Flooding is one of the most economically damaging consequences of climate change, as it destroys infrastructure and homes, posing significant financial burdens on affected communities. As the intensity and frequency of flooding events increase due to climate change, governments have turned to managed retreat as a strategy to reduce long-term risk. Managed retreat involves the relocation of individuals from flood-prone areas, often through buyout programs where government agencies compensate residents for demolishing their homes and moving to safer locations. This approach has gained attention due to the growing awareness that traditional flood mitigation strategies, such as building infrastructure improvements, may inadvertently create a false sense of security—a phenomenon known as the levee paradox (Gissing et al., 2018). In contrast, flood buyouts offer a promising alternative by transforming the purchased land into open or greenspace, effectively halting future damage costs while also providing valuable ecosystem services. Despite the potential benefits, residents may be hesitant to participate in these programs for various reasons. A critical issue that arises in the context of buyouts is the “checkerboard effect,” where uneven participation across communities can result in a patchwork of vacant and occupied parcels, potentially raising taxes for those who remain. Understanding the dynamics of buyout participation and addressing challenges like contiguity is essential for ensuring the long-term success and fairness of managed retreat programs.

Flood buyout programs are becoming a key climate change mitigation strategy, with most programs being voluntary, though a few mandatory ones exist in North Dakota, Iowa, and Texas. Despite their potential benefits, residents may be reluctant to participate due to factors like inadequate incentives, strong community ties, or financial constraints (BenDor et al., 2020). Research has explored various influences on buyout decisions, including studies by Paul et al. (2024) showing that agglomeration bonuses and target constraints can increase participation through a lab experiment, and Ando & Reeser (2022) estimating homeowners' willingness to relocate using the contingent valuation method (CVM). Song & Peng (2017) use a survey to highlight the significant role of social ties in relocation decisions, with many participants expressing reluctance to move due to family connections. Robinson et al. (2018) identify factors like location, past flood experience, and race as key determinants of participation. This study is the first to estimate the revealed effects of peers on decisions through actual buyout outcomes, rather than stated preferences in surveys. Specifically, it asks: Does social connectedness increase contiguous participation in flood buyout programs, and what are the economic consequences of this increased participation?

In the peer effects literature, proximity is frequently used to define what a peer is. The only paper that has examined peer effects on natural disaster response behavior that I am aware of, however, used Facebook connections, estimate peer influence on flood insurance purchase. They employ a difference-in-differences methodology to compare changes in flood insurance purchases in treated counties (those with strong social connections to flooded areas) versus control counties (those with weaker connections. By comparing households from different areas, the design effectively isolates peer effects as the cause of any changes in flood insurance purchases Hu (2022). There have been no studies that have used neighbors as peers and estimated the effects of peer behavior on natural disaster mitigation behavior.

The policy implications of this research are significant for governments and organizations aiming to increase participation in buyout programs. Governments can strategically harness social networks and targeted campaigns to that influence communities indirectly by capitalizing on the social influence between individuals. Governments can target social networks for more effective awareness campaigns. Well-placed campaign could have a multiplier effect as people influence each other within their communities. Messages could be tailored to highlight how local communities or families and friends are benefiting from buyouts, with an emphasis on how these choices reflect shared values or communal decision-making. Governments can accelerate the adoption of managed retreat in a cost-effective manner.

I could estimate the impact of peer choices on a household’s decision to participate in a buyout using a regression with IV. The dependent variable in their regression is an individual’s decision to participate (dummy variable). Following Falco et al. (2019) I would use two IV strategies. First, I would identify a peer, j, of an individual, i, as someone who lives within a certain proximity to the individual. Then I would identify the peer-of-peer, k, as someone who is a peer of j, but not a peer of i. Then I would use the participation decision of the peer j as an independent variable in the regression, instrumented by the participation decision of the peer-of-

**Methodology**

To investigate the role of peer effects on an individual's decision to participate in a flood buyout program, I estimate the following empirical model

* is the dependent variable that indicates whether household i participates in the flood buyout program at time t.
* is the share of household i’s peers that participate in the flood buyout program
* is the negative attributes of the area that may drive an individual to relocate. These include attributes directly tied to the offer of a buyout (flood risk) and not (crime rates, poverty rates, other environmental factors).
* are time varying covariates like income, education, etc.
* household level fixed effects
* year fixed effects
* error term

The variable of primary interest is , which measures peer influence on an individual's decision to participate. In this setup, ​ represents the key coefficient of interest, capturing the effect of peer participation on an individual’s decision to move participate. A positive and statistically significant ​ would suggest that individuals are more likely to participate when a higher proportion of their peers participate, indicating a peer effect. To ensure a robust identification of peer effects, I employ instrumental variables (IV) to address potential endogeneity concerns, such as reverse causality or unobserved factors that may simultaneously drive migration decisions for both an individual and their peers. The addition of the variable , which captures the local environmental and economic factors that may independently influence migration decisions. By including these variables, I aim to isolate the effect of peer influence on buyout participation while accounting for external factors that might push individuals to leave their current locations.

The model also accounts for individual heterogeneity through the inclusion of individual fixed effects which helps control for any time-invariant individual characteristics that might confound the peer effect. Similarly, time fixed effects are included to control for broader, time-varying factors such as national policies, economic cycles, or other events that could affect migration patterns universally.

A central challenge in estimating the causal impact of peer migration is the potential endogeneity of the ​ variable. Aka ​ may be correlated with unobservable factors that influence the decision to participate. Specifically, individuals who decide to participate influence their peers' decisions to move (reverse causality), or both an individual and their peers may be affected by unobserved, common factors that influence migration (e.g., regional economic downturns or shared social networks). This creates the risk of bias in the estimation of ​. To address these issues, I use an IV approach, following the methodology of Falco et al. (2019). So the actual model is,

where is obtained from estimating .