

# Unintended impacts of Open Streets on noise complaints in New York City

## Background

- Environmental noise and noise annoyance have been associated with detrimental health outcomes.
- New York City (NYC) noise levels measured during a campaign in 2012 exceeded recommended standards [1].
- Noise complaints used as a proxy of noise annoyance and exposure [2].
- NYC has been opening parts of its street network to recreation and physical activity, through the Open Streets program.
- Research question: What is the unintended impact of Open Streets on noise complaints in NYC?



Figure 1. Open Street in Lower East Side (Manhattan, New York City).

## Methods

### Outcome:

- Number of noise complaints (vehicle and street/sidewalk) per day and census tract (May 2019 through May 2021) across NYC.
- Noise complaints from NYC open data portal; assigned to census tracts; aggregated to daily counts.

### Exposure assessment:

- Open Streets from the NYC open data portal; assigned to census tracts. Two metrics used: Presence and Percentage Open Streets per census tract.

### Covariates:

- Building density from NYC open data portal, census tract-level population density, race/ethnicity and percentage below poverty from the American Community Surveys.

### Analysis:

- Estimated association between the number of noise complaints and presence/percentage of Open Streets in a census tract.
- Mixed-effects negative binomial model with random intercepts for census tract, adjusting for covariates.
- Model additionally adjusted for calendar time and COVID-19 pandemic phase.

## Results

### Exploratory data analysis

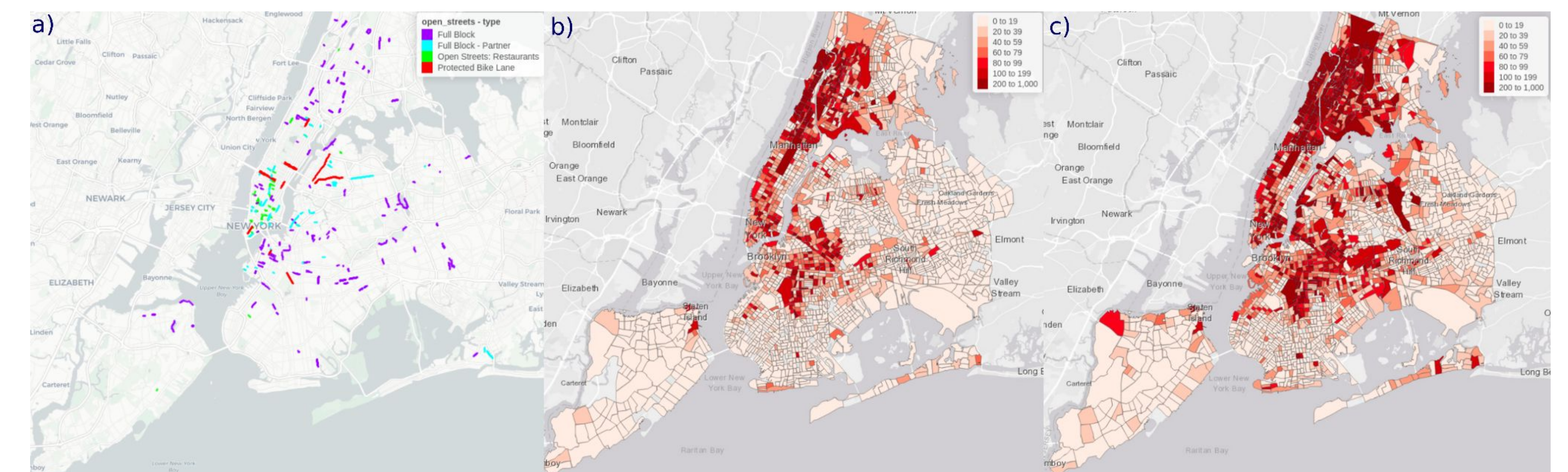


Figure 2. (a) Open Street locations and types; Street-sidewalk noise complaints per census tract in 2019 (b) and 2020 (c)

### Model results

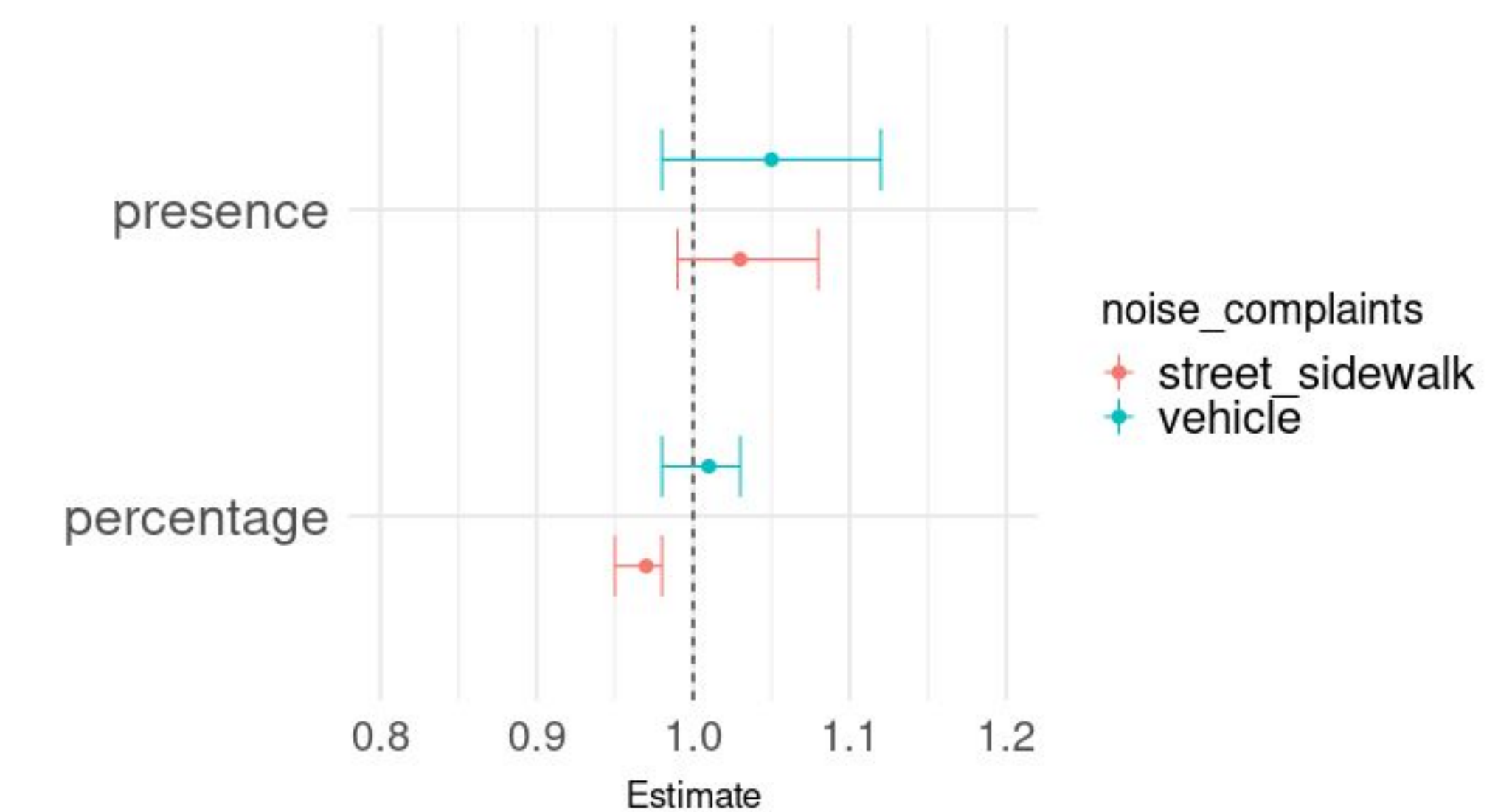


Figure 3. Number of street-sidewalk (red) and vehicle (blue) noise complaints per census tract per one st. deviation increase in Open Streets as presence (yes/no) and Open Streets as percentage.

## Conclusions

Our preliminary results suggest that Open Streets were not associated with noise complaints. However, the actual implementation level of Open Streets is not reflected in the available dataset and results are subject to change if/when implementation information becomes available.

## Acknowledgments

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## References

1. Kheirbek I, Ito K, Neitzel R, Kim J, Johnson S, Ross Z, et al. Spatial variation in environmental noise and air pollution in New York City. *J Urban Heal.* 2014;91(3):415–31.
2. Ramphal B, Dworkin JD, Pagliaccio D, Margolis AE. Noise complaint patterns in New York City from January 2010 through February 2021: Socioeconomic disparities and COVID-19 exacerbations. *Environ Res.* 2021.