California Real Estate Opportunities in an Age of Climate Change

By: Matthew E. Kahn, Provost Professor of Economics at USC and a Visiting Fellow at the Hoover Institution

California real estate both contributes to the climate change challenge and is directly impacted by the physical risks caused by climate change. Real estate construction and operation uses fossil fuels. For decades, California's leaders have introduced legislation to decarbonize this sector. Such mitigation efforts have focused on decarbonizing the power grid, introducing energy efficiency standards, incentivizing solar roof installation and the electrification of homes. My work on "solar homes" took MLS data at the home level and asked the following question; "for two homes in the same California zip code that have roughly similar structure attributes such as bedrooms and bathrooms, what is the price premium for the home that has solar panels?" Back in 2013, our estimate was roughly a 3% increase in the sales price.

California's real estate has always faced local risks such as earthquakes, drought and recession. Climate change poses new physical risks as the likelihood of extreme heat, wildfires and floods has increased. Insurers have responded to rising risks by raising premiums on properties but regulatory price ceilings limit their ability to sharply increase rates. In recent months, many California real estate owners (including myself, and my mother in-law) have been dropped by our insurance providers.

My recent adaptation research focuses on how to unleash market competition to improve the resilience of the real estate sector so that extreme weather events cause less real estate damage.

A Personal Example of the Adaptation versus Mitigation Tradeoff

I live in a home built in 1962 in Westwood. When we bought this home in 2008, we installed central air conditioning. We anticipated that our Western Los Angeles community has been getting hotter and that the summer heat would continue to grow worse. Our investment in our own resilience to the heat helps my family to adapt but our power is not 100% green. Thus, our adaptation efforts contribute to the global greenhouse gas mitigation challenge. The Good News is that the California grid is decarbonizing over time.

The "Silver Lining" of Bad News

On an almost daily basis, the major newspapers publish stories about extreme local weather. As more and more property buyers are increasingly aware that they know that they do not know what crazy weather may unfold over the next few years, there is an increased demand for trusted information. Such aggregate demand has created a new market for pinpoint climate science prediction teams. They are using satellite data and advanced climate models to offer these predictions. These predictions represent both "Art and Science" and should not be taken literally! As these Climate Tech startup firms compete, their models will improve in quality and this means that informed real estate buyers will be better informed and less likely to regret their California investment decisions.

Many environmental scientists are using low-cost air pollution sensors to measure how PM2.5 and other important ambient air pollution measures vary in areas where wildfire smoke drifts. Such wildfires are becoming more common on hot, dry days. Researchers are deploying both indoor and outdoor monitors to measure how much air pollution penetrates into homes. As our understanding of our exposure challenges increases, this fuels demand for private sector air filters and other adaptation devices. This provides a profit incentive for entrepreneurs to devise new ways to protect our real estate from rising risks. In short, the potential for pollution damage creates an adaptation profit opportunity.

Home buyers value such information on emerging risks. In recent research, my co-authors and I partnered with Redfin and one of the major climate risk data providers, First Street Foundation, to study a nationwide national flood risk information experiment. A randomly selected group of Redfin platform home searchers were assigned to receive the flood risk scores for the properties they were looking at. As compared to a control group, those home buyers who had previously been looking at high flood risk properties subsequently changed their behavior and searched for safer homes and if they continued to consider buying a flood risky home, they bid a lower amount for the home. We also found that this effect was the same for people searching in counties that voted for Joe Biden in 2020 and counties that voted for Donald Trump in 2020. Across the political spectrum, home buyers want to know about the emerging risks of the properties they are considering. In recent years, platforms such as Realtor.com and Redfin have been posting the climate risk scores for properties and educating the public about fire risk, heat risk, PM2.5 risk, flood risk and wind risk.

Real Estate Owners Are Not "Passive Victims"

Suppose that Matthew owns a beautiful California home that due to climate change is now in a fire zone. Going forward, Matthew faces a double whammy. In recent months, insurers have been raising insurance rates and even dropping coverage. If more and more home buyers are

informed about my property's risks, they will bid less aggressively for my home and I will collect less money when I sell. Am I a victim here of climate change? On the one hand, I would say yes! If there hadn't been climate change (caused by global greenhouse gas emissions), my home would face less fire risk and my location's land would be more valuable. At the same time, I am not a passive victim. There are many proactive steps I can take to reduce my home's fire risk EVEN if I am in a fire zone. The open question here is how many incumbent California homeowners will take these steps? Will they be more likely to take them if insurers reward such good behavior by offering lower insurance prices? For example, could an insurer fly a drone over Matthew's house to verify that he has taken the precautionary steps such as tree trimming and even having goats eat nearby vegetation!

My Optimistic Sketch of California Real Estate Markets in the Year 2040

Millions of California homeowners have made place-based bets that our state will continue to be a wonderful place to live. Climate change poses new quality of life threats. Incumbent homeowners have strong incentives to invest to make their homes more resilient to these shocks. If they do not succeed, then their resale value of their homes will be lower.

As millions of real estate owners seek risk reduction strategies, this creates a huge market for entrepreneurs who can deliver cost-effective new products ranging from special roofs and windows to vegetation pruning devices and air filters. The expectation of misery creates new business opportunity!

California's land area is 164,000 square miles. Across this huge area, climate science will identify geographic areas that face less extreme heat, flood and fire risk. Ideally, California's local and state governments will figure out land use rules to encourage densification in the relatively safer areas. Building more multi-family housing in such areas would allow more middle-class people to avoid extreme weather.

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