

Income-based inequality in post-disaster migration
is lower in high resilience areas:
Evidence from U.S. Internal Migration

Ted Hsuan Yun Chen^{ab} Boyoon Lee^c

^aUniversity of Helsinki

^bAalto University

^cPennsylvania State University

September 30, 2021

Climate-change induced Natural Disasters and Migration



Steven Martin

"House Damaged by Hurricane Andrew, Leisure City" by Steven Martin (CC BY-NC-ND 2.0)

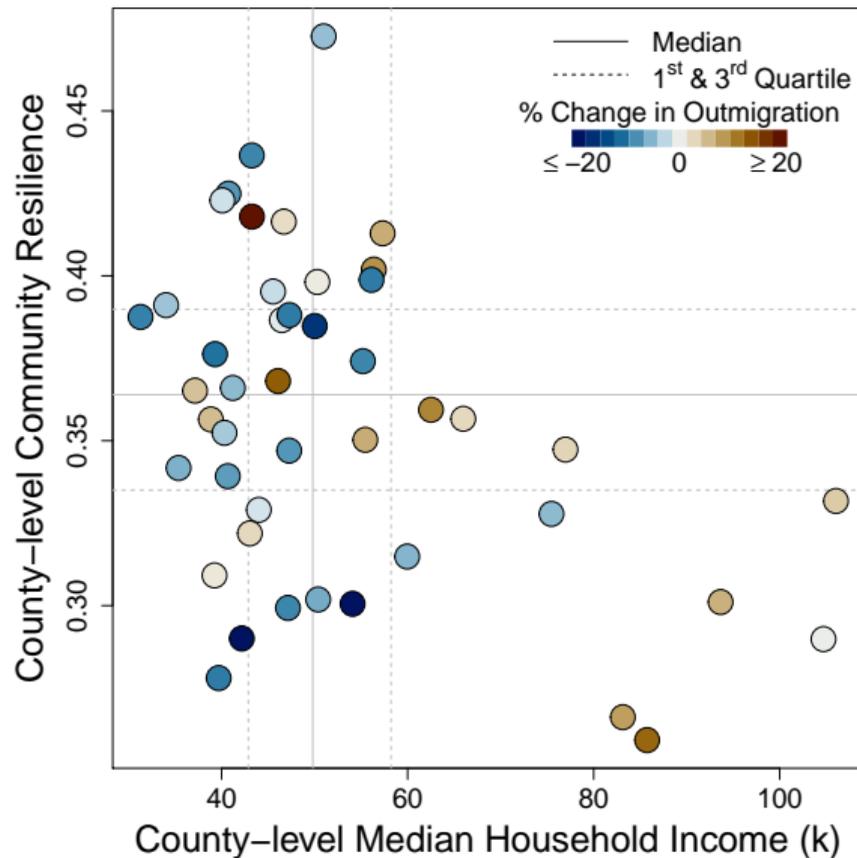
Questions about Post-Disaster Relocation

Do individuals respond to extreme weather events by relocating?

How does economic welfare impact decisions to relocate after natural disasters?

How does disaster resilience factor into this?

Income, Resilience, and Relocation



Empirical Approach

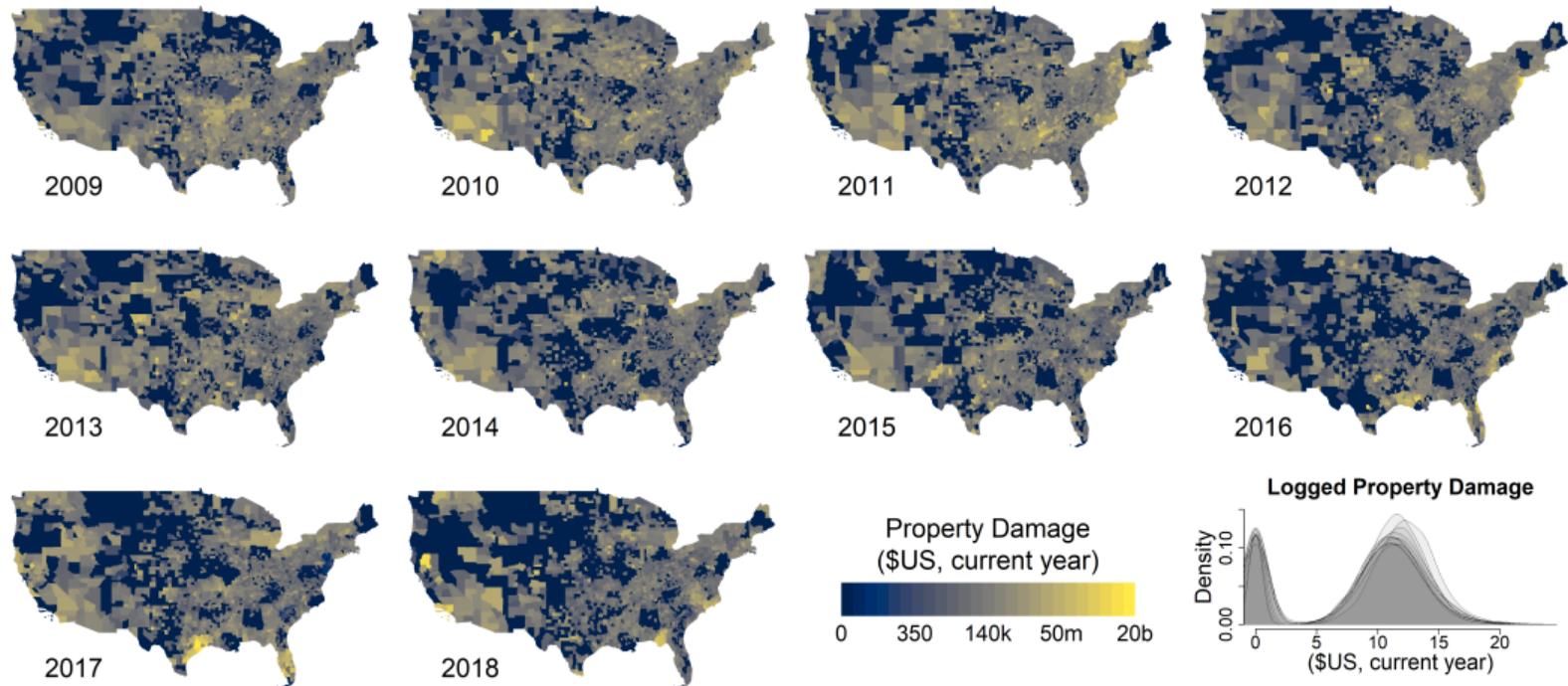
Data

- ▶ Network data on US county-to-county migration flow 2009-2018
- ▶ Natural disaster is measured in terms of property damage
- ▶ Income and other sociodemographic variables from the US Census
- ▶ Disaster resilience in two ways: community-level and institutional-level

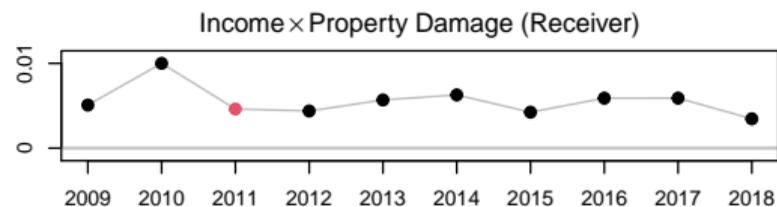
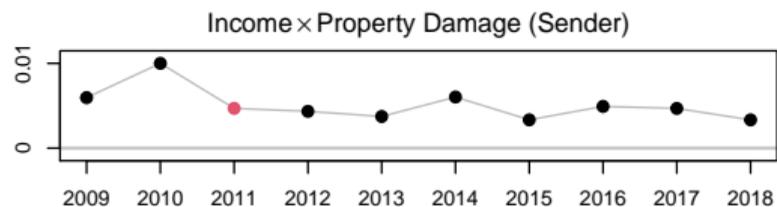
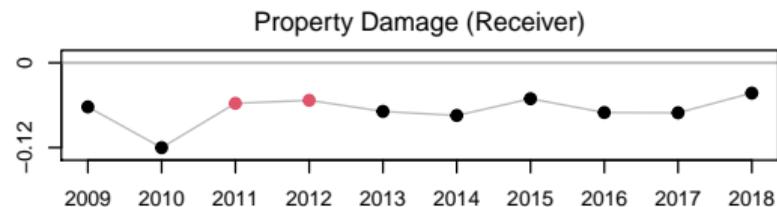
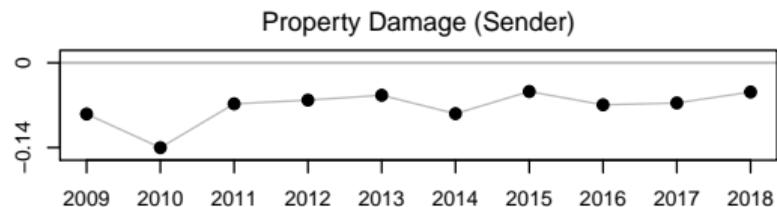
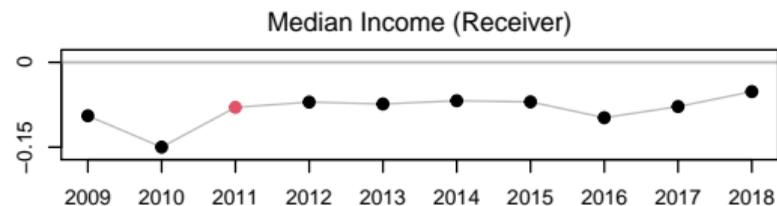
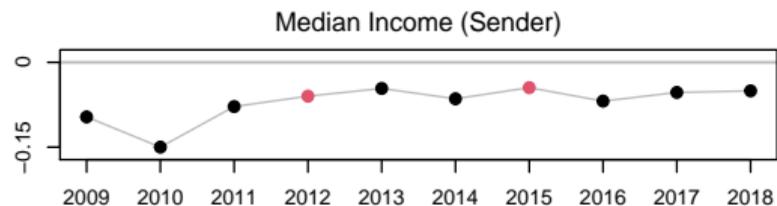
Methods

- ▶ Year-by-year gravity models of county-to-county migration flow
- ▶ OLS estimates with MRQAP testing

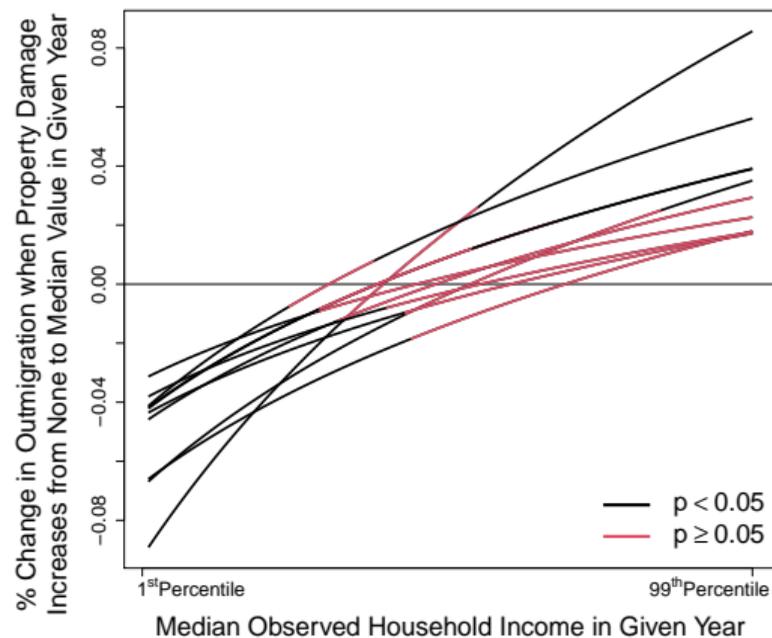
Disaster-induced Property Damage in the US



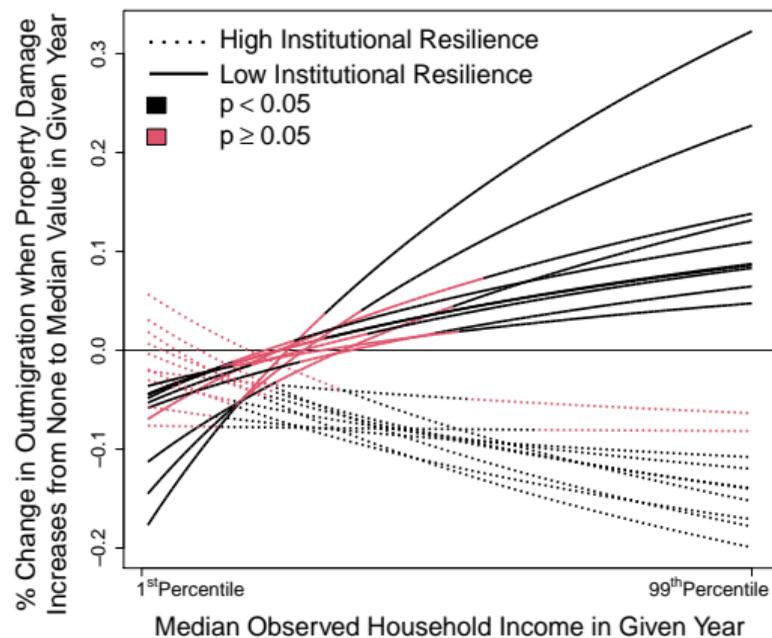
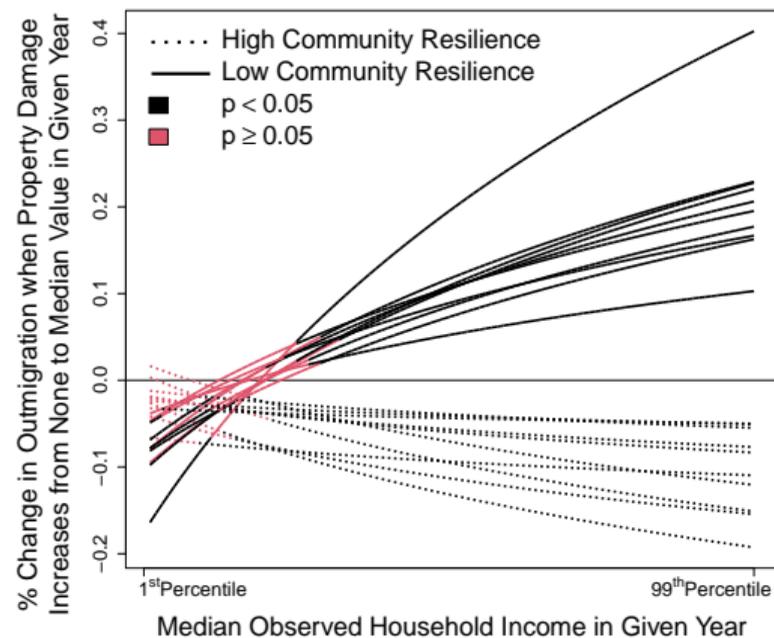
Findings: Overview



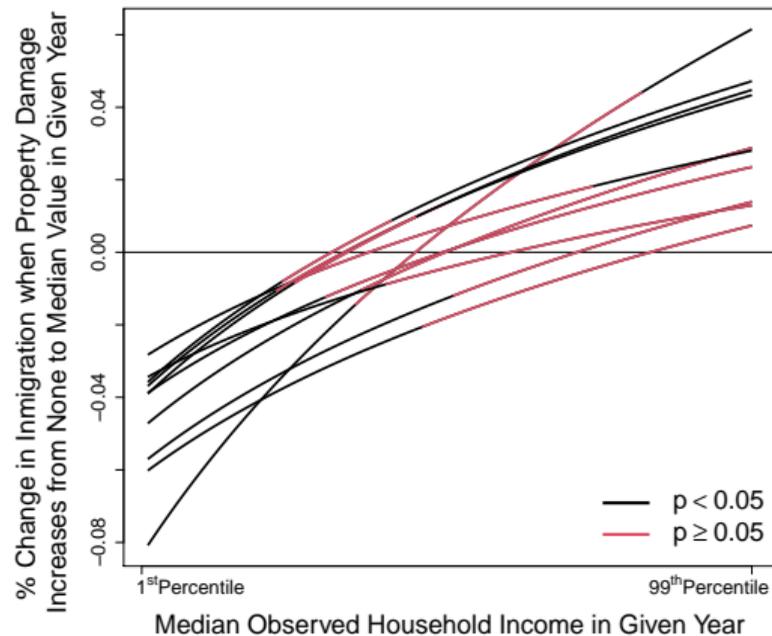
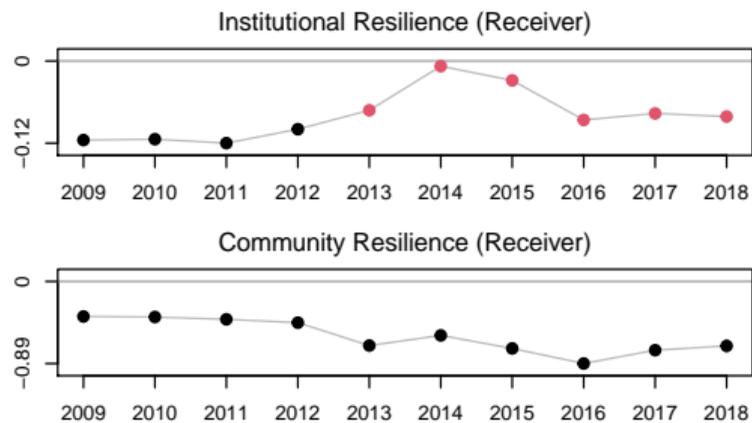
Income-based Inequality in Post-Disaster Migration



Disaster Resilience is Associated with Lower Income-based Inequality



Climate Factors Associated with Immigration



Summary

- ▶ Income-based inequality in post-disaster relocation is offset in areas with higher disaster resilience.
- ▶ However, people are more likely to stay in these areas, which may be detrimental to climate change adaptation in the longer term.
- ▶ Future work should look at incentives for equity in relocation from disaster prone areas.

✉ ted.hsuanyn.chen@gmail.com

🔄 tedhchen

🐦 @tedhchen

🏠 <https://tedhchen.com>

✉ boyoon.lee.lby@gmail.com

🔄 boyoon0715

🐦 @lee_boyoan

🏠 <https://boyoonlee.com>

Our paper is available at <https://osf.io/preprints/socarxiv/yvfqz/>

These slides are available at

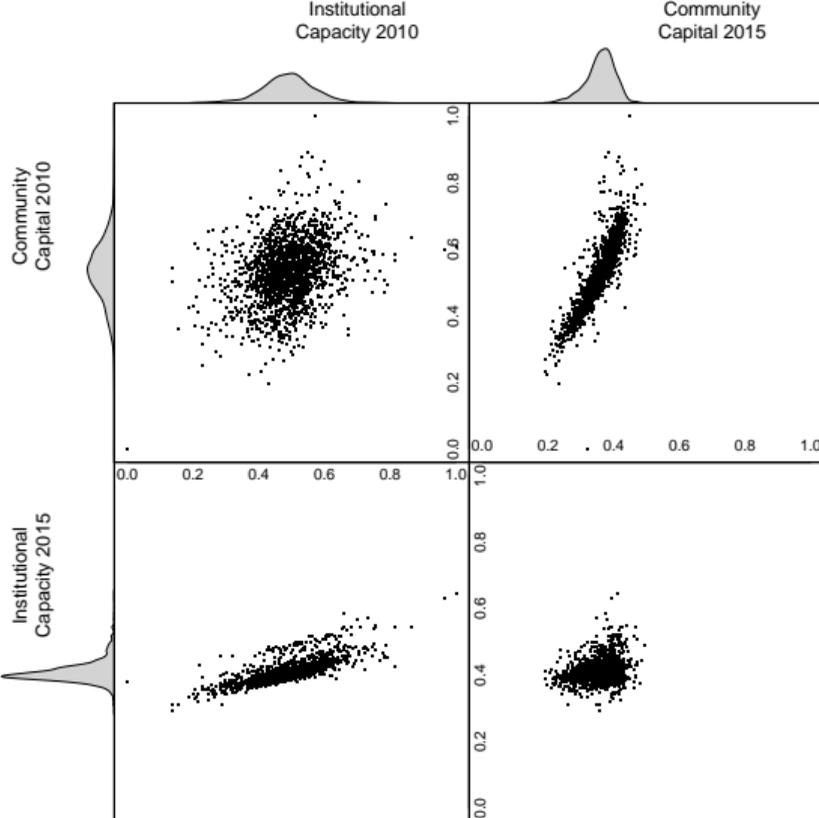
https://tedhchen.com/presentations/chenlee_apsa21.pdf

Model Terms

County-level Measure	Source	Included Model Terms		
		Sender	Receiver	Dyad*
Disaster-induced Property Damage	SHELDUS	•	•	
Median Household Income	ACS	•	•	•
Community Resilience	BRIC	•	•	
Institutional Resilience	BRIC	•	•	
Population	ACS	•	•	•
Median Age	ACS	•	•	•
Percent Bachelors or higher	ACS	•	•	•
Percent Unemployed	ACS	•	•	•
Percent White Population	ACS	•	•	•
Percent Native-born Population	ACS	•	•	
GOP Vote Share	MIT Election Lab	•	•	•
Percent Manufacturing Employee	NAICS		•	
Disaster-induced Bodily Harm	SHELDUS	•	•	
Geographical Location	-			•
State	-			•

*Dyadic measures are distance/similarity/homophily terms depending on the base measure.

Relationship between Resilience Measures



Joint distribution of property damage, household income, and resilience

