



UNPRICED CLIMATE RISK AND OVERVALUATION IN US HOUSING MARKETS

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New economic research by Gourevitch et al. (2023) has revealed hidden risks and overvaluations in the United States real estate market, particularly impacting low-income households.

According to this report, the U.S. real estate market is not fully accounting for the growing risks posed by climate change. Federal flood maps do not reflect the scope of risk in a warming world, and buyers are ignorant of, or not accepting, the dangers of climate change.

The researchers estimate that across the U.S., properties in vulnerable areas are overvalued by \$121 billion to \$237 billion.

They warn that individual homeowners will not be the only ones facing the financial fallout, because municipal governments that rely heavily on value based property taxes could face large budget shortfalls as flood-prone homes lose value or become uninhabitable.

A significant proportion of overvalued properties are concentrated in communities along the Atlantic and Gulf coasts that have high exposure to hurricanes and rising sea levels, lax flood-disclosure laws, and a high proportion of residents who do not view climate change as an imminent threat.

The study of climate risk to property values used the property-specific, climate-adjusted First Street Foundation flood model.

To generate these estimates, the authors evaluated the extent to which property values already account for the costs of flooding.

They then compared those price discounts with property prices that fully capture expected damages from flooding over the next 30 years. The resulting publicly available information can be used to identify the contribution of climate-related flood risk to the overvaluation of individual properties and local housing markets.

These risks are largely unaccounted for in property transactions, encouraging development in flood-prone areas. Accurately pricing the costs of flooding in home values can support adaptation to flood risk but may leave many homeowners worse off.

There is a significant amount of unidentified flood risk across the country due to differences between the publicly available Federal flood maps and the reality of actual flood risk.

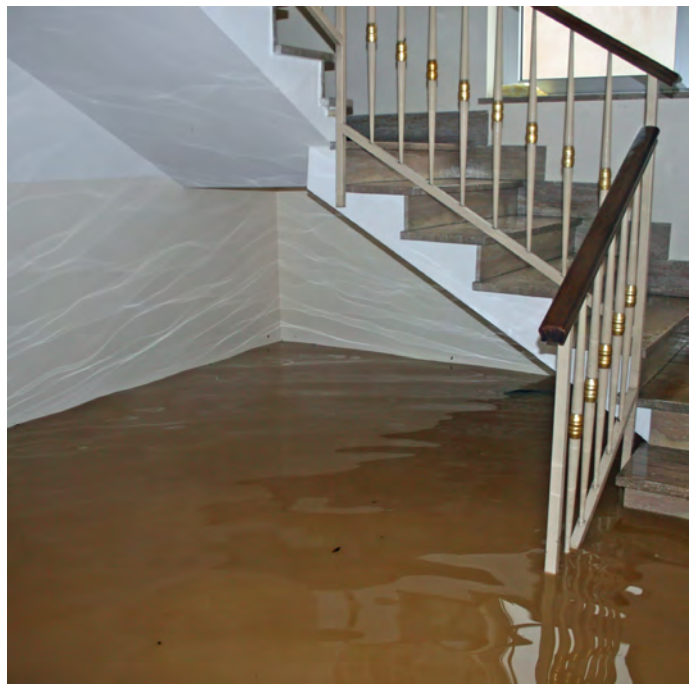
Realisation of that unknown risk will have significant implications for both individual property values and the health of the larger housing market.

Currently, more than 14.6 million properties in the United States face at least a 1% annual probability of flooding, with expected annual damages to residential properties exceeding US\$32 billion.

Increasing frequency and severity of flooding under climate change is predicted to increase the number of properties exposed to flooding by 11% and average annual losses by at least 26% by 2050. The increasing cost of flooding under climate change has led to growing concerns that housing markets are mispricing these risks, thus causing a real estate bubble to develop.

The study found that highly overvalued properties tend to be concentrated in counties along the East and Gulf Coasts that have no flood risk disclosure laws and where there is less concern about climate change. In particular, properties in Florida are overvalued by more than US\$50 billion.

Low-income households are at greater risk of losing home equity from price deflation due to anticipated flood risk. The study found that low-income households stand to lose as much as 10% of their market value.



In addition to the impacts to homeowners, municipalities that are heavily reliant on property taxes for revenue are also highly vulnerable to budgetary shortfalls. These municipalities are concentrated in coastal counties, as well as inland areas in northern New England, eastern Tennessee, central Texas, Wisconsin, Idaho and Montana.

In these areas, local governments may need to adapt their fiscal structure in order to continue to provide essential public goods and services and to cover costs of additional damage due to climate change related flooding and coastal inundation. That is there will be less revenue due to lower valued properties but greater costs due to the damage from natural disasters.

This indicates that flood risk is not just a homeowner's problem, but is also a problem for entire communities, cities, and housing markets.

A large portion of overvaluation is driven by properties located outside of the Special Flood Hazard Area (SFHA), identified by the United States Federal Emergency Management Agency (FEMA) as having a 1% annual chance of being flooded. Properties located outside the SFHA comprise 83% of all properties at risk of flooding and contribute 69% of the total overvaluation in dollar terms.

Most of the overvaluation comes from homeowners that are not currently aware that they have significant risk of flooding. This focus on a 1% probability instead of a consequences-based approach to flood modelling and damages is naïve.

Flooding and coastal inundation are of course possible beyond the 1% and there can be severe consequences for life and property at lower probabilities (less frequent events) with high water depths even if those properties are unaffected during a 1% event. Australia's Hawkesbury-Nepean Basin has locations with 0m water depths at the 1% but greater than 3m water depths at the 0.2% (1:500 event).

There is a clear need to improve flood risk communication via updated flood maps, broadened flood risk disclosure laws at the state and federal level, and increased investment in flood risk reduction.

The timing, speed, and extent of the devaluation will depend on institutional, policy, and regulatory adaptation responses to increasing flood hazards, all of which will impact who bears the financial burden of climate-related disasters: individual homeowners, taxpayers, or mortgage lenders.

REFERENCES

Gourevitch, J.D., Kousky, C., Liao, Y. et al. Unpriced climate risk and the potential consequences of overvaluation in US housing markets. *Nat. Clim. Chang.* (2023). <https://doi.org/10.1038/s41558-023-01594-8>

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