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The 2035 Initiative | Research Policy Brief

Public Favors Building Barriers Over Moving Away: Evidence from Flood Adaptation Choices in the U.S. and Germany

Across nationally representative samples in the U.S. and Germany, the public shows a strong preference for flood protection infrastructure over relocation policies, even when relocation could reduce long-term costs.

Based on Freihardt, J., Buntaine, M. T., & Bernauer, T. (2024). Choosing to protect: public support for flood defense over relocation in climate change adaptation. Environmental Research Letters, 19(10), 104012. https://iopscience.iop.org/article/10.1088/1748-9326/ad6781/meta

The Policy Problem

As climate change accelerates, communities worldwide face mounting threats from rising temperatures, sea level rise, and increasingly severe floods, underscoring the urgent need for substantial investments in adaptation. Among these hazards, floods stand out for their devastating impacts on lives, infrastructure, and economies, and require costly measures to reduce their impact. Policymakers are increasingly confronted with a difficult choice: whether to continue investing in costly flood protection infrastructure that enables communities to remain in place, or to promote managed relocation from high-risk areas to safer ground. While infrastructures like levees, embankments, and floodwalls can help protect existing settlements, the general public might oppose these measures if they require substantial public spending but benefit relatively few people. Managed relocation, by contrast, may offer a more sustainable and cost-effective long-term strategy, but it poses major political and social challenges. This has created a pressing policy challenge for flood adaptation governance worldwide: how closely do policymakers and the public align in allocating scarce resources between protection and relocation, and do public preferences support managed retreat when it may be the more cost-effective option?

Key Findings and Proposed Solutions:

- Across the U.S. and Germany, respondents in nationally representative surveys tasked with allocating funding for flood adaptation among hypothetical communities strongly favored funding protective infrastructure rather than relocation incentives, even in areas facing frequent floods.
- When allocating limited adaptation funds, the number of lives at risk influenced public choices far more than potential economic or property losses.
- Public priorities did not align with economic efficiency, suggesting that people value community preservation and protection more than cost-effectiveness.
- Support for protective measures was highest among homeowners and those not personally exposed to flood risk, indicating that direct experience with floods moderate preferences.
- These preferences highlight a major political obstacle for implementing managed retreat or relocation strategies, even when such policies may be more cost-effective and sustainable in the long term.

What We Found

The public shows a clear and consistent preference for funding protective infrastructure over relocation incentives, even in communities that experience frequent floods, where relocation would be the more economically efficient option. This preference persists regardless of economic conditions, indicating that public support is driven less by cost-effectiveness and more by a desire to help preserve communities. Across both the United States and Germany, respondents placed greater weight on saving lives than on protecting economic assets when deciding how to allocate public funds. Support for protective infrastructure was especially strong among homeowners and individuals who are not personally exposed to flood risks. Overall, the findings reveal that public opinion tends to favor visible, place-based protection rather than managed retreat, highlighting the political challenges of implementing relocation policies as a strategy for managing flood risk.

What We Did

The study used nationally representative surveys in the United States and Germany to explore how the public prioritizes different climate adaptation strategies. Participants of a nationally representative survey were asked to allocate a fixed amount of public funding between two hypothetical, equally sized communities that varied across key characteristics, including flood frequency, potential loss of life and property, economic vitality, political orientation, proximity to the respondent, and whether the community proposed to use the grant for protective infrastructure or relocation incentives. Each respondent completed five rounds of funding allocations between pairs of communities and indicated their overall support for each. Factors most influencing public support for protective versus relocation-based adaptation approaches were identified by experimentally varying attributes of the communities. This design simulates real-world policy trade-offs within a fixed public budget, providing insight into how the general public prioritizes climate adaptation spending at the national level.

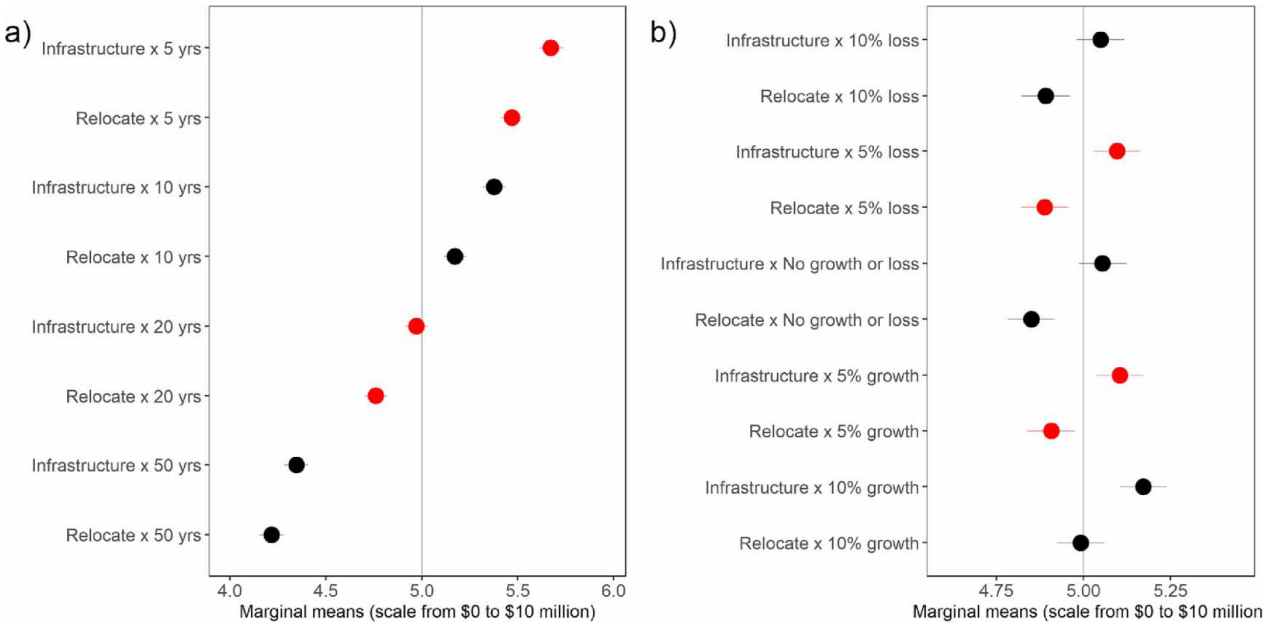


Fig. 1 *(Figure 2 in the paper).* Marginal means of the interaction between program type and (a) flood frequency; and (b) economic vitality. This figure illustrates the proportion of respondents who prioritized funding for communities with different characteristics. The left panel shows that while respondents tended to allocate more funds to areas facing frequent flooding, they consistently preferred funding protective infrastructure over relocation incentives. The right panel indicates that respondents' funding choices were not strongly influenced by a community's economic competitiveness, while their preference for infrastructure investments over relocation incentives remained consistent. Error bars: 95% CI. Colors depict identical levels of flood frequency/economic vitality.