

As cities shore-up infrastructure to protect against climate change, what happens to property values?

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As global climate change drives extreme weather and causes sea levels to rise, residences and other buildings in certain vulnerable areas are facing an increasing risk of damage. This threat has prompted many

municipalities to develop mitigation projects to strengthen infrastructure and protect against potential damage, a host of efforts collectively known as adaptation.

These measures hold promise, with some calculations estimating they could reduce coastal property damage from sea level rise as much as 90%. A new paper in the *Journal of the Association of Environmental and Resource Economists* finds that [property values](#) in one county increased upon local completion of these projects, indicating that the majority of such mitigation efforts are being implemented in areas where their benefits outweigh their costs.

The success of such adaptation projects requires detailed analysis of their upfront costs and future benefits. In "Adaptation Infrastructure and its Effects on Property Values in the Face of Climate Risk," authors David L. Kelly and Renato Molina evaluate the effect of adaptation infrastructure investments on property values, using property transaction data from Florida's Miami-Dade County, an area vulnerable to flooding, [storm surges](#), and rising sea levels.

The authors focus on three areas of inquiry, in particular: if flood risk is a significant concern for buyers, if protecting a coastal property is more efficient than retreating from it, and if [climate change](#) is itself reflected in property values.

In their study, the authors used a data set consisting of over four hundred thousand property transactions and 162 fixed infrastructure projects that addressed these impacts, including projects to lift streets, stabilize shorelines, and install drainage, reservoirs, and sea walls. Because infrastructure projects are deployed heterogeneously across various municipalities, the authors also tracked individual property values across different communities before and after adaptation initiatives.

They controlled for the fact that adaptation projects are not implemented randomly, but according to priority guidelines, and for other unobserved variables that may also affect flood risk and property values.

Ultimately, the authors found that property values increase upon completion of adaptation initiatives. Notably, properties near or within the boundaries of adaptation projects receive a statistically significant price boost: about 5-10% five years after the projects' completion. Larger and more visible projects generated the highest benefit, whereas hard to see projects like pumping stations generated smaller benefits. The further a property is from the confines of a specific [project](#), the lesser this effect.

While the price gains are relatively small per property, the authors note that in a dense urban county like Miami-Dade, [infrastructure projects](#) can affect and protect thousands of properties. They calculate the total net benefits for all projects they examined to be \$285 million.

"Together, these results provide evidence that property buyers and sellers are both aware of the cost of flooding and storm surge resulting from climate risk, but also aware about the benefits from adaptation," write Kelly and Molina.

Even if ambitious global carbon emission reduction goals are met in the coming decades, "inertia in the climate system will result in continued [sea level](#) rise for many years," the authors write. "Coastal adaptation is an important tool for mitigating the impacts associated with climate change. Our results provide evidence that coastal communities can overcome barriers such as lack of funding, difficulty coordinating, and imperfect information to provide valuable adaptation infrastructure."

More information: David Kelly et al, Adaptation Infrastructure and its Effects on Property Values in the Face of Climate Risk, *Journal of the Association of Environmental and Resource Economists* (2023). [DOI](#):

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