (2) estimates an overall 4.3% increase in price after assessment and cleanup.
- Magnitude is similar to previous DID estimate.
- Effect of cleanup may be larger without effect of assessment.
- Assessments cause prices to decrease.

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