

# Aircraft noise exposure and market outcomes in the U.S.

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## Objective:

Provide empirical insights into:

- (i) The impact of noise exposure on house prices in communities surrounding U.S. airports.
- (ii) The heterogeneities associated with these impacts, which can be driven by factors such as time, location, or noise exposure patterns

## Project Benefits:

1. Detailed noise modeling of real flight tracks
2. Updated understanding of impacts of aircraft noise on property prices, incl. heterogeneities among airports or neighborhoods
3. Comparison of revealed preference data with stated preference data

## Research Approach:

**Noise modeling**

*Model noise around U.S. airports with high spatial and temporal resolution.*

*Select airports with noise exposure changes due to changes in operating procedures.*

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**Real Estate data**

*ZTRAX data adjusted for neighborhood amenity changes and housing attribute changes*

**Empirical model**

**Natural experiment:**

$\Delta \text{Noise} \rightarrow \Delta P ?$

Noise changes following introduction of PBN procedures and runway changes (natural experiment)

Addresses concerns regarding:

- Omitted variable bias
- Causality concerns

## Major Accomplishments (to date):

- Set up AEDT with years-worth of ASDE-X flight data to **calculate noise based on real flight tracks**, incl. alternative metrics
- **Tracked noise exposure to residential properties** and related characteristics of houses and neighborhoods
- Conducted analyses for BOS, SEA, and ORD, including correlation analysis
- Presented **detailed hedonic price model** to identify noise impacts on property values, incl. analyses of potential heterogeneities in impacts

## Future Work:

- Analyses for additional airports
- Understand differences in sociodemographic and socioeconomic groups