**Research Question:** Does *social connectedness* increase contiguous participation in flood buyout programs? If so, what are the economic consequences of increased participation?

**Strategy for answering the research question:** 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-peer k. The second IV strategy is the same as the first, but using information sources (e.g. TV, news, etc.) available to the peer-of-peer rather than their buyout decision. This would require data on a people’s buyout decisions, demographics, house addresses, and house attributes for a particular buyout program.

**Peer Effects Literature:**

**Source:** Hu, Z. (2022). Social interactions and households’ flood insurance decisions. Journal of Financial Economics, 144(2), 414-432. <https://doi.org/10.1016/j.jfineco.2022.02.004>

**Summary:** Hu (2022) find that flood insurance purchases increase by 1-5% when geographically distant friends are exposed to flood events or to campaigns for flood insurance. They measure peer effects through the Social Connectedness Index, which is a network of Facebook connections.

**Source:** Di Falco, S., Doku, A., & Mahajan, A. (2019). Peer effects and the choice of adaptation strategies. Agricultural Economics, 50(6), 761–773. https://doi.org/10.1111/agec.12538

**Summary**: This study estimates the impact of peer choices on climate change adaptation strategies. They address concerns of endogeneity and simultaneity with two IV strategies. The dependent variable in their regression is an individual’s adaptation strategy (which could be a dummy variable or continuous depending on the situation). This is a problem in peer effects studies because if an individual is influenced by their neighbor to make a decision, that neighbor may also be influenced by the individual which creates a simultaneity problem. The first IV strategy they implement is the peer-of-peer approach. They identify a peer, *j*, of an individual, *i*, as someone who lives within a certain proximity to the individual. Then they identify the peer-of-peer, *k*, as someone who is a peer of *j*, but not a peer of *i*. Then they use the adaptation strategy of the peer *j* as an independent variable in the regression, instrumented by the adaptation strategy of the peer-of-peer *k*. The second IV strategy that they use is the same as the first, but they use the information sources (e.g. TV, news, etc.) available to the peer-of-peer rather than their adaptation strategies.

**Source:** Bollinger, B., Burkhardt, J., & Gillingham, K. T. (2020). Peer effects in residential water conservation: Evidence from migration. American Economic Journal: Economic Policy, 12(3), 107–133. https://doi.org/10.1257/pol.20180378

**Summary**: This study estimates the impact of peer effects on water consumption using a linear**-**in-means model, where the goal is to determine how a household’s behavior is influenced by the behavior of its peer group. The dependent variable in the model is the household’s own water consumption, and the key explanatory variable is the average water consumption of its peers from the previous year—this captures the peer effect. Peers are defined in terms of proximity: households within a defined distance are considered neighbors. To address the simultaneity problem, where household consumption could influence peer behavior and vice versa, the study uses lagged peer behavior—the previous year’s water consumption of neighbors—to ensure that the household’s consumption is affected by past decisions of its peers, but not the other way around. To tackle self-selection—the concern that households with similar preferences may choose to live near each other—the study includes fixed effects for both the household (to control for time-invariant characteristics like preferences) and the census block × year (to control for local, time-varying factors like economic shocks or neighborhood changes). Furthermore, the study implements an instrumental variables (IV) strategy to address concerns of unobserved factors that could simultaneously affect both the household’s and its peers’ water consumption. The IV used is the lagged fraction of movers in the neighborhood, which is assumed to be correlated with the peer group’s past behavior but uncorrelated with unobserved factors that might confound the estimation of the peer effect (such as local economic conditions or environmental shocks).

**Source:** Bigler, P., & Janzen, B. (2023). Green spills: Peer effects in pro-environmental behaviors. SSRN. https://doi.org/10.2139/ssrn.460807

**Summary**: This study examines the impact of solar photovoltaic (PV) adoption on the energy-related behaviors of neighboring households (e.g., adoption of green electricity, electric vehicle purchases). The authors estimate a regression model where the dependent variable represents a household's energy-related behavior, and the key explanatory variable is the lagged, distance-weighted density of solar PV installations among nearby households (peers). The coefficient on this variable captures the peer effect, showing how the adoption of solar PV by neighbors influences a household’s decision to adopt similar behaviors. Peers are defined by proximity, and the peer effect is measured through a distance-weighted density of solar PV installations, which accounts for the influence of past peer behavior rather than current decisions. To address simultaneity, the model uses the previous year's peer solar PV adoption. For self-selection and correlated unobservables, the authors include fixed effects at the household and zip-code-year levels. Additionally, they employ an instrumental variable (IV) approach to deal with potential endogeneity. The IV is based on peer rooftop solar PV potential, which measures the expected solar irradiance per square meter of roof space, considering building and geographic factors, and is interacted with global solar PV prices. This instrument works because it is correlated with the peer solar PV density, but uncorrelated with unobserved factors that might influence both the household’s energy behavior and that of their neighbors.

**Flood Buyout Participation Literature:**

**Source:** Paul, L. A., McGranaghan, C., Siders, A. R., Dineva, P. K., Palm-Forster, L. H., & Messer, K. D. (2024). Addressing coordination problems in residential buyouts: Experimental evidence for managed retreat in the face of climate change-related threats. Journal of Economic Behavior and Organization. <https://doi.org/10.1016/j.jebo.2025.01.004>

**Summary:** Paul et al. (2024) use a lab experiment and find evidence that agglomeration bonuses[[1]](#footnote-1) and target constraints[[2]](#footnote-2) combined with cheap talk increases the contiguity of flood buyouts

**Source:** Ando, A. W., & Reeser, C. (2022). Homeowner willingness to pay for a pre-flood agreement for a post-flood buyout. Land Economics, 98(4), 560-578. <https://doi.org/10.3368/le.98.4.052721-0056>

**Summary:** Ando & Reeser (2022) estimate homeowner willingness to pay (WTP)[[3]](#footnote-3) for a hypothetical

agreement to pre-commit to relocate if a flood using CVM.

**Source:** Song, J., & Peng, B. (2017). Should we leave? Attitudes towards relocation in response to sea level rise. Faculty of Architecture and Urban Planning, Key Laboratory of New Technology for Construction of Cities in Mountain Area, Chongqing University.

**Summary:** Song & Peng (2017) survey individuals about factors that influence the decision of whether to relocate from areas at risk of flooding. They find that social ties and social activities in the new community have lower rankings than most other factors when ranked on a Likert Scale[[4]](#footnote-4). 104 of 226 respondents said that family/social ties make them unwilling to relocate. 63 of 226 respondents said that they would consider moving if their relative or neighbors decided to move.

**Source:** Robinson, C. S., Davidson, R. A., Trainor, J. E., Kruse, J. L., & Nozick, L. K. (2018). Homeowner acceptance of voluntary property acquisition offers. Natural Hazards

**Summary**: Robinson et al. (2018) use regression analysis of stated preference survey data to examine the relationship between buyout program attributes and participation. They find that location, shorter expectation of living there in the future, past flood experience, less feeling of control, and being White are associated with higher participation rates.

1. Agglomeration bonuses are additional bonuses if residents move in group with their neighbors. [↑](#footnote-ref-1)
2. A target constraint is when the government imposes a minimum level of participation for buyout to go through. [↑](#footnote-ref-2)
3. They estimate average WTP of about $600. [↑](#footnote-ref-3)
4. Social activities is 3.64 while social ties Is 3.7 out of 5. [↑](#footnote-ref-4)