



MARKET Perceptions

PFAS contamination, residential real estate values, and eminent domain

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This is a summary of a journal article by Orell C. Anderson, MAI, Chris Yost-Bremm, PhD, Stephen G. Valdez, Jason Borrás and Tara Harder. For the full article, please see “PFAS Contamination and Residential Property Values: A Study of Five U.S. Sites within the Assessment Stage of the Remediation Lifecycle,” The Appraisal Journal (Winter 2022): 26–50.

Per- and polyfluoroalkyl substances (PFAS) have become a growing concern to property owners and agencies in recent years due to their widespread presence and potential adverse effects on human health and the environment. PFAS are a family of synthetic chemicals comprising thousands of compounds, including the most prevalent types, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). These were produced in the U.S. for various commercial, military and industrial purposes from the 1940s until their production was phased out in the early 2000s. PFAS chemicals are water and oil repellent and heat-resistant, making them suitable for numerous applications in consumer and industrial products like nonstick cookware, Aqueous Film Forming Foam (AFFF), waterproof clothing, carpet materials and food packaging. The regulatory status of PFAS is unclear at the time of the study. While the Environmental Protection Agency (EPA) is considering appropriate regulations and remediation requirements for PFOS and PFOA, the only federal standards established for over a decade are self-reporting requirements for PFAS releases.

This article presents findings from a hedonic analysis conducted on five unique residential real estate markets in Georgia, Alaska, Wisconsin, California and Arizona. The five source sites of study are a wastewater treatment plant in Georgia and four airports in Alaska, Wisconsin, California and Arizona. These markets have potential public awareness of PFAS contamination, raising pertinent questions about the potential implications on property values and market dynamics. The hedonic analysis utilizes the ATTOM Data Solutions database comprising property features and recorded sales data from 2005 to 2019. The

study's primary variable is included to quantify the differences in property values between test and control regions before and after the discovery of contamination. The study uses sensitivity analysis and buffer zones to test whether single-family homes located within 1.5 miles of five known source sites had statistically significant differences in prices from those located between 1.5 to 10 miles from the source sites following public awareness of PFAS contamination. As part of the sensitivity analysis, the authors employ differences-in-differences hedonic model specifications to test the price effects of public awareness of the PFAS contamination, which requires before and after periods with a discrete date cutoff.

In Georgia, for example, August 10, 2010, was selected as the cutoff date since it is the date Dalton Utilities reported the PFAS testing results of private wells near the Loopers Bend wastewater treatment facility to the EPA. Similarly, in Alaska, the stakeholder meeting on December 18, 2017, is the cutoff date for public awareness of drinking water contamination near the Fairbanks International Airport. In Madison, Wisconsin, the study uses the community meeting held on March 6, 2019, to determine the date of public awareness of contamination in homes near the Truax Air National Guard Base. The cutoff date for public awareness of PFAS pollution around the Mather Airport in California was January 1, 2016, the date of the testing results. Lastly, the study utilized October 16, 2016, the date of a public meeting, as the date of awareness for homes near the former Williams Air Force Base in Mesa, Arizona.

The research indicates that the impact of PFAS contamination on local real estate values varies significantly across the five geographical areas examined. In Dalton, Georgia, the Loopers Bend Wastewater Treatment Plant does not significantly affect the nearby property values, potentially because the municipal water supply is a mitigating factor, and property-specific features are prioritized over environmental factors. Similarly, no noticeable effect is observed near the Fairbanks International Airport in Alaska, perhaps due to other pre-existing industrial uses and a lack of demand for housing in the area. In Madison, Wisconsin, homes near potentially contaminated municipal water sources sell at higher prices after the assumed awareness date, which is unexpected and may be attributed to the strong positive trends in the real estate market. Mather, California, is the only location where a reduction in property value is detected. Homes within 1.5 miles of the Mather Airport sell for 2.4% to 2.5% less than homes between 1.5 and 10 miles away. The findings in Mesa, Arizona, near the Phoenix-Mesa Gateway Airport, were mixed, with the linear model showing a negative effect and the log model revealing no difference between proximate and distant properties.

The hedonic regression analysis reveals that the impact of public knowledge regarding PFAS contamination on property prices varies depending on the specific location, likely due to the presence of mitigating factors or pre-existing conditions. The disparate results found in different areas suggest that more geographically targeted research is necessary. Although the study accounts for factors such as property characteristics and local market conditions to isolate the effects of public awareness on property

value, it doesn't consider the actual knowledge or legal disclosure of PFAS by specific market participants. Additionally, the study focuses only on the assessment stage of the remediation process, and the effects of cleanup have yet to be determined.

In conclusion, the impact of public knowledge regarding PFAS contamination on property prices may or may not have significant implications for property owners and agencies facing eminent domain proceedings. As agencies consider acquiring properties in these areas for public projects, conducting more geographically targeted research to fully understand how PFAS awareness influences property valuation in each location is imperative. Additionally, due diligence is key in understanding the potential liabilities with acquiring potentially contaminated sites. 📍



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