Housing Markets & Terrorism:
Uncovering Perceptions of Risk
by
Examining Housing Price Changes Following 9/11

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Central Question: How do people respond to terrorism?

- Rhetorical - survey responses
- Behavioral - actions (low-cost vs. long-term)

The preliminary results indicate...

- “mildly”
- “for a short while, if at all”

The answer may speak to:

- urban economics and the future shape of cities
- cost-benefit analysis of terrorism prevention
- the psychology of small probability events
Make the link between terrorism and housing markets
  - Modeling house prices
  - House prices and spatial externalities
  - House prices and expectations
  - Terrorism as a special case of a spatial externality

Discuss the data and empirical strategy

Report the preliminary results
  - Transaction volume
  - Aggregate prices
  - Pricing of risk

Outline what’s left to do
Begin with the formula for value

\[ V_{it} = P_t Q_{it}, \]

and obtain the hedonic equation by reparameterizing:

\[ \ln V_{it} = \ln P_t + X_{it} \beta. \]

\( X_{it} \) consists of all attributes which contribute to value.

These include value from environmental influences:

\[ \ln V_{it} = \ln P_t + X_{it}^P \beta + \beta^N Noise_{it} + \beta^A AirQuality + \beta^C Commute + \]

Generally, the data requirements for such an equation are prohibitive. Proximity to point sources is used rather than measuring the level of the externality at each point.
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Expectations

Housing is:

• Durable
• Fixed in space
• Expensive to alter

which implies that value today is a function not only of dwelling environmental characteristics today, but over a long horizon. The present value relation is

\[ PV_{i0} = V_{i0} + \frac{V_{i1}}{1 + r_1} + \frac{V_{i2}}{(1 + r_1)(1 + r_2)} + \cdots + \frac{V_{iN}}{(1 + r_1)(1 + r_2) \cdots (1 + r_N)} \]

Note that the \( V \)s are expected values.

• Changes in expectation regarding any of the variables from the hedonic pricing function should change the value of the dwelling.
The goal is to identify changes in the perception of risk from terrorism by looking to at a good whose price include expectations about the future.

Housing Market Outcomes

- Sale volumes during the periods before and after 9/11
- Aggregate price indexes during the same periods
- Prices of proximity to ’targets’ pre- and post-attacks

A cross-sectional analysis would be insufficient

A time-series study without the singular event of 9/11 would also be inadequate.
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Data

Housing Data: DataQuick

- Transactional data: sale price and date of sale
- Attribute data: size, rooms, baths, fireplace, heat, etc.
- Locational data: site address and census tract

- 98,000 usable observations - no missing variables
- Single family residences
- South LA county - no San Fernando Valley, Santa Clarita
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Results

- **Transaction Volume:**
  - Slight evidence of drop in activity in the period immediately following the attack. There is no evidence of a permanent effect.

- **Aggregate Housing Price Indexes:**
  - Again, some visual evidence of a price drop coincident with the attacks, and some indication that proximity to targets may matter.

- **Pricing Externalities:**
  - Whereas an increase in perceived risk from proximity to these sites should increase the price gradient, the statistical evidence points to a mild and transitory influence of the attacks.