

The Effect of Disaster-induced Displacement on Social Behaviour: The Case of Hurricane Harvey

Ted Hsuan Yun Chen*, Christopher J. Fariss†, and Xu Xu*

*Dept. of Political Science, Pennsylvania State University

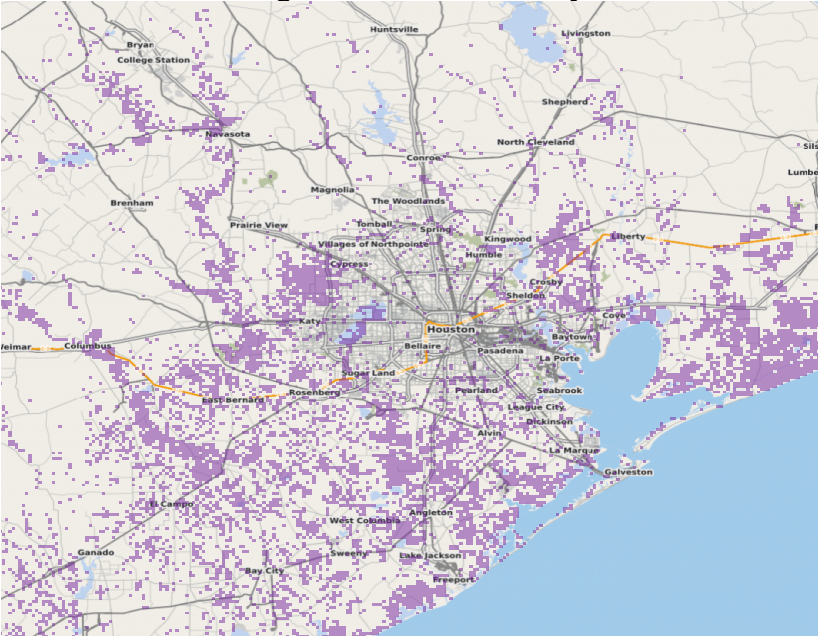
†Dept. of Political Science, University of Michigan

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Flooded Areas during Hurricane Harvey



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Storms will likely to remain extremely costly.

- ▶ Storms are becoming slower;
- ▶ Rising atmospheric moisture due to higher sea surface temp.

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- ▶ 1) exposure, 2) vulnerability, 3) social network disruption.

Research Goals

How do natural disasters influence individual well-being, especially in terms of social engagement and political participation?

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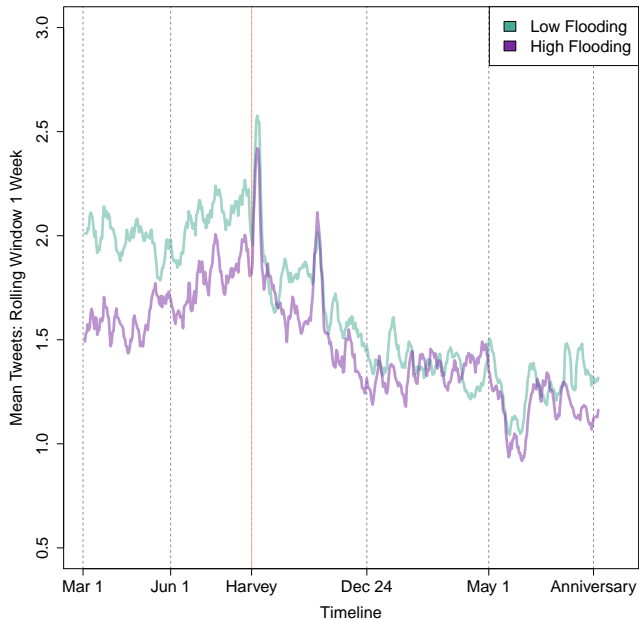
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Today: The relationship between exposure to flooding and social network engagement (in terms of tweeting frequency).

Flooding and Tweeting



Difference in Difference Framework

$$Y_{i,t} = \alpha + \beta * Flood_i + \tau * Harvey_t + \gamma(Flood_i * Harvey_t) + \epsilon_{i,t}$$

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- ▶ $Y_{i,t}$ is tweet frequency of individual i at time t ;
- ▶ $Flood_i$ is a continuous measure of how much flooding individual i experienced;
- ▶ $Harvey_t$ is an indicator for days on or after August 25.

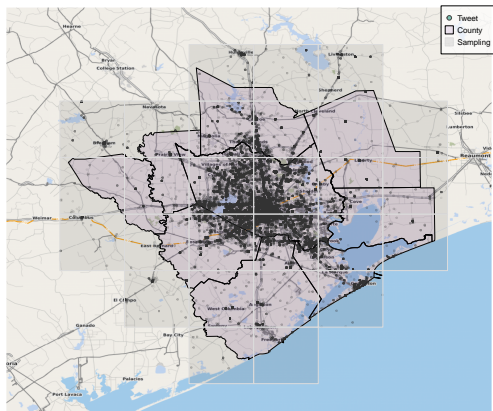
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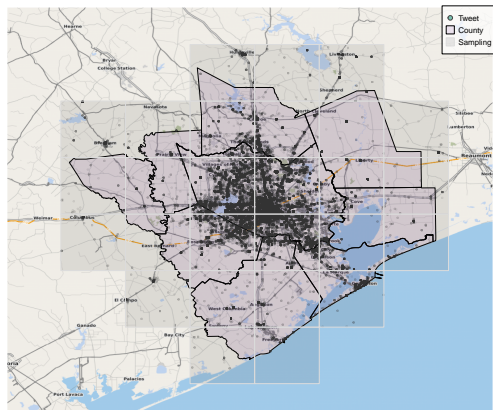
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γ is the DID effect we are interested in.

Sample



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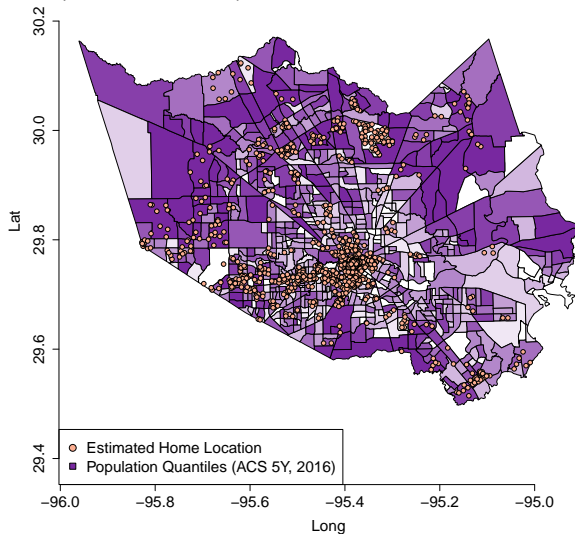
- ▶ 16050 unique users
- ▶ 15689 active and public
- ▶ 15631 old enough
- ▶ 1398 final sample

Home Locations

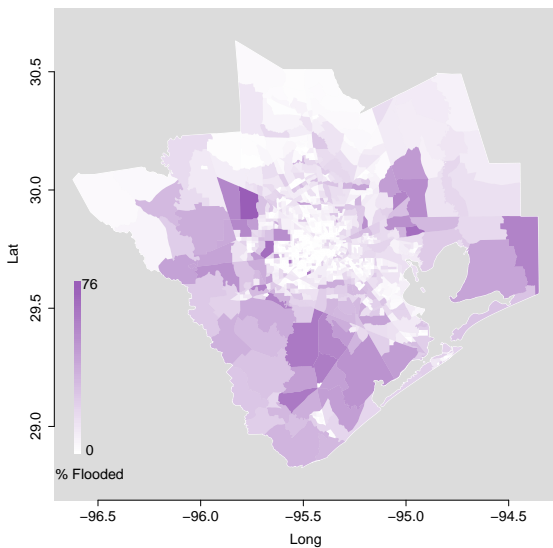
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Flooding by Census Tract



Results

| | <u>Pooled</u> | | <u>Fixed Effects</u> | |
|-------------------|---------------|-------|----------------------|-------|
| | Coefficient | s.e. | Coefficient | s.e. |
| Harvey × Flooding | 0.669* | 0.081 | 0.669* | 0.081 |
| Flooding | -0.849* | 0.067 | -0.849* | 0.066 |
| Harvey | -0.547* | 0.011 | -0.673* | 0.125 |
| Intercept | 1.960* | 0.009 | 1.913* | 0.089 |

(Day Fixed Effects)

$i = 1398, t = 546; * = p < 0.001$

- ▶ After Harvey, those affected by flooding tended to tweet more (after accounting for general trend of decreased tweeting).

In Progress

We are currently in the progress of obtaining the following data:

- ▶ Voter registration files from Texas;
- ▶ Tweet data from Dallas.

We are also working on methods to estimate our measures with greater validity.

Questions or comments?

We can be reached at:

- ▶ Ted Chen: ted.hsuanyun.chen@gmail.com
- ▶ Chris Fariss: cjf0006@gmail.com
- ▶ Xu Xu: xux112@psu.edu

A copy of the paper and these slides are available at
<https://tedhchen.com/pages/research.html>