

The Effect of Federal Recovery Funds on Mitigation Behavior

**Maria Watson & Siyu Yu
Texas A&M University**

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Introduction

- Keeping businesses and residents out of hazardous areas is an important mitigation priority
- Disaster recovery spending is increasing as the frequency and nature of hazards intensifies.
- Research has suggested that disaster assistance, given its focus on infrastructure replacement, may encourage development in the same hazardous area or prevent recipients from moving.

Motivation

	Variable	Coef.	O.R.	S.E.	p-value
<i>Damage</i>	Flood depth (ft.)	-0.215	0.806	0.172	0.156
				0.052	0.197
<i>Business Characteristics</i>	Moved	1.362	3.904	2.516	0.018 **
				0.860	0.006 **
<i>Treatment Area Characteristics</i>	Median household income (\$1,000)	0.012	1.012	0.016	0.216
				0.073	0.134
		χ^2	18.40 (p-value 0.018)		
		-2 log (L_1)	91.264		
		Pseudo R-Squared	0.168		
		N	144 ^b		

Businesses that moved had odds of survival that were 3.9 times higher than similar businesses that remained in their original location

Watson, M. (2021). The Role of SBA Loans in Small Business Survival after Disaster Events. *Journal of Planning Education and Research*, 0739456X211028291.

Coef.=Logit Coefficient; O.R.=Odds ratio; S.E.=Standard error (OR); p-value represents 1-tailed test

* = p ≤ 0.1; ** = p ≤ 0.05; *** = p ≤ 0.001

^b33 groups (68 observations) dropped because of all positive or all negative outcomes

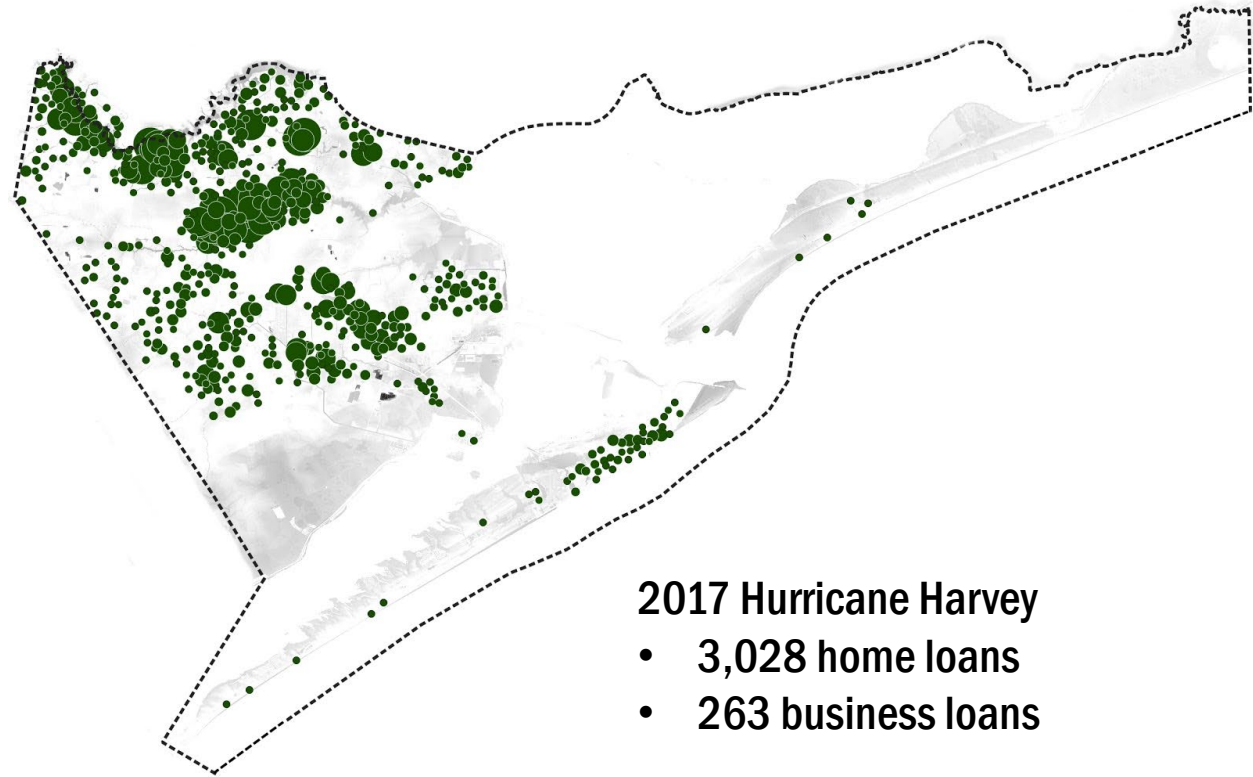
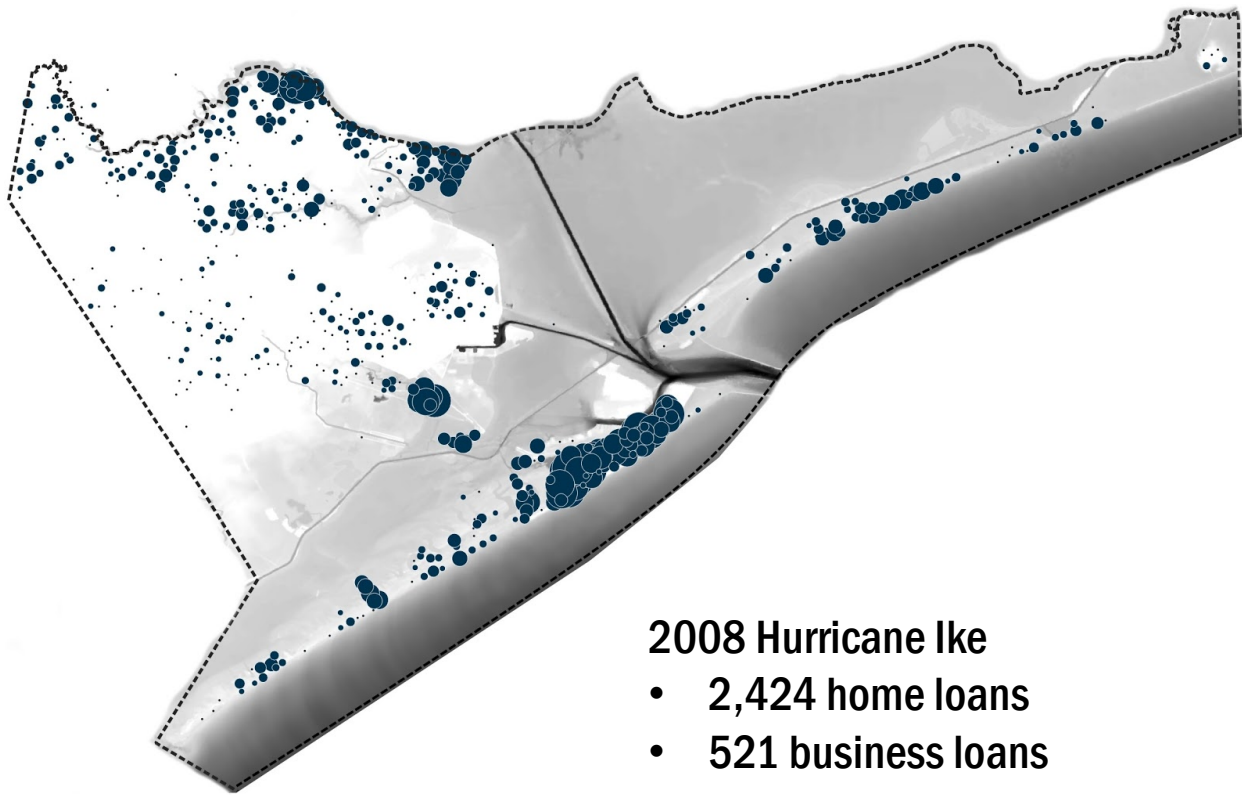


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Research Questions


- 1) Do Small Business Administration (SBA) recovery loans encourage or discourage residential or business mobility in hazardous areas?
- 2) What factors influence business and residential location decisions for those located in hazardous areas?

Case: Galveston County, TX




Methodology

1. Mailed postcards for online survey recruitment (random sample of loan-approved properties)
2. Analyzed parcel data from the Galveston County Appraisal District
3. Conducted in-depth interviews (ongoing)



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Access
survey
here



We want your opinion on disaster assistance!

Would you be willing to tell us about your experiences after Hurricane Ike and Hurricane Harvey, especially with regard to any assistance programs you may (or may not) have received?

Dear Business Owner or Resident,
We are conducting surveys and interviews to learn more about the effectiveness of disaster assistance. Please fill out our very short (5 minute) online survey and access more information about this study by scanning the QR code on the front of the postcard or by visiting <https://...> Your survey ID number is _____. You may also contact me directly at email@arch.tamu.edu.

With many thanks,
Maria Watson
Research Assistant Professor

Return Address
Hazard Reduction & Recovery Center
Mailstop 3137
Texas A&M University
College Station, TX
77843

Place Stamp Here

Findings: Parcel Data

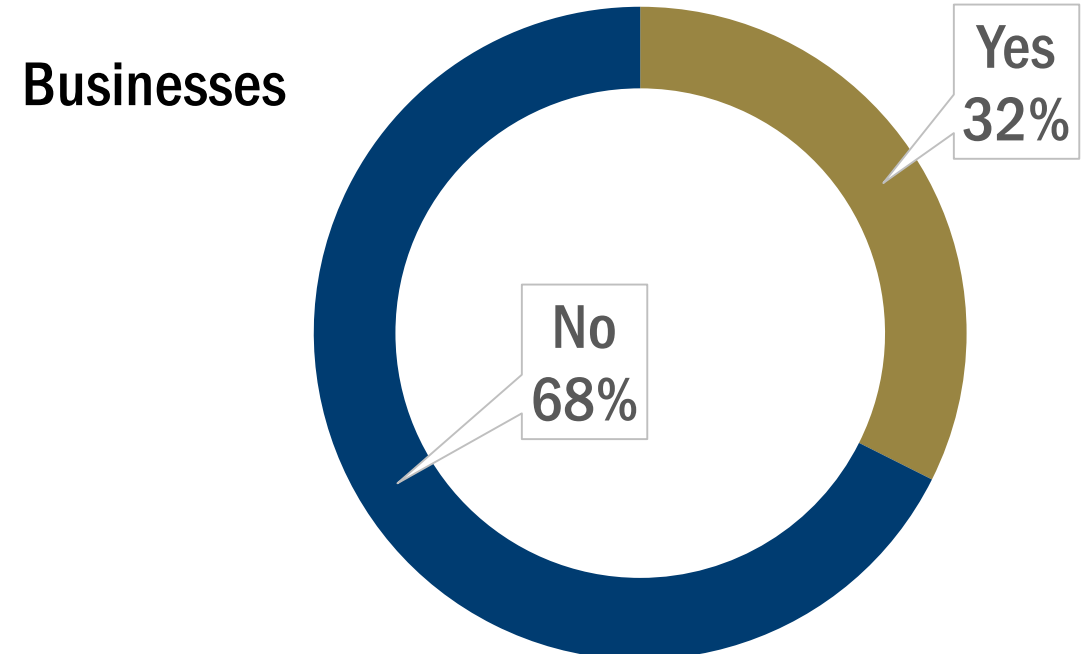
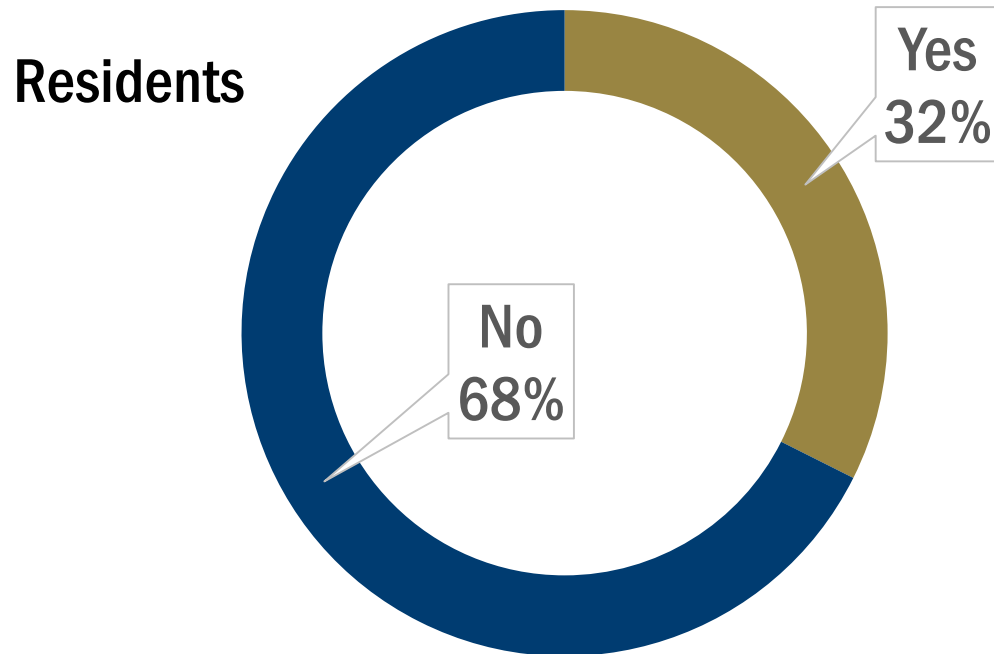
Single Family Residences		Moved (n= 551)		Stayed (n=2,333)	
		mean	s.d.	mean	s.d.
Harvey	Value Loss (%)	20.15	16.20	19.82	14.55
	2017 Improvement Value (\$)	155,483.70	88,574.72	158,471.80	87,769.76
	Loan Amount (\$)	82,569.16	56,436.12	80,317.91	49,507.32
		Moved (n=308)		Stayed (n=2,010)	
		mean	s.d.	mean	s.d.
Ike	Value Loss (%)	28.24	38.46	12.06	25.77
	2008 Improvement Value (\$)	109,571.80	73,380.79	113,486.70	81,570.71
	Loan Amount (\$)	82,165.68	77,707.80	71,145.27	67,076.22

Findings: Parcel Data

Businesses		Moved (n=12)		Stayed (n=106)	
		mean	s.d.	mean	s.d.
Harvey	Open (1=yes, 0=no)	0.92	0.29	0.76	0.43
	Age (years)	11.01	9.93	16.42	11.59
	No. of Employees	6.11	8.80	6.45	13.54
	Loan Amount (\$)	76,866.67	84,614.26	104,941.50	133,861.00
	Flood depth (ft.)	1.96	1.54	1.47	1.53
		Moved (n=60)		Stayed (n=187)	
		mean	s.d.	mean	s.d.
Ike	Open (1=yes, 0=no)	0.65	0.48	0.53	0.50
	Age (years)	12.77	8.76	14.73	15.66
	No. of Employees	7.65	12.14	7.01	10.56
	Loan Amount (\$)	91,234.00	153,232.90	138,074.90	198,704.90
	Flood depth (ft.)	1.76	1.01	1.49	1.05

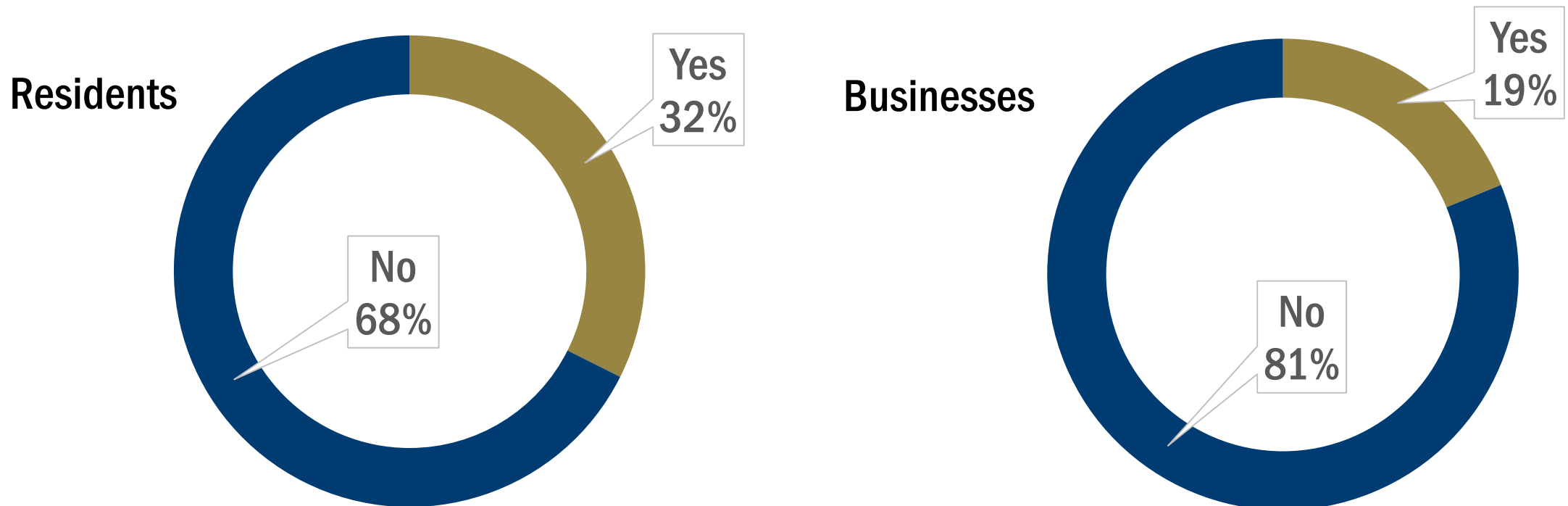
Findings: Survey

“Has this household or business ever considered permanently moving from this location?”



Findings: Survey

“Did receiving disaster assistance affect your decision to stay at / move from this location?”



Findings: Survey

“What is the ranked importance of each of these factors in your decision to move from or stay in your current location?”

Residents

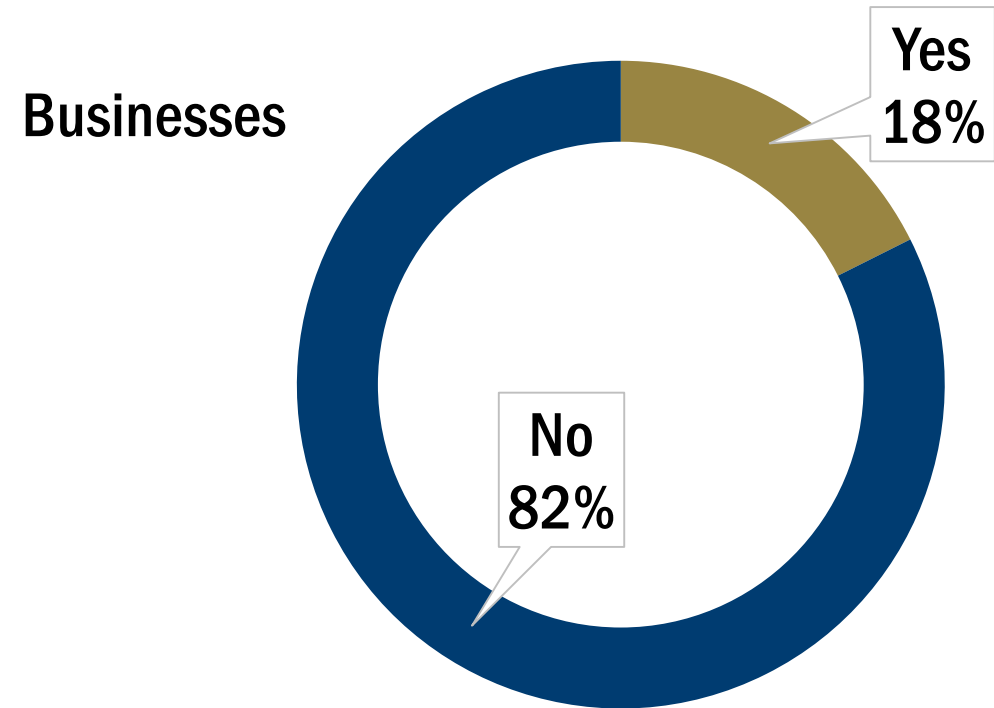
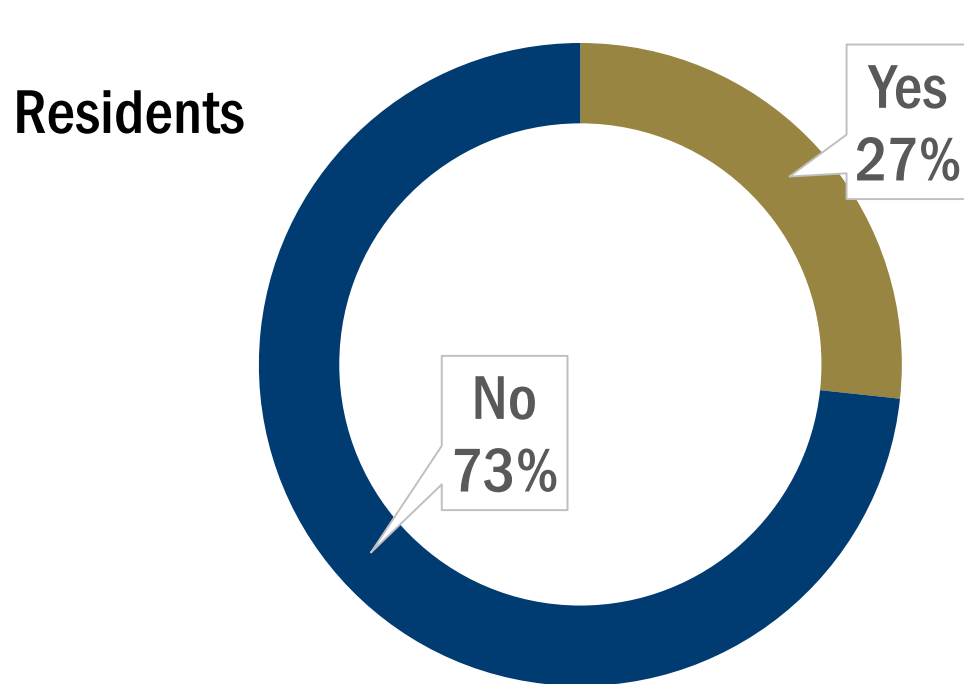
- 3.50 Proximity to job
- 4.62 Proximity to family
- 4.69** *Disaster risk*
- 4.83 Proximity to services and stores
- 5.02 Proximity to friends
- 5.43 Access to amenities such as parks, waterfront, etc.
- 6.57 Sentimental reasons
- 7.07 Current mortgage or lease related limitations
- 7.36 Proximity to school and or daycare
- 7.38 Availability of alternative housing
- 9.52 Other

Businesses

- 2.56 Existing customer base
- 4.13 Personal ties with the community
- 4.56** Disaster risk
- 4.88 Business ties with the community
- 5.75 Established business network
- 5.75 Cost of moving to another location
- 5.81 Effort required to move versus staying in place
- 6.44 Friendly business environment
- 7.44 Availability of the workforce
- 8.13 Availability of an alternative location
- 10.56 Other

Findings: Survey

“Did you any portion of the funds to make your home or business physically more resistant to a future flood or wind event?”



Discussion

- **Businesses and residents were similar in their rankings of factors influencing their location decisions: the highest ranked priority was economic, the second was personal, and the third was disaster risk.**
- **Receiving disaster assistance affected the decision to move or stay for 32% of residents and 19% of the businesses responding to our survey.**
- **Approximately 27% of residents and 18% of businesses responding to the survey used recovery funds to mitigate against a future disaster.**

Policy Implications

- **Business and residential decision-making is similar and inter-related. Buyout programs should consider both residential and commercial structures and mitigation planning should acknowledge the interdependencies of community sectors wherever possible.**
- **Recovery and mitigation processes are also highly related; leveraging recovery funds can be an importance tool for increasing mitigation, which can be made easier through education and prior planning.**

Thank you!

**Feel free to reach out at
maria.watson@ufl.edu**