

Flooding, Cross-county and Within-County Migration, and Urban Form in US Counties between 1990 to 2019

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Abstract : Diverging from previous literature that discusses the relationship between urban form and flooding risk solely from the perspective of physical factors such as the built environment, this study integrates human behavior and migration into the framework. It argues that migration stimulated by perceived flooding risk has the potential to reshape urban form and subsequently react to flooding risk. It examines the effect of flooding frequency and intensity on migration and urban structure in 2378 counties across the United States from 1990 to 2019. The preliminary results demonstrate that flooding frequency and intensity reshape the urban structure and flooding risk through different mechanisms. While frequency alone does not directly impact urban structure, it exhibits a negative correlation with net migration, and migration is negatively related to the fragment dimension of a city. However, migrants play a mediating role in the relationship between flooding intensity and urban structure. Specifically, while flooding intensity tends to make cities more compact, human behavior, represented by migration, acts as a counterforce, leading to urban sprawl and increasing flooding risk. Furthermore, this study differentiates the role of cross-county migration and within-county migration stimulated by flooding on shaping urban form.

Keywords : urban form, flooding risk, migration, risk perception

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