Florida Housing Coalition Hurricane Member Update Webinar

April 22, 2022
Sponsored by Fannie Mae

AGENDA

- Announcements
- Hurricanes and Affordable Housing

Register at
https://attendee.gotowebinar.com/register/3071951241985448463

Register at
https://attendee.gotowebinar.com/register/7650758564207876624

The Development Process Part 1
May 10, 2022 at 10:00 am

Register at
https://register.gotowebinar.com/register/6904854273971198224

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Resilient Florida Program Updates

Resilient Florida will host three online webinars to provide key information and answer questions to assist communities with the 2022 application process. Request the link to join by emailing Resilience@FloridaDEP.gov. Please specify the dates you'd like to attend. The webinars will be held on the following dates:

- **Session 1: Focus on Planning –** Wednesday, April 18, 2022, 1 to 2 p.m. EDT.
- **Session 2: Planning and Implementation –** Monday, May 9, 2022, 10 to 11 a.m. EDT.
- **Session 3: Focus on Implementation–** Thursday, June 16, 2022, 1 to 2 p.m. EDT.

Register at
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwi5pdjygZv2AhVKDkQIHfnaBwUQFnoECAgQAQ&url=https%3A%2F%2Fflghc.org%2Fregistration%2F&usg=AOvVaw0BWfM-8xSuS8Chm2kblNMQ

Conference Registration Now Open
https://fhc.wildapricot.org/event-4693298

ANNUAL STATEWIDE HOME MATTERS CONFERENCE
AUGUST 29-31
IN-PERSON AT THE ROSEN CENTRE, ORLANDO FL

SAVE THE DATE
AUG 29-31 ORLANDO, FL
www.flhousing.org

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HOME
MATTERS

Hurricanes and Affordable Housing

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Hurricanes and Affordable Housing

A Case Study of Hurricane Andrew in Miami Dade County

Some Background:

- PhD Candidate in Environmental Science and Policy Department at the University of Miami

ROSENSTIEL SCHOOL OF
MARINE AND
ATMOSPHERIC SCIENCE

- National Academies of the Sciences Fellow working with the Tampa Bay Regional Planning Council

TAMPA BAY
REGIONAL PLANNING COUNCIL

Road Map:

1. Motivation
2. Research Questions
3. Background
4. Research Design
5. Results
6. Take Aways / Future Work

Motivating Question:

How will the consequences of climate change alter the accessibility and affordability of at-risk coastal regions?

Map from JCHS, 2020
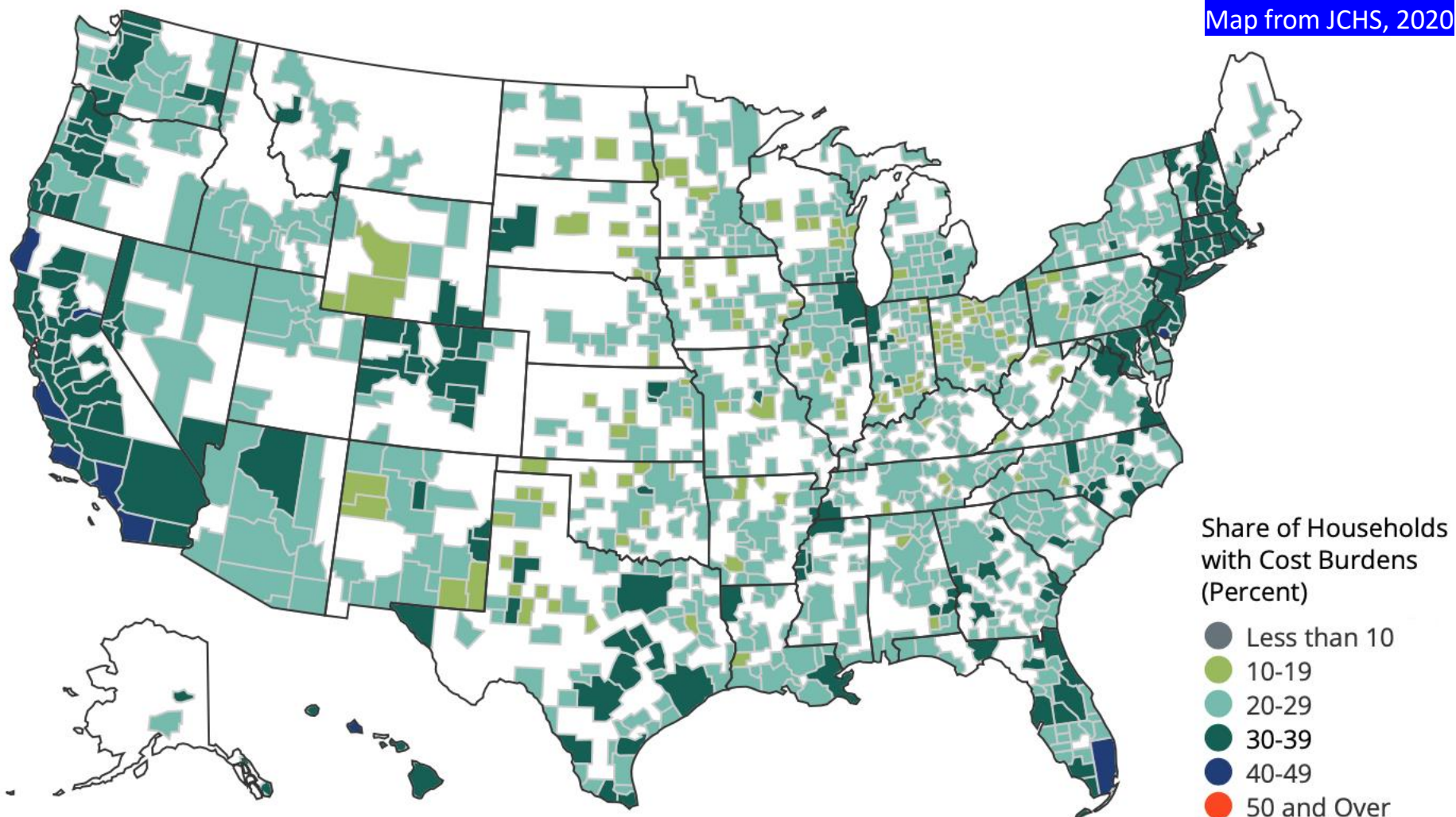
Share of Households
with Cost Burdens
(Percent)

- Less than 10
- 10-19
- 20-29
- 30-39
- 40-49
- 50 and Over

Road Map:

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Research Question 1:

Did Hurricane Andrew reduce the affordability of housing transactions in Miami Dade County?

Research Question 2:

To what extent did observed reductions in housing affordability lead to a reduced number of affordable home sales?

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US Privately Owned Housing Completions by Year (1000s)

FRED:COMPUTNSA
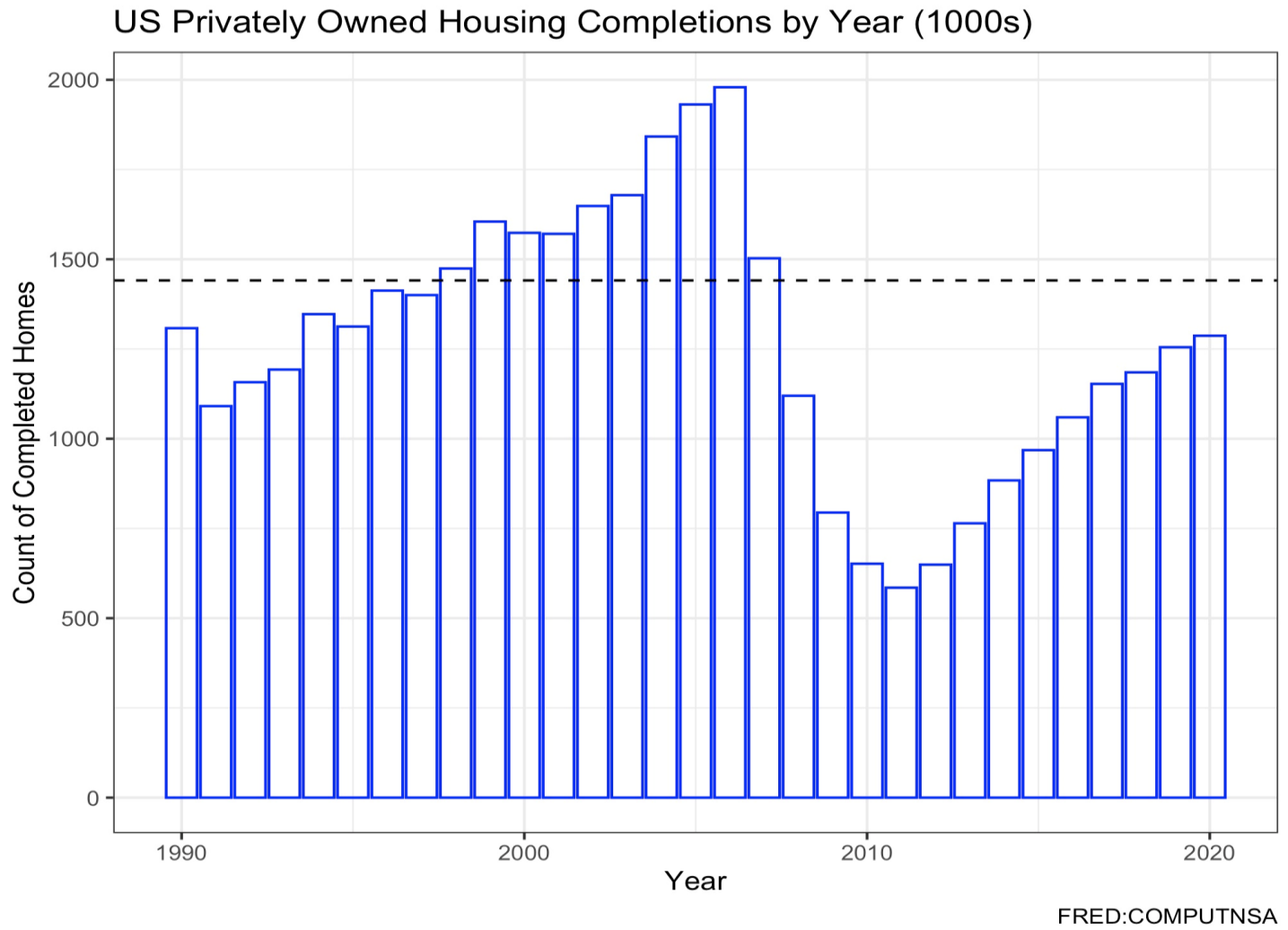
US Rental Vacancy Rates
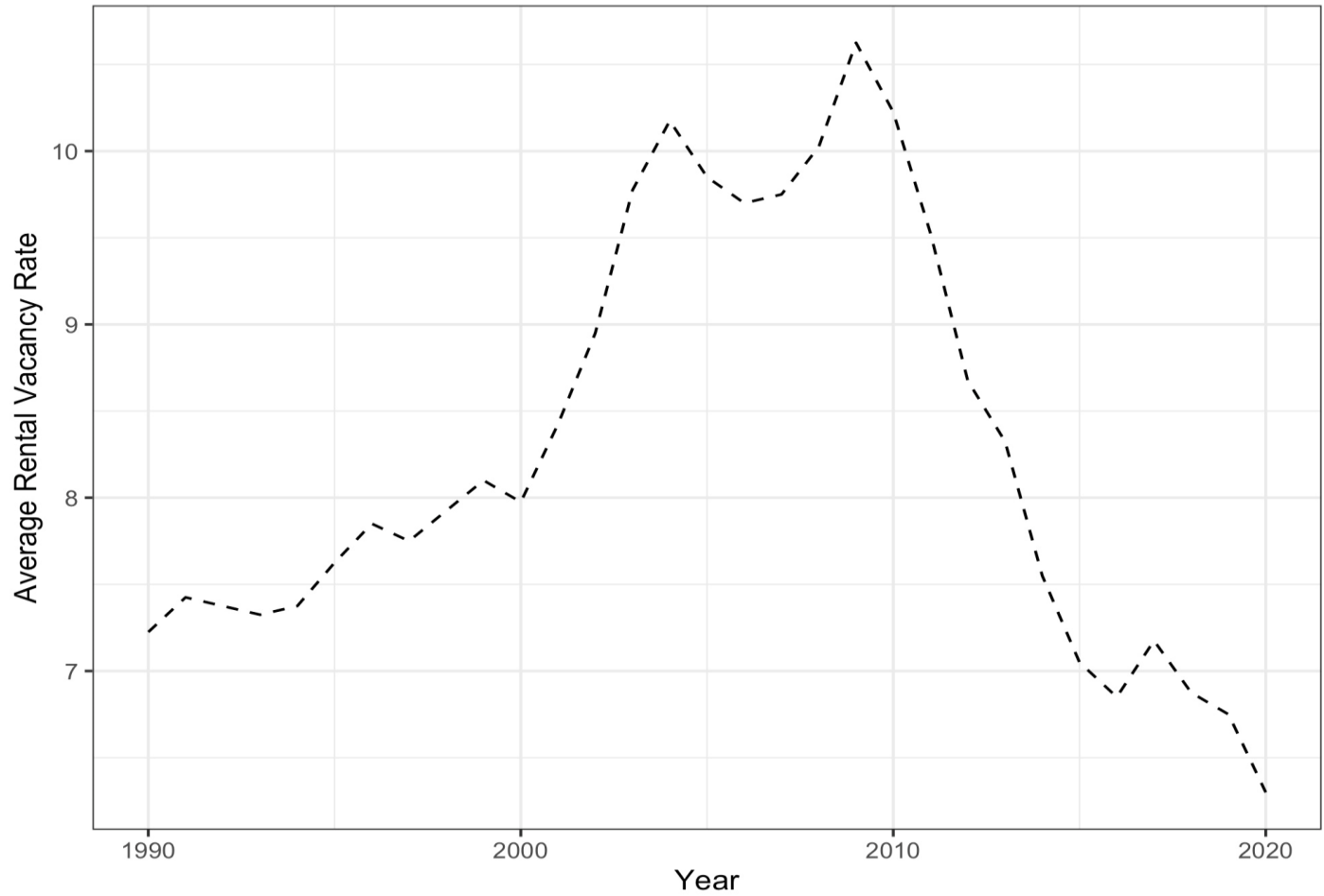
FRED:RRVRUSQ156N

The Literature:

1. Housing Prices – Housing Stock and Preferences

2. Household Finances – Jobs and Debt

Housing Prices:

1. Vigdor (2006) – Reductions in Supply
2. Zivin, Liao, and Panassie (2020) – Increase in Prices and Higher Income Households
3. Ortega and Taspinar (2018) – Decrease in housing prices of flood zone homes

Household Finances:

1. Belasen and Polachek (2008) – Wages increase
2. Deryugina, Kawano, Levitt (2018) – Income increases
3. Gallagher and Hartley (2017) - Reductions in debt

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RQ1: Data

- Residential housing transactions 1978-2002 (~400k)

- Block Group Income from the 1990 Census

- Assume affordable is paying <30% income on housing

- Wind Swath of Maximum Experienced Wind Speeds: Identify impacted homes as those experiencing winds >113 mph

Affordability Index

$$PI_{it} = P_{it} \cdot 0.8 \cdot \frac{\frac{r_t}{12}}{1 - (\frac{1}{1+\frac{r_t}{12}})^{360}} \qquad (1)$$

$$QI_{it} = PI_{it} \cdot 4 \cdot 12 \qquad (2)$$

$$A_{it} = \frac{I_{bt}}{Q_{it}} \cdot 100 \qquad (3)$$
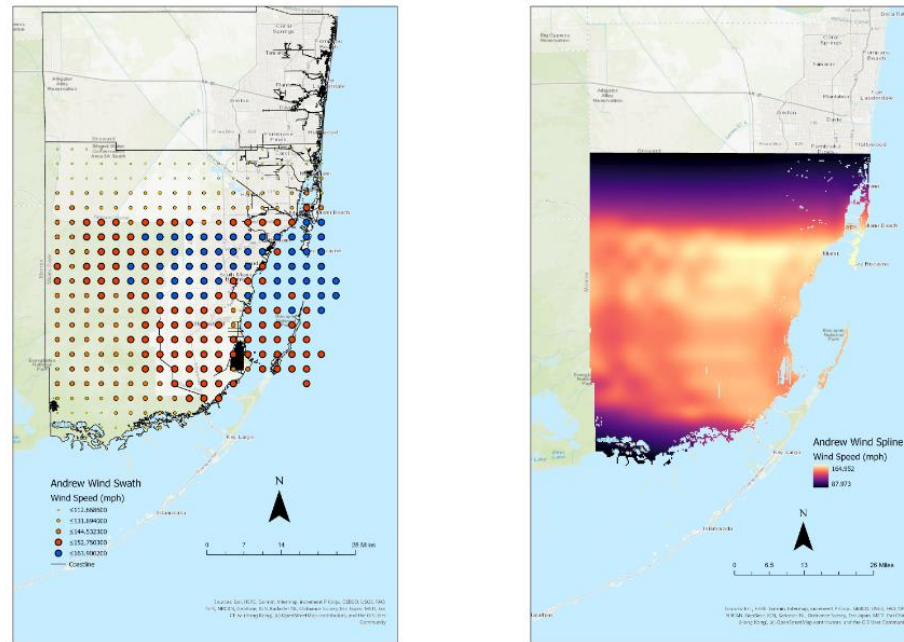
Hurricane Andrew Wind Field

Figure 1: Wind Maps

Difference in Differences:

$$Y_{ibgt} = \delta(Post'92 * Impacted)_{it} + \gamma_b + \gamma_t + \beta\mathbf{X} + \epsilon_{bit} \quad (1)$$

► δ - DiD Estimator: Impact of Hurricane Winds on Housing Affordability
► γ_b - Block Group Fixed Effects
► γ_t - Time-Year Fixed Effects
► β - Vector of Estimates for Control Variables
► ϵ_{bit} - Error Term Clustered at the Block Group Level

Identifying Assumption: Trend in affordability of non-impacted houses represents trend of impacted houses without exposure.

Table 1: OLS Affordable Housing Index

	Affordable Homes Index		
	Affordable Index	Affordable Index Housing	Affordable Index Full
DiD	−11.895	−20.509	−20.667
	(1.092)	(5.063)	(5.038)
Num.Obs.	391 842	391 842	391 842
R2	0.022	0.289	0.291
Std.Errors	IID	by: blk_join	by: blk_join
Block Group FE		X	X
Sale Year FE		X	X
Condo FE		X	X
Home Amenities		X	X
Location Amenities			X
Standard Errors	Std	Clst:BG	Clst:BG

Event Study of Hurricane Andrew's Affect on Housing Affordability
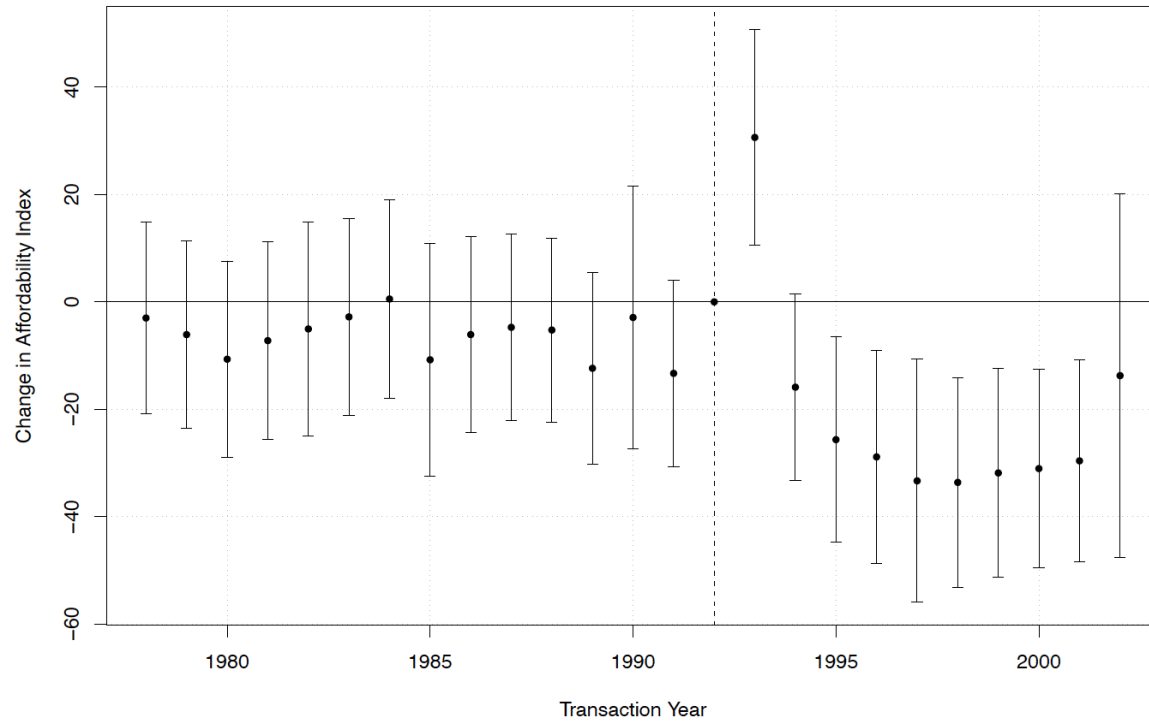
Number of Gained Affordable Home Transactions
due to Hurricane Andrew
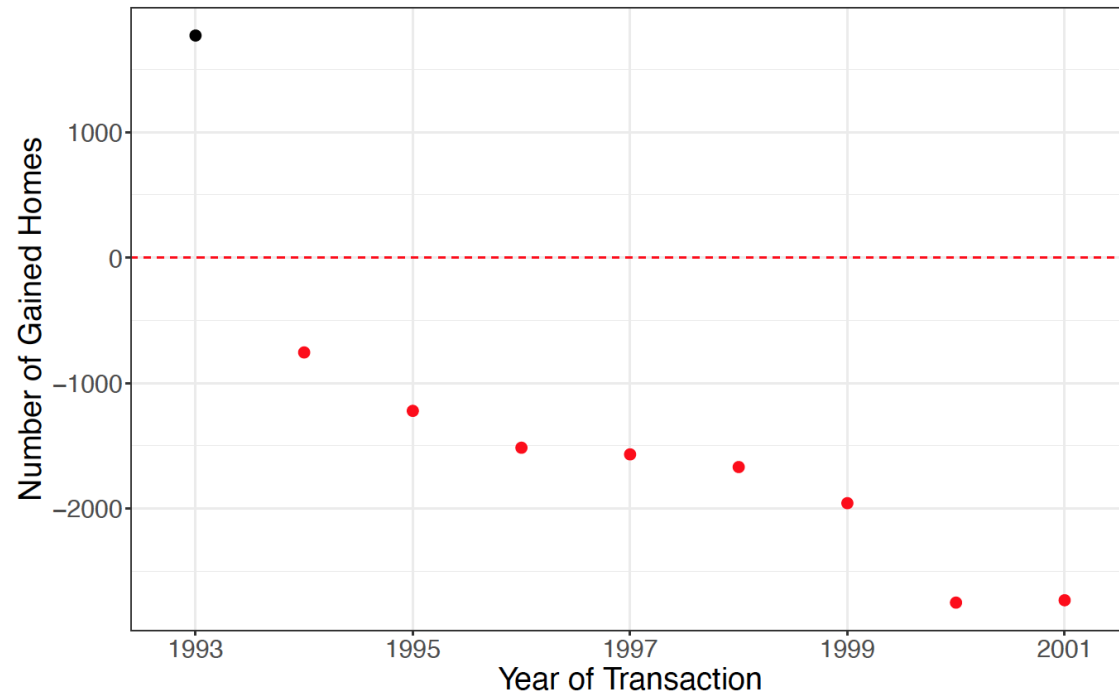
RQ2: Data

- Change unit of analysis to census block groups

- Affordable homes are those with Affordability Index >= 100.

- Impacted neighborhoods those with >50%, >75%, or >90% of homes experiencing winds >113 mph.

- Split data into 4 groups: Pre-Control, Pre-Treatment, Post-Control, Post-Treatment
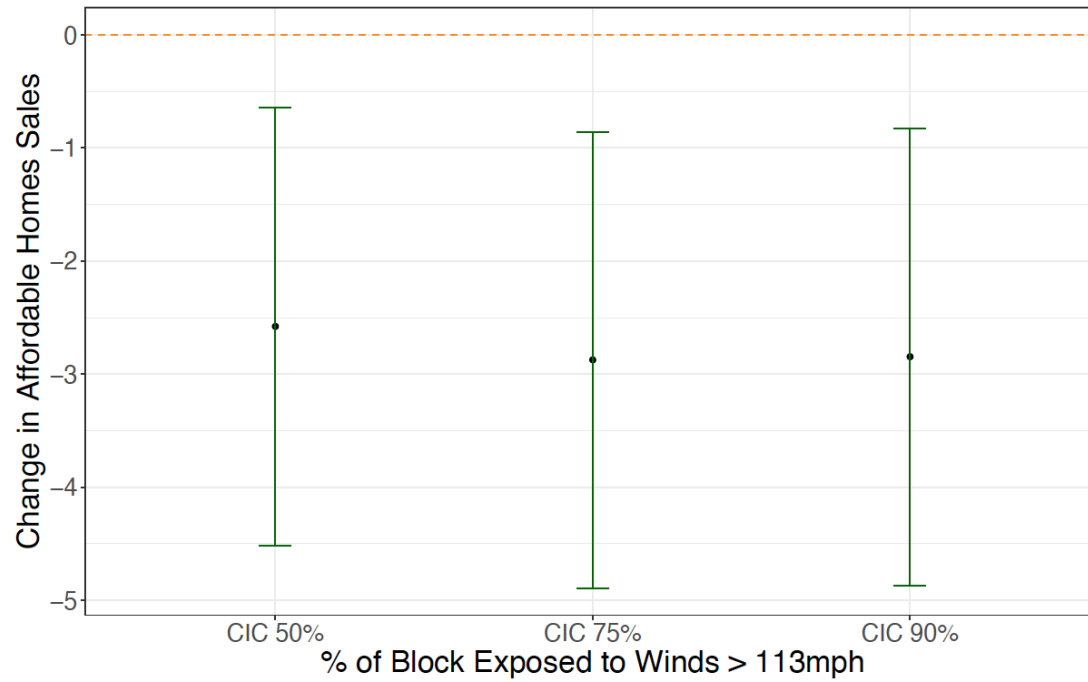
Changes in Changes

- Non - Parametric Difference in Differences

- Let the data talk – Create distributions for each sub-group

- Main assumption is that the hurricane **does not** "choose" certain neighborhoods due to neighborhood characteristics
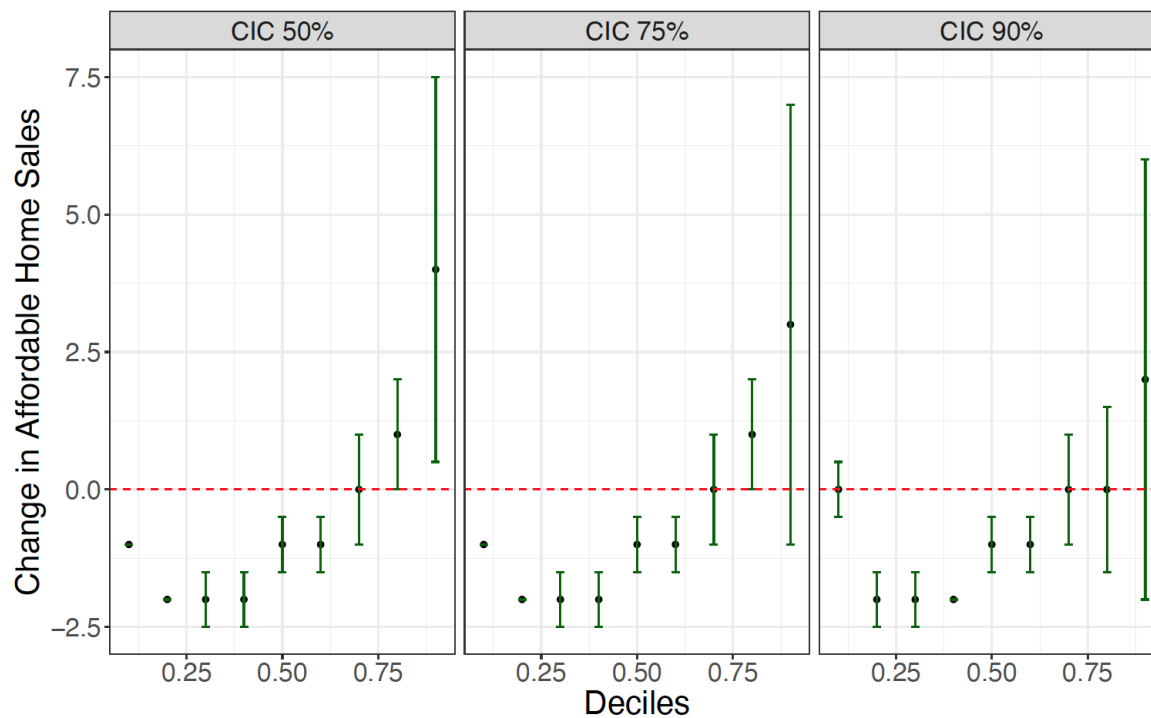
Table 2: Effects of Andrew on Affordable Home Sales in Miami Dade County

Damaged Block	Count Blocks Impacted	% Blocks Impacted	ATT	Lost Affordable Housing
50%	769	77%	-1.94	1492
75%	755	76%	-2.32	1752
90%	734	75%	-2.25	1652

CiC Estimate for ATT
 on # of Affordable Homes Sold

% of Block Exposed to Winds > 113mph

CiC Estimates for QTT
 on # of Affordbale Homes Sold

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Take Aways:

- Andrew reduced the affordability of impacted home transactions → 9300 – 12400 less affordable home sales in 8 years post Andrew

- Average Treatment Effects on the Treated mask heterogeneity in impacts along the housing transactions distribution

Take Aways:

1. Run similar analysis for other hurricane events in Florida

2. Investigate relationship between aid distribution and affordability changes

3. Incorporate rental data

Thank You:

Next Week's Training

Mary Williams, Disaster Housing Coordinator at the FL Division of Emergency Management
April 29 at 1:30 pm
Register at

https://us02web.zoom.us/webinar/register/WN_nqjmLijoRLiN0src9xqghg

Technical Assistance is Available

Available Daily: **1 (800) 677-4548**

Options for Further Assistance Include:
Phone and Email consultation
Site Visits

Register at www.flhousing.org for:
Webinars and Other Events

Thank You!

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