First Street

# The 12th National Risk Assessment
# Property Prices in Peril

# THE STANDARD FOR CLIMATE RISK FINANCIAL MODELING

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For almost a decade, First Street has empowered governments, leading financial institutions, top asset owners, and global corporations to assess, analyze, and act on climate risk with confidence, generating outsized returns.

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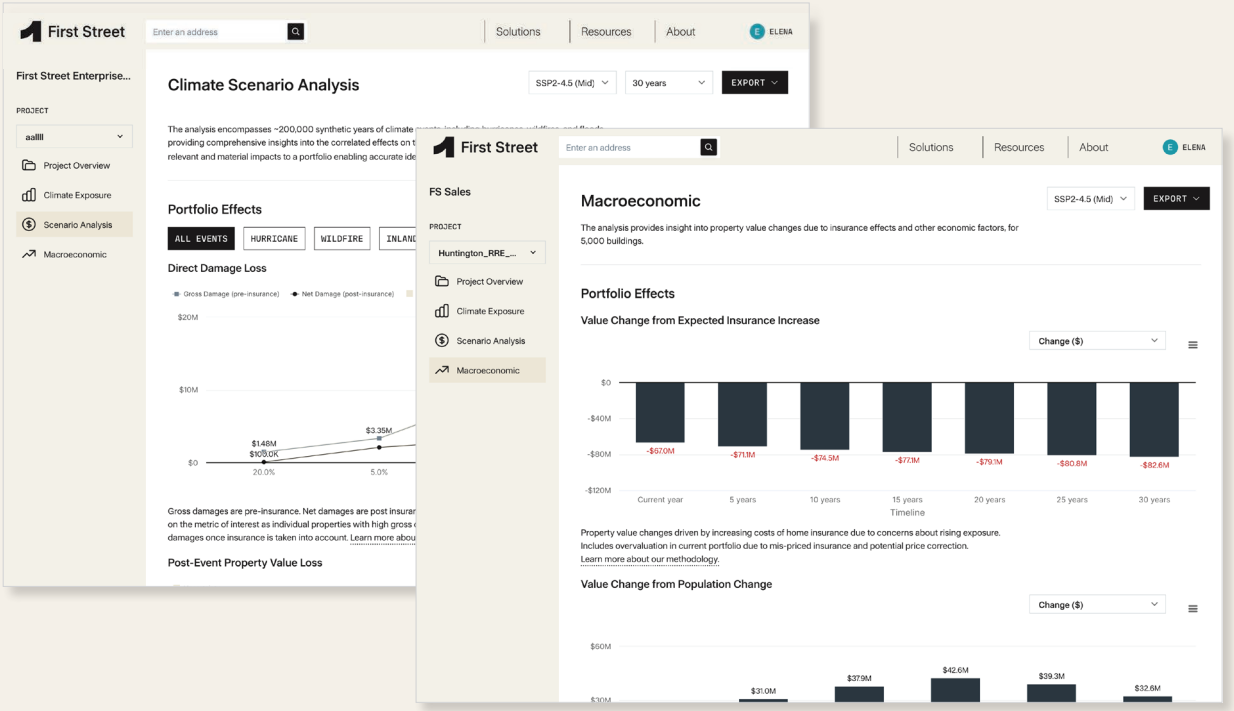


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### High Resolution Models for Accurate Building Level Impact

Our physics-based climate risk models provide actionable insights into exposure, damages, and downtime for any building or location. Covering a comprehensive range of climate hazards—including the most critical hazards of flood, wind, and wildfires—we deliver accurate data for today and decades into the future.

### Portfolio Mitigation and Resilience

Identify and prioritize which assets to address with adaptation and mitigation projects - with peril-specific insight into potential damage and downtime, and the ROI that can be achieved from mitigation investments.

First Street gives you the data you need to drive climate-informed investment and underwriting decisions - maximising your individual asset and portfolio risk-adjusted return.

### Groundbreaking Correlated-Risk Catastrophe Model

Assess the financial tail risk of your portfolio with our innovative catastrophe model, uniquely designed to account for correlated risks across multiple severe climate events that could happen in a given year.

### Macroeconomic Insights

Leverage our macroeconomic module to understand the broader implications of climate risk. See how climate-driven migration, rising insurance premiums, and local economic shifts will impact asset values, GDP, and the Home Price Index (HPI). Know where to invest and where to divest.

### Corporate-Level Climate Risk Assessment

Evaluate entire companies with on-demand reports that provide a comprehensive view of climate risk across their operations allowing you to invest with confidence.

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# EXECUTIVE SUMMARY

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Valued at $50 trillion, residential real estate is the bedrock of the U.S. economy – nearly double the country's $27.4 trillion GDP. Today nearly two-thirds of U.S. adults are homeowners, with homeownership being the ultimate sign of success for many Americans. Historically, population migration and homeownership trends have shown that areas that combined the cost of home ownership and quality of life have grown much faster than areas with less to offer in these places.

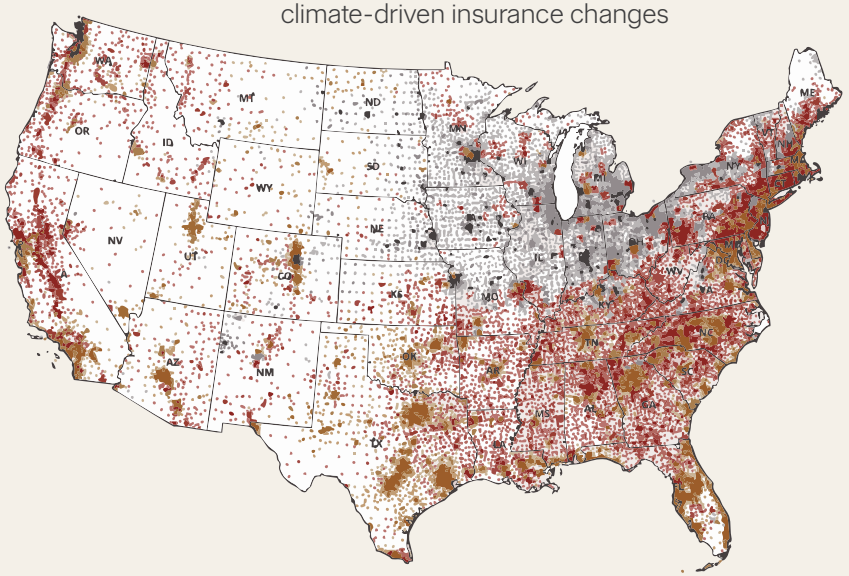
For many, these dynamics have driven Americans to flock to the country's Sun Belt. This part of the country has promised increased quality of life, with cheaper housing, more space, better weather, and in many instances, lower insurance costs.

Recently, however, these areas have seen increases in severe weather exposure and insurance costs, resulting in a steady increase in the overall cost of homeownership. While the Sun Belt region is the most dramatic example of this phenomena, insurance markets responding to the increasing awareness of climate risk are materially changing the calculus behind home ownership and the desirability of entire communities across the country.

Core to these impacts is climate change's disruption of established patterns of migration. Regional desirability is being reshaped by chronic changes in climate across the country: coastal areas are increasingly threatened by sea level rise, while inland regions face intensifying heat waves, droughts, and floods. At the same time, the increased frequency and intensity of natural disasters has triggered unprecedented levels of property damage, prompting insurance providers to increase premiums or withdraw coverage from high-risk areas altogether. Chronic climate changes create additional financial burdens – from surging utility bills to increased maintenance costs.

Ultimately, environmental stressors and associated rising homeownership costs are together reshaping home values. With residential real estate representing one of the largest economic sectors in the country, these shifts will result in serious impacts that ripple through communities. Understanding these dynamics is crucial as public and private stakeholders navigate an increasingly complex landscape where housing decisions must balance traditional location value drivers with new climate realities.

■ Macroeconomic risk categories based on modeled impacts of climate migration and climate-driven insurance changes




21,750

Climate Abandonment Neighborhoods

25,594

Risky Growth Neighborhoods

22,682

Tipping Point Neighborhoods

9,063

Economic Decline Neighborhoods

4,107

Climate Resilient Neighborhoods

# TOP 10 KEY TAKEAWAYS

1. **CLIMATE RISK RESHAPING REAL ESTATE FUNDAMENTALS**: Climate change is transforming the U.S. housing market through two powerful indirect forces - soaring insurance costs and shifting consumer preferences - which together are creating a feedback loop where climate risks drive population movements and reshape property values across the nation, fundamentally altering traditional patterns of real estate growth and community development.

2. **INSURANCE COST ACCELERATION RELATIVE TO HOME APPRECIATION**: Insurance costs are rising dramatically faster than mortgage payments. From 2013 to 2022, insurance as a percentage of mortgage payments more than doubled, rising from 7-8% to over 20% of mortgage costs.

3. **ANTICIPATED DISRUPTIONS IN SUN BELT GROWTH**: Historical population migration to the Sun Belt, which has dominated U.S. population movement for decades, is being fundamentally disrupted by climate change impacts. The three largest Sun Belt states (Texas, Florida, and California) have absorbed over 40% of the nation's $2.8 trillion in natural disaster costs since 1980.

4. **CLIMATE-DRIVEN MACROECONOMIC ASSESSMENTS**: First Street's Macroeconomic Implications Model (FS-MIM) provides a comprehensive and novel analytical framework that combines the acute impacts of rising insurance premiums with the chronic effects of changing consumer demand and migration patterns to quantify how climate risks will reshape property values and economic vitality across American communities over the next three decades.

5. **RISK-BASED INSURANCE PREMIUM PROJECTIONS**: First Street estimates that unrestricted risk-based insurance pricing would drive a 29.4% increase in average premiums by 2055—comprising a 18.4% correction for current underpricing and an 11% increase from growing climate risks.

6. **CONCENTRATED PREMIUM SPIKES IN COASTAL METROS**: The five largest metro areas facing the highest insurance premium increases are Miami (322%), Jacksonville (226%), Tampa (213%), New Orleans (196%), and Sacramento (137%).

7. **CLIMATE MIGRATION DRIVING POPULATION REDISTRIBUTION**: First Street's climate migration projections predict that over 55 million Americans will voluntarily relocate within the U.S. to areas less vulnerable to climate risks by 2055, starting with 5.2 million in 2025.

8. **DIVERGENT GROWTH TRAJECTORIES ACROSS NEIGHBORHOODS**: The report identifies five distinct neighborhood trajectories in climate migration and insurance increases: Climate Abandonment (26% of census tracts), Risky Growth (31%), Tipping Point (27%), Economic Decline (11%), and Climate Resilient (5%).

9. **ECONOMIC VITALITY VS CLIMATE RISK TRADEOFF**: The report indicates that economic strength alone may not be sufficient to retain population in areas facing severe climate impacts, as evidenced by projected "tipping points" in some currently growing metropolitan areas.

10. **WIDESPREAD CLIMATE-DRIVEN PROPERTY DEVALUATION**: By 2055, 70,026 neighborhoods (84% of all census tracts) may experience some form of negative property value impacts from climate risk, totaling $1.47 trillion in net property value losses due to insurance pressures and shifting consumer demand.

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

Housing is the bedrock of the U.S. economy, functioning as both a primary store of household wealth and a key indicator of economic health. In aggregate, the value of the U.S. residential real estate market is almost $50 trillion, nearly double the country's $27.4 trillion GDP (Redfin, 2024). This substantial market valuation stems from housing's central role in American life, with nearly two-thirds of U.S. adults participating in the housing market as homeowners (U.S. Census Bureau, 2023). Homeownership has long been considered a primary driver of wealth creation and stands as a symbol of the American Dream. The average homeowner has a net worth approximately four times higher than that of the average renter (Survey of Consumer Finances, 2022). Within this context, homes make up the largest asset for the typical American family, with approximately 67% of their wealth tied to their primary residence (Survey of Consumer Finances, 2022).

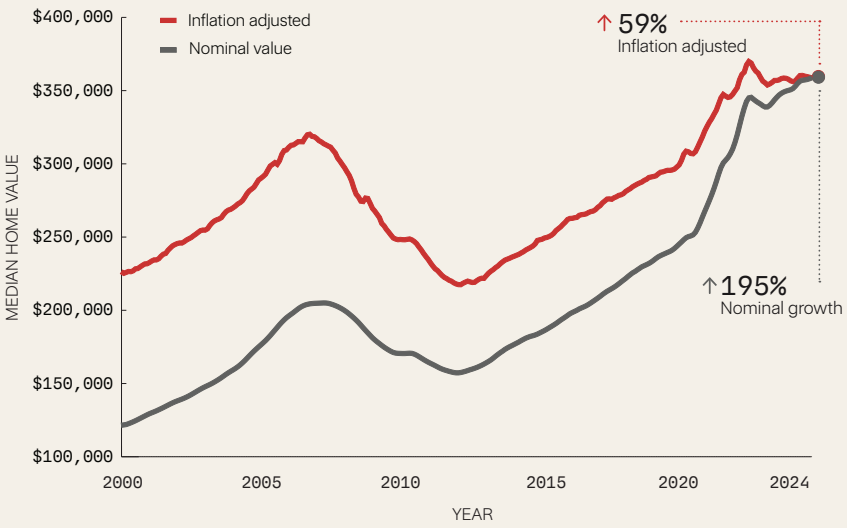



**Figure 1.** Median home value of single family homes in the U.S., 2000 - 2024
**Source:** Zillow Home Value Index (ZHVI)
**Note:** Inflation adjusted presented in $2024

Moreover, real estate's pattern of price appreciation provides a proven pathway to long-term wealth accumulation. The median U.S. single-family home has appreciated by 58.6% over the last two decades in real terms, with nominal values growing by almost 200% (Figure 1). This includes 39% appreciation in real terms and 105% in absolute terms since the end of the financial crises in June 2009. This sustained growth in home values has consistently outpaced general price inflation in the economy, despite periodic market corrections, enabling homeowners to build wealth through both accumulating equity and rising property values. Through leverage, homeowners can benefit from appreciation on the full value of their home while only investing a small down payment, effectively multiplying their return on investment. These mechanisms of appreciation help explain why homeownership is the aspiration of so many Americans.

A long history of hedonic pricing and migration models have demonstrated that homebuyers decide on the location of their home by balancing two key factors: quality of life and cost of living. Together, these considerations create a complex web of "push" and "pull" factors that shape location desirability and residential choices. For example, metropolitan areas' enhanced amenities and economic opportunities attract residents and drive housing demand, while simultaneously creating affordability barriers that push others away. This dynamic is reflected in significant price differences between metropolitan and non-metropolitan areas, where average home prices reach nearly $500,000 in metropolitan regions but only $200,000 in non-metropolitan areas (JCHS, 2024). These price variations directly influence homeownership rates, with non-metropolitan counties achieving a 74% ownership rate compared to 65% in metropolitan areas (U.S. Census Bureau, 2023). Financial considerations shape the choice of homeownership and residential location on multiple levels, from direct housing costs to local tax burdens, regional price variations, and location-specific expenses like insurance. Quality of life factors carry equal weight in the decision-making process, as households evaluate employment opportunities, school quality, and access to transportation and healthcare when choosing their ideal location (Figure 2).

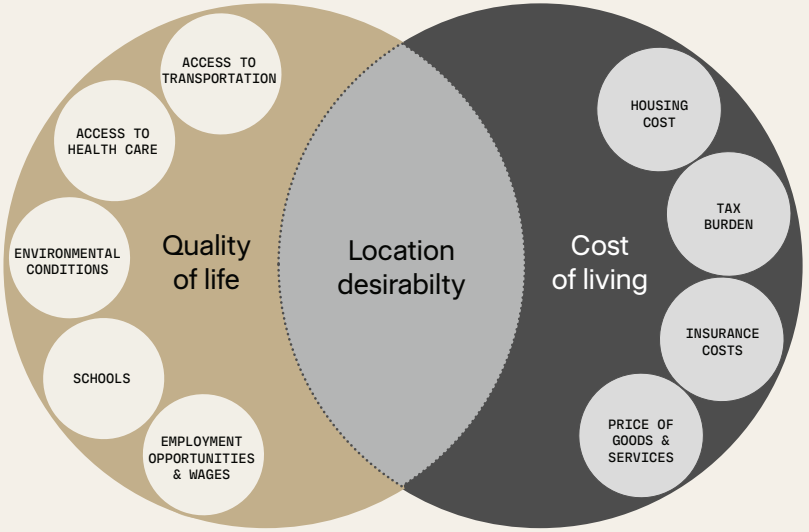



**Figure 2.** Quality of life and cost of living factors impacting location desirability and home valuation

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

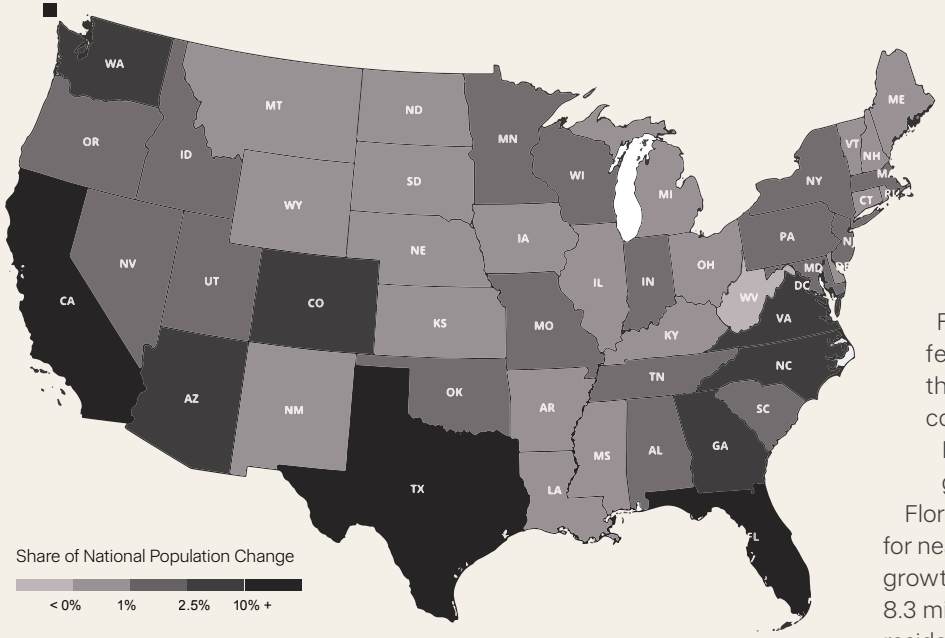



**Figure 3.** Map of state shares of national population change from 2000 to 2020

**Source:** Source: U.S. Census Bureau

These push and pull factors collectively influence where people choose to live, creating patterns of demand that ultimately drive property values higher in areas that offer the most appealing balance of affordability and amenities.

Over the last two decades, the pursuit of affordability, an amenable lifestyle, and the American Dream of homeownership has fueled rapid population growth across the Sun Belt, stretching from the Carolinas to Southern California. This region consistently offers more affordable housing options compared to other parts of the country, a difference clearly visible in major city comparisons.

In November 2024, homebuyers found average prices of $764,000 in New York City compared to $394,000 in Charlotte, NC, while Seattle, WA reached average prices of $851,000 compared to Austin, TX's more modest $514,000 (Zillow, 2024). At the same time, residents in the Sun Belt enjoy quality of life perks, such as 212 to 330 days of sunshine annually as well as rapidly growing job markets and expanding cultural amenities (NOAA, 2024). Furthermore, many Sun Belt locations benefit from federal programs (i.e., the National Flood Insurance Program and federal mortgage programs) that subsidize homeownership costs. Benefits of living in the Sun Belt are evident in the dramatic growth of California, Texas, and Florida, which together accounted for nearly 40% of national population growth from 2000 to 2020, adding 8.3 million, 5.7 million, and 5.6 million residents respectively (Figure 3).

However, the Sun Belt's acute exposure to extreme weather events threatens its long-term livability. Texas, Florida, and California have collectively absorbed over 40% of the nation's $2.9 trillion in natural disaster costs since 1980, with individual shares of 15.6%, 14.4%, and 11.4% respectively. These direct costs understate the full impact on residents, who face deteriorating quality of life via changing environmental conditions that lead to compromised air quality, heat-related infrastructure strain, chronic flooding, and service disruptions. The financial burden compounds as property damage and repairs accumulate, maintenance expenses climb, and insurance premiums soar (Figure 4). The severity of these challenges intensified in 2024, when the Sun Belt bore the brunt of the nation's 27 billion-dollar weather disasters, totaling $182.7 billion in damages. States across the Sun Belt faced an average of 7.3 major events each, with Texas hit particularly hard by 20 separate billion-dollar disasters, while non-Sun Belt states averaged 4.5 events (NOAA, 2024). These disasters included a near-record number of severe storms and tropical cyclones that concentrated their damage primarily in North Carolina, Texas, and Florida. Despite these risks, recent research has revealed that natural disaster-prone neighborhoods are experiencing a net influx of residents, primarily driven by migration to Texas and Florida in continued search of better and more affordable housing. In 2023, America's high-fire-risk counties, particularly those in Texas, saw a net gain of 63,365 residents, while high-flood-risk counties, especially in Florida, experienced a net increase of 16,144 people (Redfin, 2024).

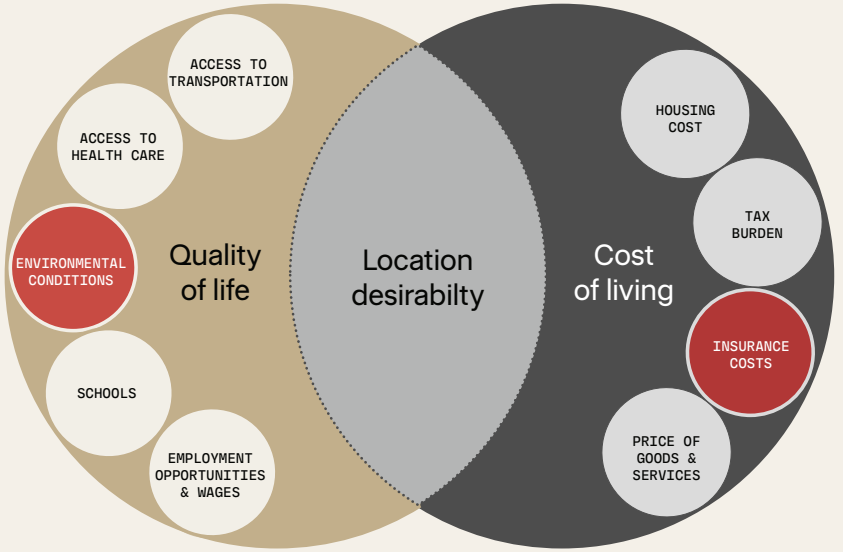



**Figure 4.** Climate's impact to quality of life and cost of living factors impacting location desirability and home valuation

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

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However, the experience of individual communities reveals a more complex pattern beneath these broad migration trends. While states like Texas, Florida, and California have seen substantial overall population gains, this growth is not uniform across all areas (Figure 5). Some neighborhoods within these states have been historically losing residents, suggesting that local factors - from specific amenities to particular environmental risks - play a crucial role in shaping migration patterns at the community level. This variation highlights how traditional drivers of location desirability, such as affordability and quality of life, increasingly intersect with environmental considerations to influence where people choose to live. As climate risks become more pronounced, understanding these neighborhood-level dynamics becomes essential for evaluating long-term home values and community sustainability.

The financial burden of climate risk is increasingly being passed on to homeowners through rising ownership costs, straining household budgets, and threatening community stability. This is demonstrated by the steep and persistent rise in insurance premiums that are driving up the overall cost of homeownership, as insurers incorporate escalating climate risks into their assessments. In recent years, the rise in insurance costs, including homeowners insurance and other specialized insurance, has outpaced home price appreciation (Figure 6).

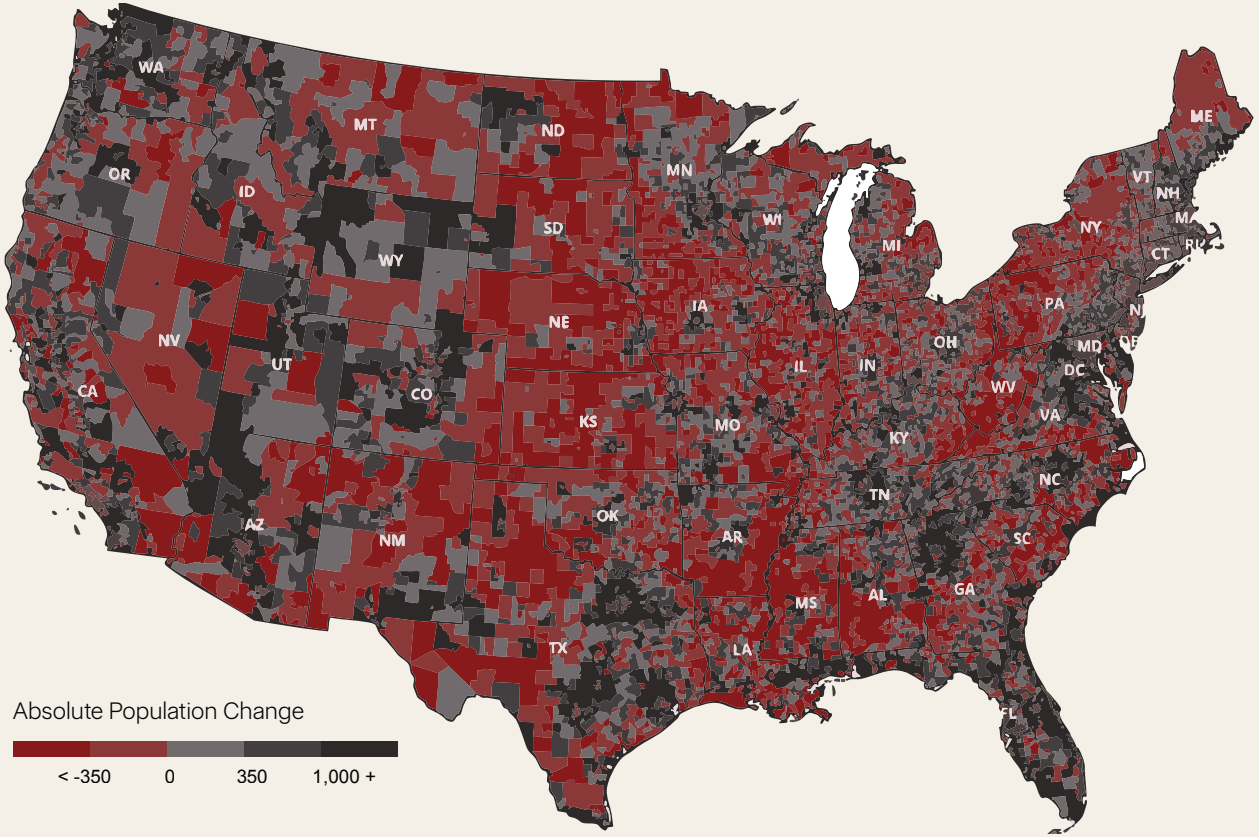


**Figure 5.** Census tract-level population change from 2000 to 2020

**Source:** U.S. Census Bureau

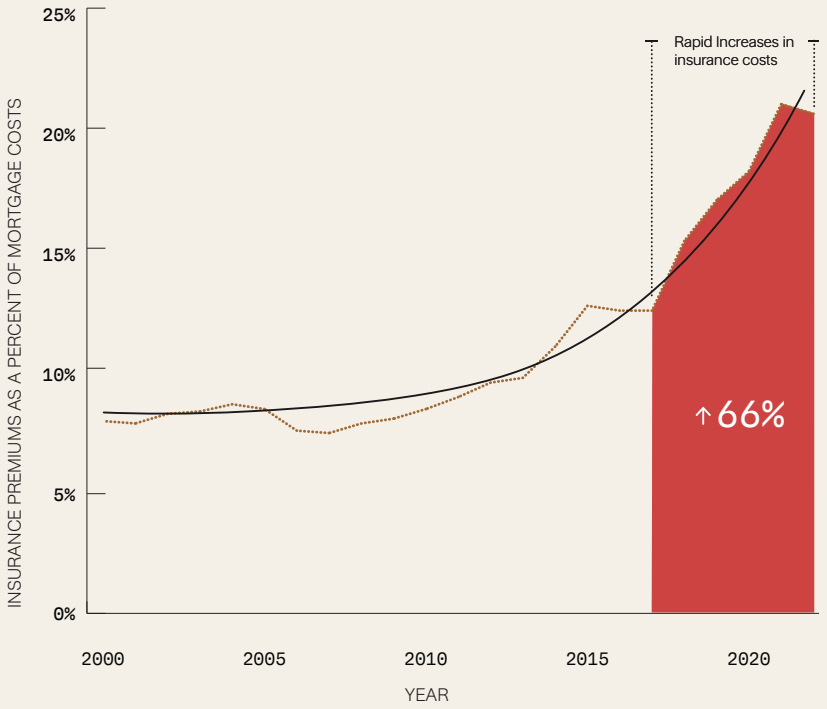


**Figure 6.** National average insurance as a percent of mortgage costs, 2000 - 2020

**Source:** U.S. Bureau of Labor Statistics (BLS), Consumer Expenditure Survey (CES)

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

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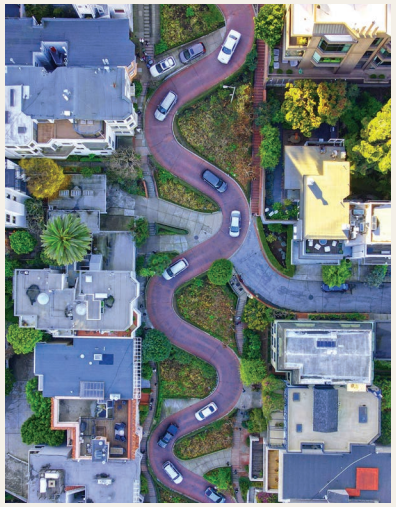
Home insurance costs made up roughly 7 to 8% of mortgage and interest costs for the larger part of the 2000s and early 2010s. However, from 2013 to 2022, insurance has over doubled, rising to be over 20% of mortgage payments. Even more striking is the rise from 2017 alone, which accounted for a 66% increase in insurance costs relative to mortgage payments and marked 2017 as the costliest billion-dollar disaster year in the U.S. on record (NOAA, 2024). Thus, this sharp escalation reflects both the growing frequency and severity of extreme weather events as well as insurers' evolving assessment of long-term climate risks in their pricing. While the 30-year fixed-rate mortgage has historically provided Americans with predictable monthly payments and a path to building wealth, rapidly escalating insurance premiums are undermining this stability, with costs in some high-risk areas rising by thousands of dollars annually. Combined with high deductibles often reaching tens of thousands of dollars in areas at risk of hurricanes and wildfires, mounting insurance premiums are fundamentally challenging the traditional model of stable and predictable homeownership costs that the 30-year fixed-rate mortgage was designed to provide.

A growing tension between traditional drivers of housing decisions and emerging climate-related challenges are prompting a significant shift in residential location decisions across the U.S. While the Sun Belt's combination of affordability, economic opportunity, and lifestyle benefits continues to attract residents, the mounting costs and risks associated with climate change are forcing households to reevaluate their choices. Understanding these shifting dynamics requires a deeper examination of two critical factors: the transformation of insurance markets in response to climate risks, and changing consumer perceptions about the long-term viability of neighborhoods across the U.S. in the context of climate change. The following sections explore how these factors are reshaping the American housing landscape and influencing where people choose to call home.




# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

## Insurance Markets are Pricing in Climate Risk

Insurance serves as a fundamental risk management tool in homeownership, operating on the principle of spreading risk across a large pool of policyholders who pay regular premiums to protect against potential losses. Through this large pool of policies, insurers seek to accurately predict expected losses across their portfolio and set appropriate premiums to offset these losses, despite the inherent uncertainty of individual loss events. During natural disaster recovery, insurance plays a critical role by helping affected residents avoid bearing the full cost of damages alone. However, as natural disasters become more frequent and result in increased property damage claims, insurance companies must adjust their pricing strategies to maintain profitability. This dynamic has positioned the insurance industry as one of the first and most visible indicators of climate risk in the housing sector. Within this context, homeowners insurance represents the most fundamental form of property insurance protection, which lenders typically require as a condition of mortgage financing. Such coverage is widespread: in 2023, 88 percent of homeowners had homeowners insurance (Insurance Information Institute, 2024). Although these standard policies provide comprehensive coverage for structural damage from various perils (i.e, hail, wind damage, and fire), they notably exclude significant risks such as floods—which require separate National Flood Insurance Program (NFIP) coverage—and earthquakes. Despite these coverage limitations and requirements, homeowners insurancepolicies remain the predominant form of property insurance.

Since 2019, homeowners insurance premiums have risen 31%, with average yearly increases of 6.1% (Figure 7). This increase reflects both rising rebuild costs, as insurers respond to higher construction material and labor expenses, as well as insurers' growing operational costs, leading them to adjust coverage limits accordingly. While inflation has contributed to these cost pressures, insurance premiums have grown faster than general inflation, which rose 22% from 2019 to 2024, averaging 4.4% yearly (FRED, 2024). These differences point to additional cost drivers beyond inflation, primarily the surge in climate-related damage claims from increasing extreme weather events nationwide. Therefore, climate risk has become a key driver of insurance premiums. Recent research has found that homes in high-risk disaster areas pay insurance premiums that are $500 higher on average compared to similar homes in low-risk areas in 2023, an increase from a $300 difference in 2018 (Key and Mulder, 2024). A more focused view of how the increase in average insurance premiums varies by state makes these differences apparent (Figure 8). State-level insurance trends illustrate which states face the fastest growing and/or highest climate damages, therefore reflecting higher and rapidly increasing premium rates.

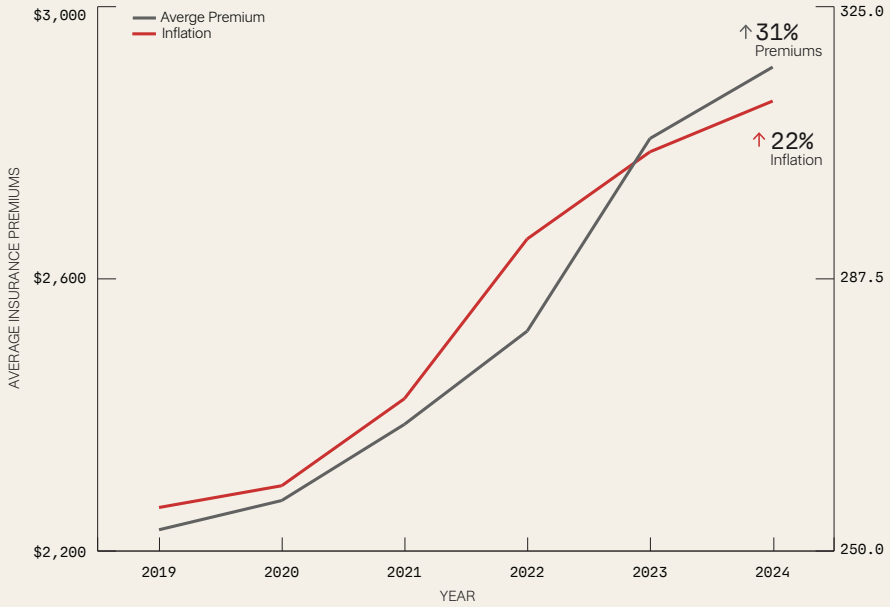



**Figure 7.** Trend in homeowners insurance premiums versus inflation, 2019-2024

**Source:** Quadrant Information Services; BLS Consumer Price Index (CPI)

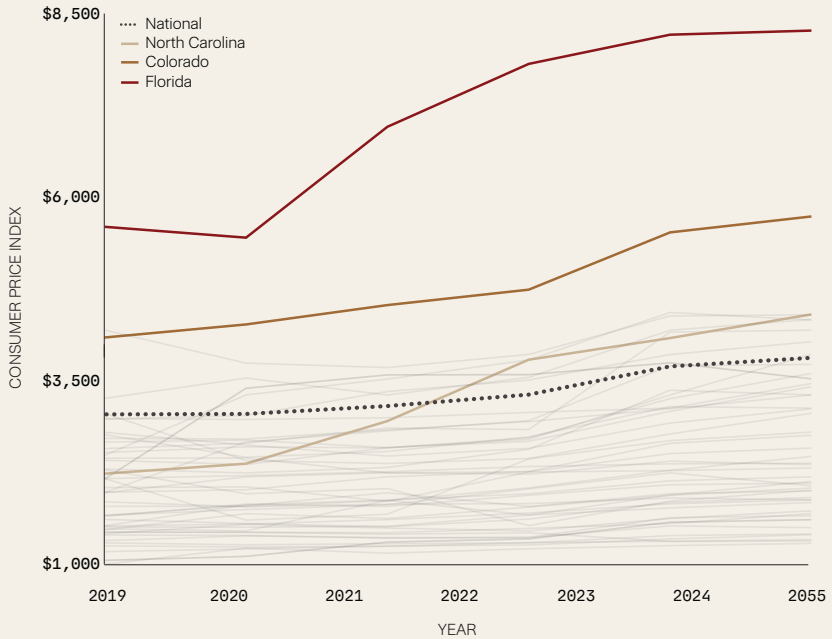
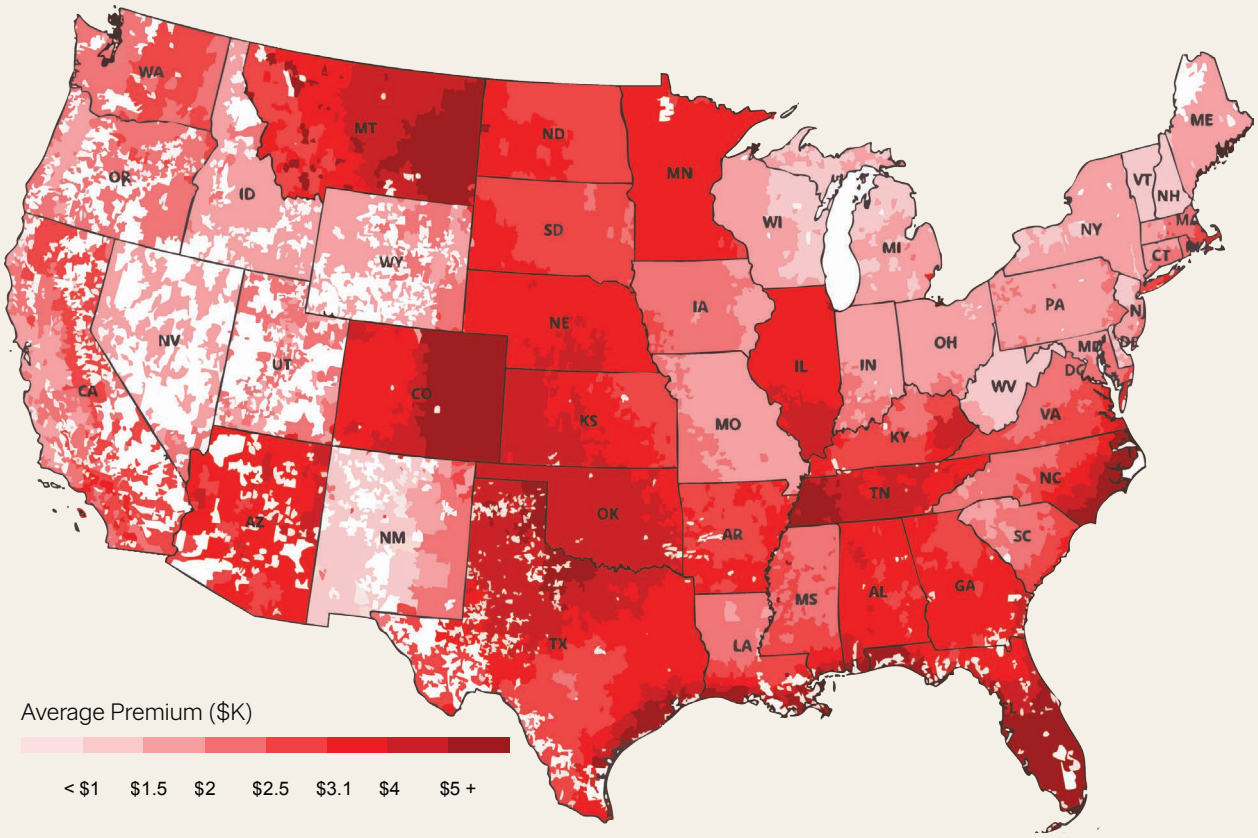



**Figure 8.** Trend in homeowners insurance premiums by state

**Source:** Quadrant Information Services

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS




Specifically, Florida has the highest average home premium across all states in the U.S., increasing by 47% over the past five years due to intensifying hurricane risks. Similarly, Colorado is among the top states for average insurance premiums and is also facing rapidly increasing premiums, growing almost 40% due to growing wildfire threats and severe hail storms. North Carolina saw the largest increase in premiums at 95% from $2,256 in 2019 to $4,403 in 2024, as insurers adjust to the state's emerging hurricane risk.

It's important to note that the rate at which homeowners insurance premiums can be increased is determined within a complex regulatory framework, overseen at the state level through each state's insurance commissioner or regulatory body. Regulations on home insurance seek to balance consumer protection with insurer solvency, leading to different regulatory frameworks across states depending on each state's priorities. In "file and use" states like Texas and Illinois, insurers can implement new rates after filing revisions without waiting for explicit approval, giving them more flexibility to respond to updated risk assessments. In contrast, "prior approval" states like New York and California require explicit regulatory permission before rate changes take effect. This system provides stronger consumer protection against sudden rate shocks but can create challenges for insurers. The threshold for this approval varies drastically by state. For example, California requires insurers to obtain approval for rate increases exceeding 7% year-over-year (California Insurance Code § 1861.05), while Florida requires approval for annual rate increases over 15% (Florida Statutes § 627.062). However, in Texas, insurance regulators have overseen average rate increases of 55% since the start of 2019, and approved rate changes for 2025 are in the double digits across all states (WSJ, 2024). Adding to these regulatory differences, the prevalence of natural disasters like hurricanes, severe convective storms, and wildfires, have led to drastically different average rates of homeowners insurance across states and communities (Figure 9).

**Figure 9.** Average homeowners insurance premiums by zip code, June 2024

**Source:** Quadrant Information Services

**Note:** Averages were made using coverage amounts that matched most closely to each zip code's median home value defined by the Census Bureau

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

The fundamental tension between state insurance regulations and the escalating costs of climate-related damages is threatening the sustainability of widespread homeowners insurance coverage. State regulations, designed to protect consumers through measures like California's Proposition 103, constrain insurers' ability to price policies according to their assessment of actual risk exposure. Research from First Street illustrates this challenge through their analysis of California wildfire risks. In "The Insurance Issue", First Street projects that annual wildfire damages in California will increase from roughly $14 billion in 2023 to nearly $24 billion by 2053. However, current regulations prevent insurance companies from adjusting their rates to account for these increasing risks. As a result, major insurance carriers are choosing to exit high-risk markets entirely rather than continue operating at a loss, leaving state-enforced insurance programs to fill the coverage gap. The problem extends beyond California: First Street's analysis shows that 39 million properties across the contiguous U.S.—representing 27.1% of all properties—have insurance premiums that are too low to cover their actual climate risk exposure. This widespread underpricing is creating significant financial pressure on insurance providers nationwide.

The severity of current market conditions is reflected in the U.S. homeowner insurance industry's performance, which recorded the worst underwriting results in over a decade with a combined ratio of 110.5 percent in 2023 (S&P Global, 2024). This ratio indicates that insurers paid out substantially more in claims and expenses than they collected in premiums, coinciding with a record number of billion-dollar natural disasters in 2023 (Figure 10).

These industry-wide losses continue a challenging pattern that began in 2017, which marked the costliest year for billion-dollar disasters in U.S. history. The impact has been particularly pronounced in high-risk areas, where a recent analysis by the U.S. Treasury reveals homeowners insurers' paid loss ratios—the amount paid in claims relative to premiums collected—were 18 percent higher than in low-risk ZIP codes, despite residents already paying higher premiums. Claims in these high-risk areas were also more severe, averaging $24,000 compared to $19,000 in low-risk areas. This is also clear by how loss ratios for the homeowners insurance industry varied by state across the country. While the loss ratio averaged 70.5 percent nationally in 2023, some states—notably Arkansas, Kentucky, and Oklahoma—experiencing loss ratios exceeding 100 percent, primarily attributable to unexpected severe storm damages (NAIC, 2024). In response to this persistent financial strain, insurance companies must implement various risk mitigation strategies, including premium increases, modified coverage terms, and in some cases, declined policy renewals and complete withdrawal from vulnerable markets.

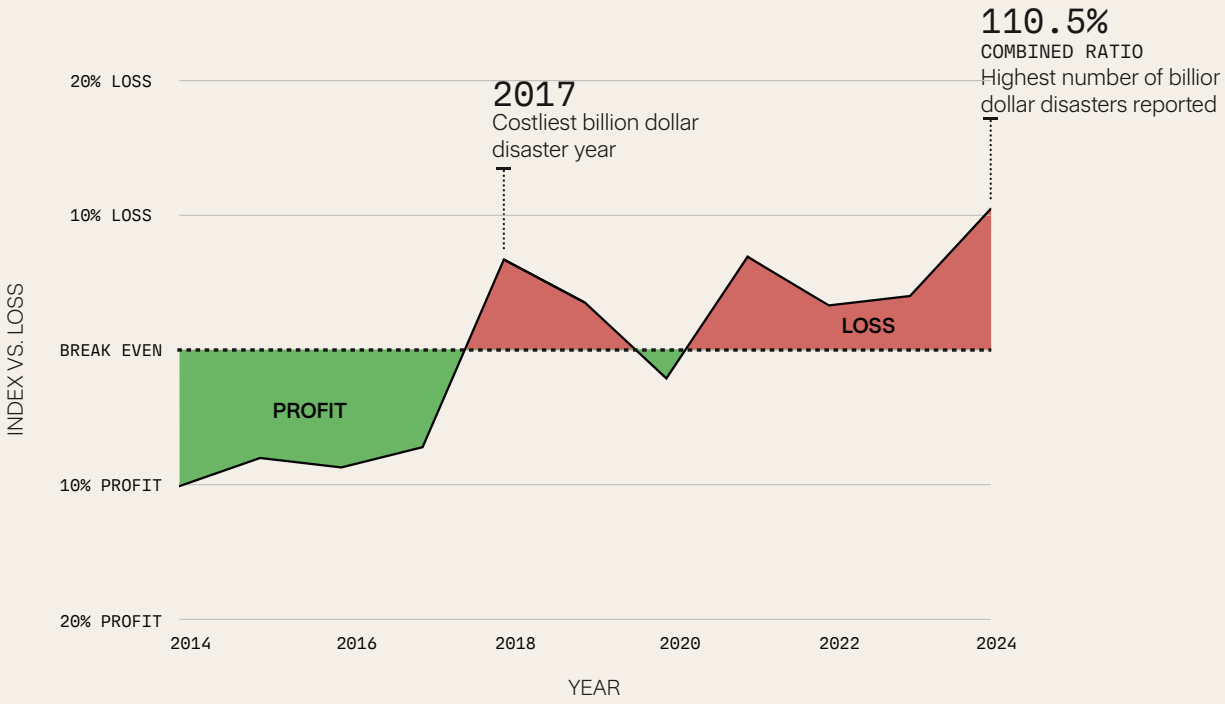



**Figure 10.** Homeowners insurance industry annual combined ratio, 2013 - 2023

**Note:** Break even is equivalent to a 100% combined ratio, where claims & expenses = premiums collected. A 10% loss corresponds to a 110% combined ratio and a 10% profit corresponds to a 90% combined ratio.

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

While homeowners' insurance premiums remain largely underpriced relative to rising climate risks and natural disasters, public flood insurance provides an example of more accurate risk-based pricing. Property owners in FEMA-designated Special Flood Hazard Areas (SFHA) must purchase flood insurance through the National Flood Insurance Program (NFIP). The program follows federal guidelines, with annual rate increases capped at 18% for most primary residences (Biggert-Waters Flood Insurance Act of 2012). Despite these safeguards significant challenges have emerged, with mounting losses having pushed the program $20 billion into debt (FEMA, 2022). In response, NFIP implemented Risk Rating 2.0 (RR2.0) in 2021.

This modernized approach prices flood insurance based on each property's unique risk factors, including its annual average loss (AAL), rather than broader geographic zones (FEMA, 2021). FEMA calculates the AAL by looking at the probability of different flood frequencies and severities, combined with the estimated damage that would occur at each flood level. This creates what's essentially an expected annual cost of flood damage for each specific property. After going into effect in April 2023 (FEMA, 2024), RR2.0 increased premiums across zip codes (Figure 11). Particularly sharp increases were seen along rivers and coastlines throughout the Appalachian range, parts of the Northwest, and coastal areas in the West and Southeast.

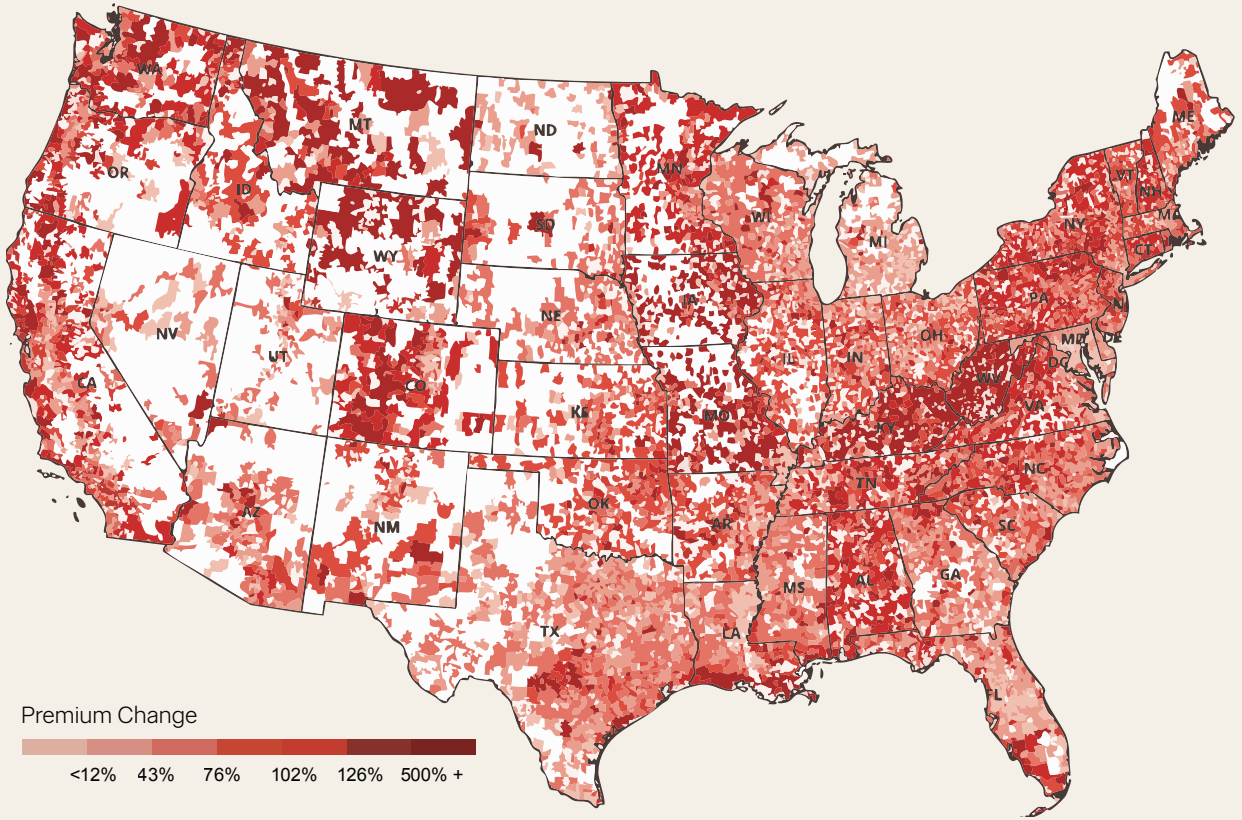
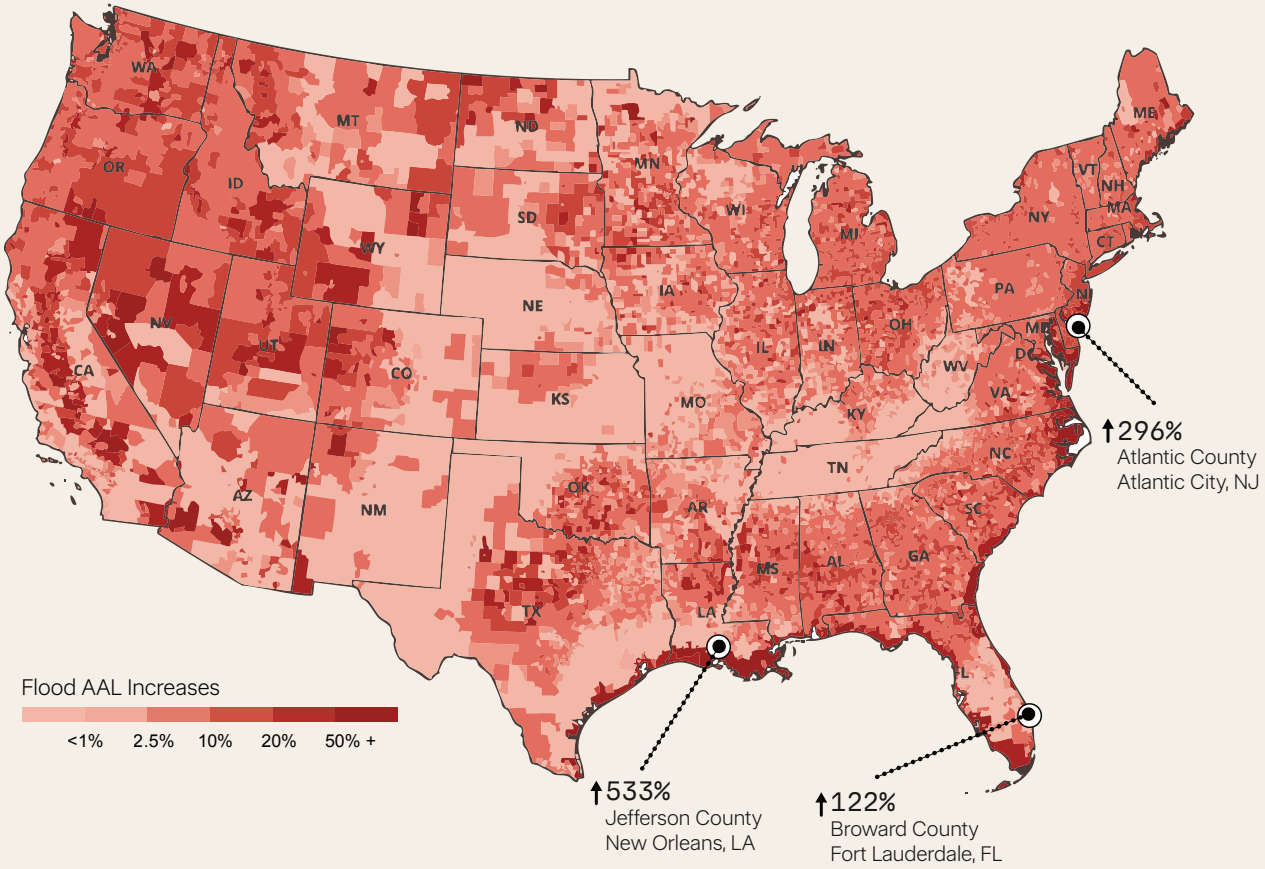



**Figure 11.** NFIP risk-based insurance premium change from current premiums

**Source:** NFIP Zip-code current and risk-based insurance premiums under RR2.0 for September, 2022

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

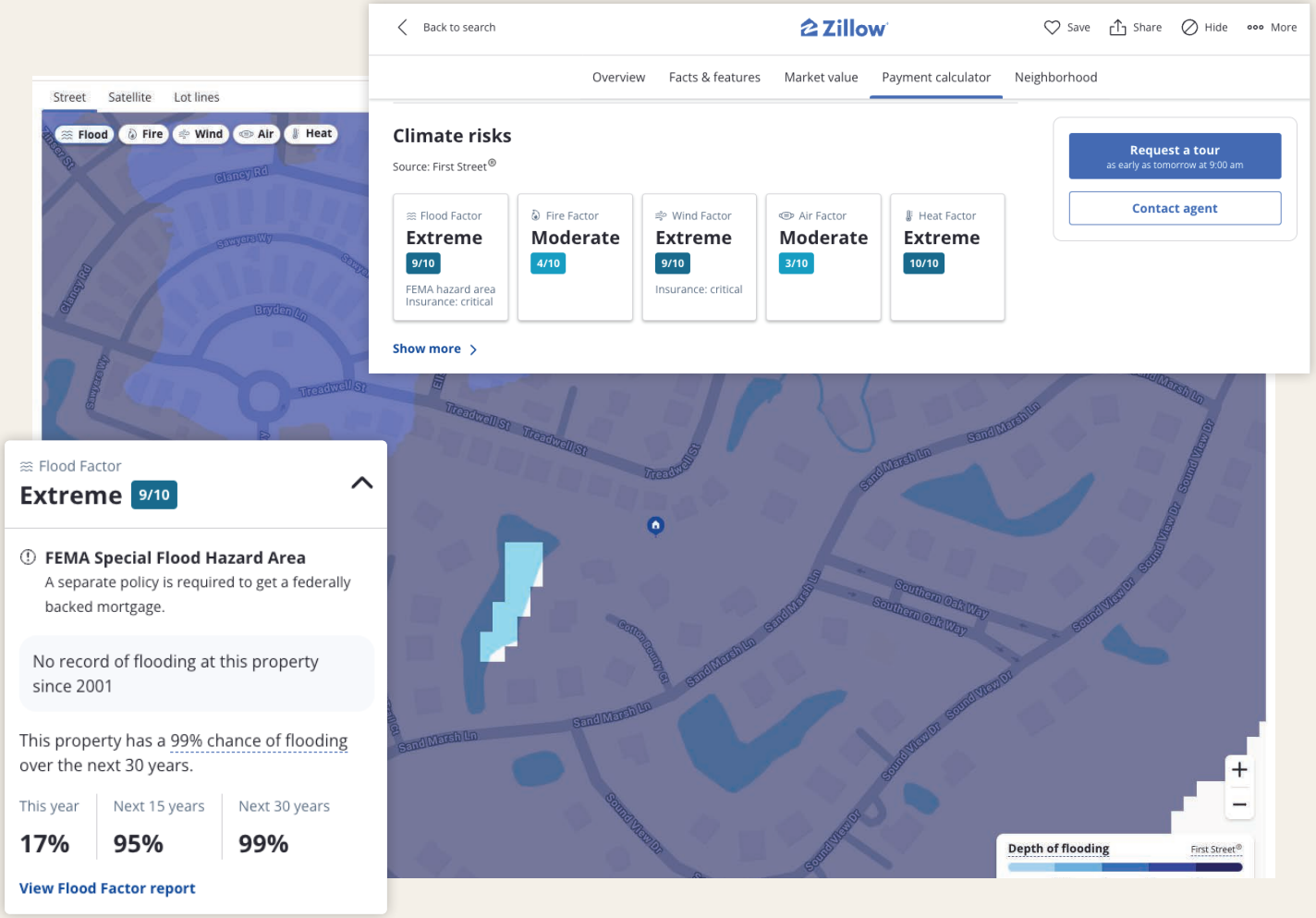



The implications of FEMA's risk-based pricing approach extend well into the future, as projected increases in flood frequency and severity will drive up AAL estimates and, consequently, insurance premiums. Analysis using the First Street Flood Model (FS-FM) reveals potentially dramatic increases in flood-related damages across various regions (Figure 12). In Jefferson County, Louisiana, home to New Orleans, projected flood damages could surge by 533% over the next three decades, likely triggering corresponding premium increases. Similar patterns emerge in Atlantic County, New Jersey, where Atlantic City faces a projected 296% increase in flood damages. Coastal Florida communities also face substantial risks, with Broward County, including Fort Lauderdale, expected to experience more than double the current flood damages over the same period. These projections suggest that flood insurance premiums are likely to increase substantially across the U.S. to account for rapid increases in flood damages.

Insurance plays a vital role in protecting homeowners from the financial fallout of climate-driven property damage, offering a critical lifeline for recovery and rebuilding after disasters. While homeowners insurance faces both regulatory constraints on rate increases and challenges in incorporating long-term climate projections into pricing models, the NFIP demonstrates a more pronounced shift toward risk-based pricing. Recent innovations may help insurers offering homeowners insurance manage climate risks more effectively: parametric insurance provides rapid payouts based on predefined triggers like wind speed, catastrophe bonds transfer risk to capital markets, and enhanced reinsurance arrangements spread risk across multiple insurers. While these tools improve insurers' ability to remain in high-risk markets, they generally lead to higher premiums in these areas, creating affordability challenges for homeowners. As disasters become more frequent and intense, these rising costs will reshape communities and their ability to manage climate risks.

**Figure 12.** Flood damage increases from current levels to 2055 using estimates from the FS-FM

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS




Zillow integration of First Street's climate risk information across perils with a visualization of a property within a SFHA and its surrounding flood depth corresponding to a 1 in 100 year flood event.

## Homebuyers are Responding to New Climate Realities

The American real estate landscape is undergoing a fundamental transformation as climate change awareness increasingly influences consumer behavior around home-buying decisions. Recent data shows that 73% of homebuyers now consider climate risks in their purchasing decisions (Zillow, 2024), marking a significant shift in how the locations of properties are perceived. This evolution in consumer preferences is reshaping traditional drivers of real estate value, particularly in high-risk areas where climate concerns are beginning to counterbalance historically attractive amenities. As markets adapt to these changing dynamics, a new paradigm is emerging where climate resilience becomes as crucial as traditional location factors in making decisions to purchase a home.

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

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Location has historically been the foundation of real estate valuation, with land, apart from the physical structure of a property, accounting for an average of 40% of total property value (FHFA, 2024). This proportion varies significantly across regions, ranging from 15% in rural areas to 70% in prime urban centers, reflecting the traditional preference for accessibility to economic opportunities and lifestyle amenities (Figure 13). The value attribution to land is particularly pronounced in urban areas with natural amenities, such as coastal cities where limited waterfront availability drives land values well above state averages. Cities like Cape May, New Jersey and Miami, Florida exemplify this market dynamic, with land value shares exceeding their respective state averages by 16% and 9%. These location-based value patterns have historically created self-reinforcing cycles of investment and development, as areas perceived as desirable attract additional amenities and infrastructure improvements.

The spatial distribution of real estate value across the U.S. further exhibits patterns of location desirability. Concentrations of valuable homes are most pronounced in coastal metropolitan areas and major urban centers, where the convergence of economic opportunities, lifestyle amenities, and historical development patterns has created zones of exceptional property values (figure 14). Premium markets exemplify this trend, with Miami's Palm Beach neighborhood leading the nation with an average home value of $11.3 million as of June 2024, following a dramatic 127% appreciation since 2020 (Zillow, 2024).

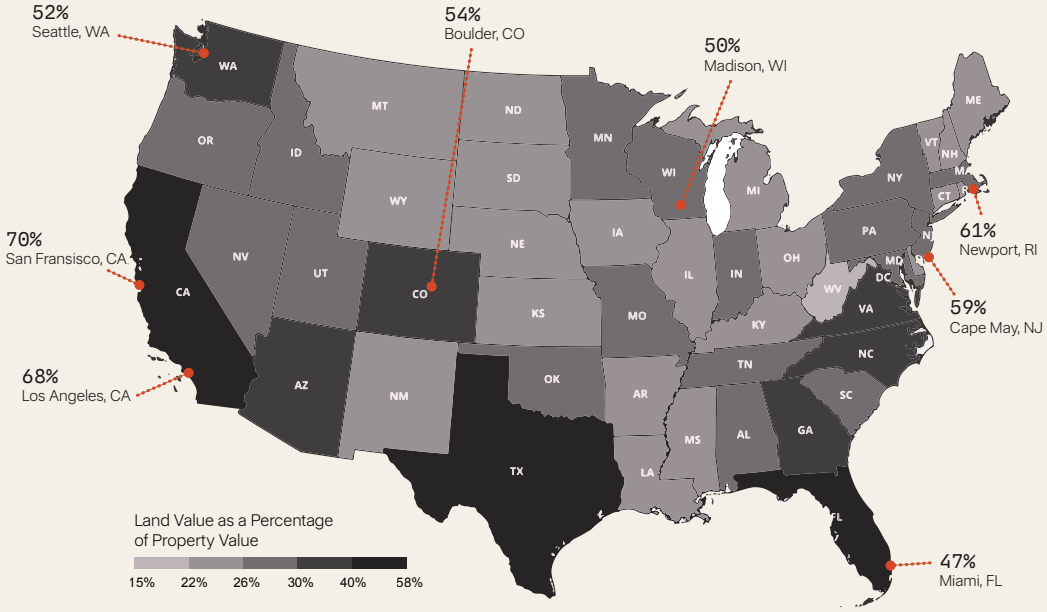


**Figure 13.** State and select metro area averages of land share of total home value

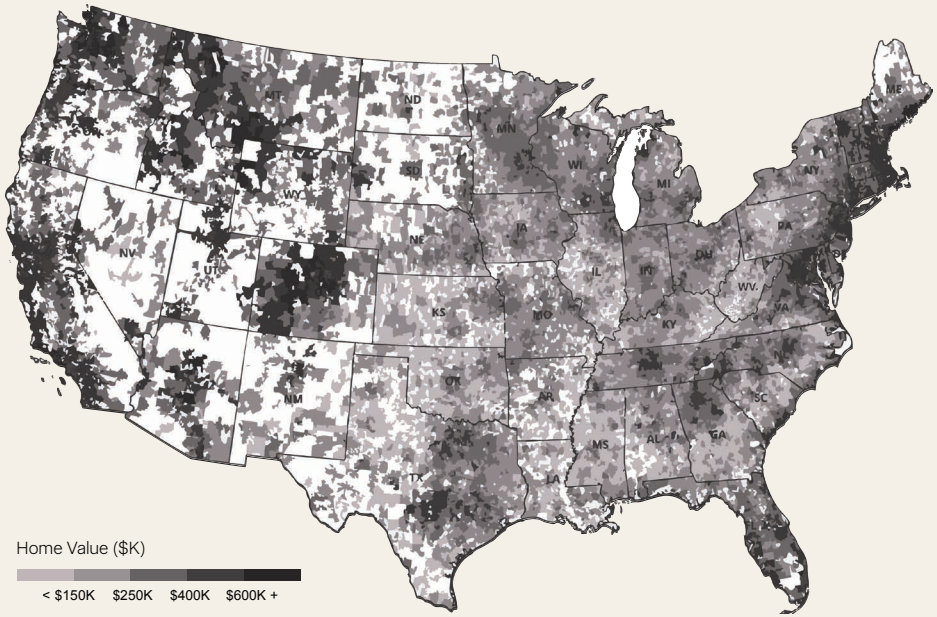


**Figure 14.** Average home values by zip code estimated for June 2024

**Source**: ZHVI

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

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However, climate risks are threatening the sustainability of high-value markets. While coastal regions contend with flooding and storm surge threats, inland premium markets face challenges from wildfire exposure and water scarcity. Beyond evaluating traditional purchase prices, prospective homebuyers must now assess a complex matrix of factors: financial exposure through increased insurance premiums and maintenance requirements, property resilience to environmental stressors, long-term safety concerns for their households, and the sustainability of their investments in increasingly vulnerable areas. These concerns are evidenced by the fact that, today, the **majority** of Americans view climate change as a major and immediate threat rather than a distant concern (Pew Research Center, 2023). Results from the Yale Climate Opinion survey shows that 61% of U.S. adults believe that climate change is harming people in the U.S. and 46% believe it will harm them personally, implying the need to adjust prior assumptions about the resilience of their neighborhoods to climate damages.

However, until the past decade, most consumers had little awareness of climate risks, particularly those affecting residential properties. Only now are we beginning to see the first real impacts of this growing awareness, as well as the climate-conscious decisions that stem from it, being put to the test. Perhaps most important in driving this behavior is the integration of climate risk data on public real estate platforms, including Realtor.com (2020), Redfin (2021), homes.com (2023), and Zillow (2024), and the consumer behavior it drives. Together, these four platforms encompass well over 90% of all real estate web traffic in the U.S., illustrating the widespread reach of this new climate risk information. Research informing Zillow's integration of First Street climate risk data on their home listings show that consumers are most concerned with flood risk, with 43% of buyers basing location decisions in-part on Flood Factor scores, followed by wildfire (28%), extreme temperature (26%), and hurricane exposure (25%) (Zillow, 2024). Furthermore, evidence suggests that adding climate risk information to home listings influences everything from initial search to final purchase, as consumers ultimately prefer properties with lower climate risk. For example, prospective homebuyers with access to First Street Flood Factor scores for properties began to systematically look for homes with on average 12% lesser flood risk than groups without climate risk information (Fairweather et al., 2024).

Recent research suggests that climate change's impact on people's lives leading to action (Keane et al., 2024), including making the choice to permanently relocate to safer and more sustainable locations. In fact, results from the Forbes Home survey found that 30% of Americans who moved in 2022 cited worsening weather conditions as a reason for their move (Forbes, 2024). This form of movement, known as climate migration, refers to the voluntary relocation of individuals or communities in response to persistent environmental changes that affect quality of life and long-term wellbeing. Unlike sudden displacement from disasters, climate migration reflects decisions based on chronic stressors like worsening air quality from increasing wildfire smoke, persistent drought conditions, or recurring heat waves that make certain areas gradually less habitable or desirable over time. Patterns of climate migration align with traditional migration theory, where people evaluate both "push" factors driving them from their current locations and "pull" factors attracting them to new destinations. Climate change amplifies these dynamics: rising insurance costs, repeated property damage, and declining neighborhood stability act as push factors from climate-vulnerable areas, while regions with more stable environmental conditions become increasingly attractive destinations. The implications of this shift extend beyond individual household decisions to affect entire communities, as climate migration can accelerate neighborhood decline in vulnerable areas while strengthening population growth in more resilient regions. Recognizing the magnitude of this challenge and possible impact on public policy, the White House issued a landmark 2021 report acknowledging climate migration as a critical national issue requiring coordinated policy responses. Rising awareness of climate risks and changing consumer actions, such as climate migration, are increasingly influencing property values. As perceptions and demand evolve, properties with lower climate risks are appreciating in value at a faster rate than those exposed to higher risks. Research by Redfin conducted in 2023-2024 quantifies this trend: homes in areas with lower heat risk increased in value by 7%, while homes in hotter areas only grew by 6.3% (Redfin, 2024). The same pattern emerges with flooding, where safer properties grew by 6.7% compared to 6% for flood-prone areas, and with fire risk, where safer areas increased by 6.6% versus 6.4% for high-risk zones. Further research by Freddie Mac demonstrates that property values in Harris County, Texas responded directly to flood risk awareness following Hurricane Harvey, with homes located in FEMA-designated SFHAs selling at a 3.1% discount compared to similar properties outside flood-prone areas (Freddie Mac, 2024). This behavioral shift represents a fundamental change in how Americans value property, with climate resilience emerging as a key factor in housing decisions alongside traditional considerations. The trend indicates growing public awareness of climate risks and suggests that future population movements and home valuation across neighborhoods may increasingly reflect climate considerations rather than amenities and economic opportunities alone, as consumers adjust to new climate realities.

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

## Climate Risk has Become Central to Property Valuation

The convergence of insurance market dynamics and shifting consumer perceptions suggests there may be fundamental restructuring of home values across the U.S. in the coming decades. As climate risks become more pronounced and insurance markets continue to adapt, communities will likely experience increasingly divergent economic trajectories based on their environmental vulnerability, adaptive capacity, and underlying economic conditions. This restructuring operates through two primary mechanisms: the direct impact of rising insurance costs on property operating expenses and homeownership viability and the broader influence of evolving consumer risk perceptions on market demand.

The insurance-driven transformation of property economics is particularly significant. Rising home insurance premiums directly reduce property cash flows by increasing operating costs, while higher premiums in high-risk areas can make properties harder to sell since mortgages often require coverage. This creates a vicious cycle where lenders may restrict mortgage availability in areas with limited insurance options, while insurers simultaneously pull back coverage where they see heightened risk, effectively making properties both uninsurable and unmortgageable in vulnerable regions. This dynamic creates a compound effect where insurance affordability and availability challenges not only decrease current returns on a property but also signal future risk to potential buyers, leading to lower property values. Consumer awareness amplifies these effects as climate risk understanding grows, with buyers increasingly factoring in both insurance implications and broader location viability into their purchase decisions.

| | 2018 | 2023 | ABSOLUTE CHANGE | PERCENT CHANGE |
|---|---|---|---|---|
| Insurance Cost | $2,178 | $2,979 | +$801 | 36.8% |
| Population | 26,532 | 8,285 | -18,247 | -68.8% |
| Property Value | $570,602 | $330,310 | -$240,292 | -42.1% |

**Table 1.** Changes in Insurance, Population, and Property Value since the Camp Fire in Paradise, CA
**Sources:** U.S. Census Bureau, American Community Survey; Zillow ZHIV; Quadrant Information Services.

**Photo:** The 2018 Camp Fire

The 2018 Camp Fire in Paradise, CA provides a stark illustration of how climate disasters can trigger these cascading impacts, offering potential insights into the outcomes of the wildfire risks facing Los Angeles in 2025. The Camp Fire disaster resulted in catastrophic losses: over 18,000 structures destroyed, more than 50,000

# CLIMATE RISK'S IMPACT ON REAL ESTATE MARKETS

residents displaced, and approximately $16.5 billion in damages (Cal Fire, 2018). In the immediate aftermath, the city defaulted on its municipal bonds (WSJ, 2024), while the compounding effects of wildfire damage and smoke exposure set in motion a dramatic demographic and economic transformation. Paradise's population plummeted by 84.3% in the year following the fire, falling from 26,532 residents to just 8,285 by 2023 - a sustained 68.8% decrease from pre-disaster levels. The insurance market's response has been severe and multifaceted. Major insurers including State Farm and Allstate have withdrawn from writing new policies across California, citing unsustainable wildfire risks (State Farm, 2023; Allstate, 2022). For remaining insurers in Paradise, premiums have risen to the maximum allowed under California regulations, increasing 36.8% since 2023 from an average of $2,178 to nearly $3,000. The California FAIR Plan, the state's insurer of last resort, has seen its policies increase by over 131,200 policies from 2023 to 2024 alone as private coverage becomes increasingly scarce. This combination of environmental vulnerability and escalating costs has fundamentally altered Paradise's property market, with average home values declining by 42% from $570,602 in 2018 to $330,310 in 2023, as both homebuyers and investors reassess the area's long-term viability.

However, Houston demonstrates how strong economic fundamentals can override climate risks. Despite experiencing multiple devastating events–including Hurricane Harvey in 2017 ($160 billion in damages), Hurricane Ike in 2008 ($43.2 billion in damages), and severe floods in 2015 and 2016 ($6.5 billion in damages) (NOAA, 2024)–Harris County has grown by 1.3 million residents since 2000. Risk-based NFIP premiums in Houston increased by 93% from averages of $955 to $1,849 under Risk Rating 2.0, while regular homeowners insurance surged 40% from $4,217 in 2019 to $5,935 in 2024. Remarkably, median home values in Harris County grew 58% from 2017 to 2022, outpacing national averages by 7% despite the catastrophic impacts of Harvey. This resilience suggests that robust local economies and strong market demand can, at least temporarily, outpace any value losses from even severe climate risks.

The implications for local economies extend far beyond direct housing market effects to regional GDP, household financial stability, and public services. Communities facing declining property values due to climate risks confront multiple economic threats. Falling home equity reduces household wealth and borrowing capacity, constraining consumer spending and local economic activity. Lower property assessments significantly impact state and local government revenues, with property taxes accounting for over 30% of local government funding nationwide. This reduction in revenue can trigger a vicious cycle, where limited funds hinder investments in critical climate adaptation infrastructure just when it is most urgently needed—further exacerbating the decline in property values. States like Texas and Florida, which rely heavily on property taxes due to their no-income-tax structure, are increasingly exposed to fiscal risks as climate change threatens their tax base by impacting property values. Meanwhile, areas receiving climate migrants face different challenges. While rapid home price growth may boost property tax revenue, it also creates affordability issues, and the influx of residents places pressure on already strained infrastructure.

These dynamics suggest that climate vulnerability will increasingly influence not just property values, but broader patterns of regional economic output, fiscal sustainability, and community resilience.

The dynamics between climate risk, the insurance market, and consumer perceptions suggest a future where climate considerations become increasingly central to property valuation, with implications for local economic development. Traditional drivers of home values - such as job markets, school quality, and amenities - will interact with fundamental questions of long-term location desirability and sustainability in the context of climate change. The resulting impact on property values will likely ripple throughout regional economies, potentially reshaping the economic geography of the U.S.

# METHODOLOGY

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To address the macroeconomic risks of climate change, First Street has developed an innovative, holistic approach to assessing home value impacts and downstream economic implications across U.S. communities. This approach considers both the immediate financial impact of rising insurance costs and the long-term effects of shifting regional desirability driven by evolving climate migration trends. First Street modeled these relationships using results from its existing climate hazard models such as their Flood Model (FS-FM), Wildfire Model (FS-WFM), Extreme Heat Model (FS-EHM), Wind Model (FS-WM), and Air Quality Model (FS-AQM), alongside prototypes of First Street's newly developed Drought Model (FS-DM) and Hail Model (FS-HM), (Figure 15).

**THIS FRAMEWORK INCLUDES:**

1. **Risk-adjusted Insurance Model**
   An approach to risk-adjusting insurance premiums and projecting future increases.

2. **The First Street Climate Migration Model (FS-CMM)**
   A climate migration model that combines historical migration patterns and population projections to forecast population changes due to various climate hazards under different climate scenarios.

3. **Market-based & Insurance-based Property Value Models**
   Property value change models accounting for both population-driven impacts and insurance increase impacts.

4. **Downstream Economic Implication Models**
   Economic change models, focusing on key indicators like GDP, housing prices, and debt-to-income ratios, to anticipate shifts in economic conditions of communities as a result of climate migration dynamics.

In aggregate, the First Street Macroeconomic Implications Model (FS-MIM) captures how climate risks affect property values through two key channels: their acute impact on the cost of homeownership via insurance pricing and their chronic influence on housing demand via location desirability, inhabitability, and economic strain. This collective approach forecasts how climate change will reshape the residential real estate sector—a cornerstone of both economic productivity and household wealth in the U.S. The following sections provides an overview of each model. For a more comprehensive explanation of the methodology, please refer to First Street's "Macroeconomic Implications Model" document, which outlines the methods used for these models and a range of other modeled implications.

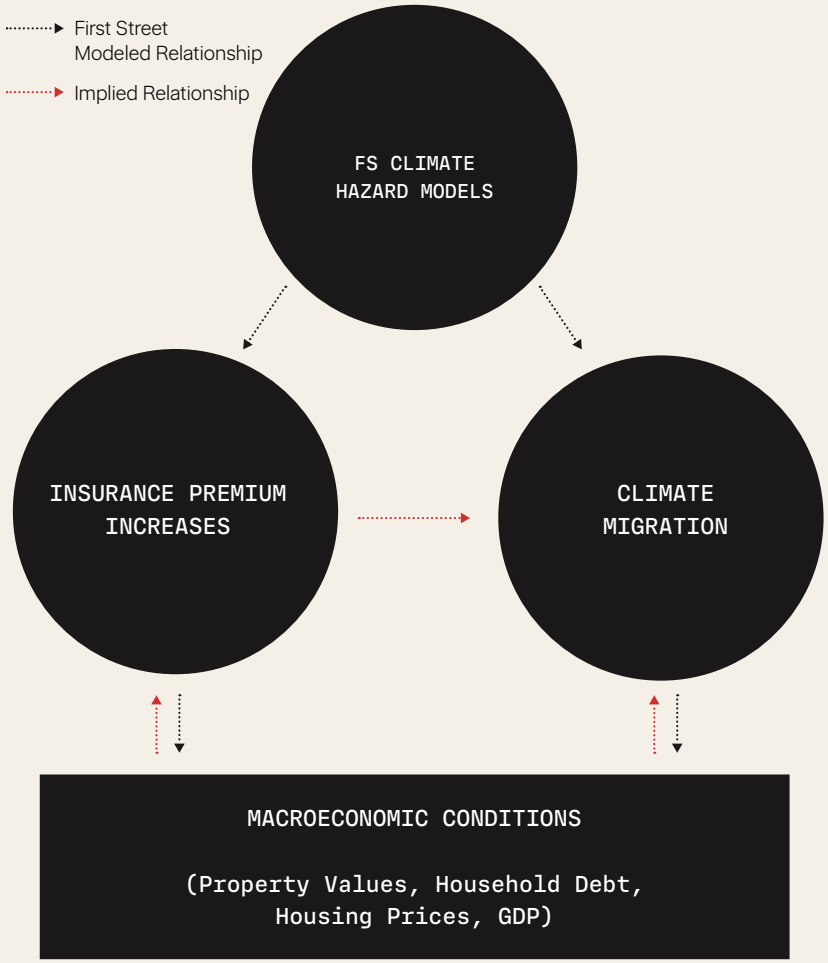


**Figure 15.** Diagram of First Street's overarching framework for estimating climate-adjusted macroeconomic conditions

**Source:** FHFA Experimental Dataset for the Price of Residential Land, 2022

# METHODOLOGY

## Risk-Adjusted Insurance Model

Climate change is expected to affect communities in several indirect ways, with one of the largest financial impacts being insurance cost changes. First Street models insurance increases by assuming insurers have complete information about climate-driven property damages and operate without state-level rate increase restrictions. Property-level climate damages are calculated using Average Annual Loss (AAL), or the expected yearly monetary loss when accounting for both the probability and severity of all possible damaging events. The AAL is computed by multiplying each potential loss by its probability of occurrence and summing these products across all scenarios. For example, a property might have a 1% chance of $100,000 damage from a Category 5 hurricane, a 5% chance of $20,000 damage from a Category 3 hurricane, and so on. First Street specifically calculates AAL across hurricane wind, wildfire, and hail damage in the context of perils likely covered by homeowner's insurance.

First Street projects insurance premiums by comparing current AAL-derived premiums to estimated premiums 30 years into the future. The methodology assumes premium changes will be proportional to changes in AAL, supported by research demonstrating an approximately one-to-one relationship between climate-driven AAL increases and premium increases (Blonz et al., 2024). This pass-through indicates that insurers generally transfer the full cost of increased risk to policyholders. The results of First Street's risk-adjusted insurance premiums offer expected insurance costs for properties if insurers were to account for the full scope of anticipated climate damages, offering a valuable alternative method of informing a property's financial risks from climate change.

## The First Street Climate Migration Model (FS-CMM)

First Street sought to capture how the chronic effects of climate change impact migratory patterns in the U.S. across six major climate risks: floods, hurricane-force winds, wildfire smoke, drought, wildfires, and heat waves. The FS-CMM integrates climate projections from First Street models across these hazards with historical climate events and observed drivers of migration such as employment opportunities, housing availability and affordability, and community amenities to model the effect of future climate projections on population change (Hirsh et al., 2024). This model is further supported by a flood-specific migration model First Street had previously developed (Shu et al., 2023). The FS-CMM analyzes climate-driven population changes down to the census block group-level, one of the most granular statistical enumeration levels available in the U.S., containing roughly 600 to 3,000 persons. This level of detail is crucial to capture given that certain climate effects, like flooding, may have drastically different outcomes across adjacent neighborhoods.

The model incorporates 20 years of historical population change (2000-2020) from the Decennial Census conducted by the Census Bureau as the key predictor variable, capturing the historical growth in populations. Socioeconomic control variables were largely collected from the American Community Survey and the Bureau of Economic Analysis Regional Accounts while community amenities variables were primarily collected from private sources. Importantly, the analysis incorporated both historical climate events and projected future exposure. Historical climate events or metrics across perils were incorporated to control for prior population sorting due to natural disasters (i.e., climate displacement), so the future exposure predictors of the model could capture perceptions of chronic risks. Capturing how people may perceive chronic climate risks essentially uncovers potential long-term migration patterns rather than just temporary displacement from disasters.

First Street employed advanced machine learning techniques to isolate the impacts of climate exposure on population change. Using an innovative matching technique, the model paired similar block groups that differed primarily in their climate risk exposure—for instance, comparing two areas with comparable income and amenities, but where one faced high flood risk and the other did not. Advanced statistical modeling was applied to the matched pairs to quantify exactly how much each type of climate risk drove population movement. By simultaneously estimating the effects of all climate perils within a unified model framework, the analysis explicitly accounts for their interdependencies and avoids double counting migration impacts. While the statistical model explains historical population movements, First Street incorporated population projections at the block group-level along a similar timeframe as the climate risk projections in the model to forecast migration patterns based on current perceptions of future climate threats. Population projections were downscaled from global Shared Socioeconomic Pathway (SSP) population projections using the techniques captured by Porter and colleagues (2023). The results yielded hyper-granular estimates of the number of individuals likely to move out of certain block groups due to each peril, leading to both specific community effects and aggregate estimates of how climate change may shape the U.S. as a whole. These estimates are available from 2025 to 2055, creating a baseline for anticipating population-driven responses to climate risk.

# METHODOLOGY

## Market-based & Insurance-based Property Value Models

First Street recognizes that climate change will impact properties more than property damage alone. Climate change will affect the value of properties through both the strain of operation costs and the shifting demand for the location on which a property sits. To account for these factors, First Street developed a multi-faceted approach to modeling the effect of climate risk on residential property values: a market-based model capturing the effect of chronic climate risk on consumer demand for homes via a climate migration model and an insurance-based model, capturing the impact of acute climate risk on the operating costs of a home and thereby its operating income (Figure 16).

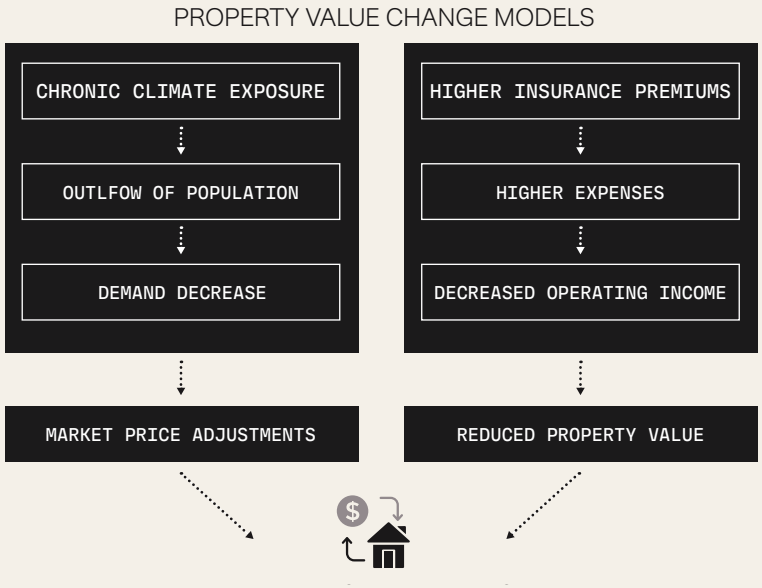


**Figure 16.** Diagram of First Street's climate-driven property valuation approach

The insurance-based property value model uses industry standard approaches for estimating the Net Operating Income (NOI) of homes. NOI is calculated by subtracting two key metrics for any given home: imputed rent and operating costs. Imputed rent is the rental income homeowners could theoretically earn if they rented out their property instead of occupying it or the housing services value homeowners receive by living in the home instead of renting it out. The cost of operating a home includes maintenance, repairs, property taxes, and insurance premiums and represents the non-financial costs of keeping a home operational apart from financial costs to a home such as mortgage payments and interest. First Street derived imputed rents and operating costs from BLS dataand downscaled these estimates using data on property values and square footage to reach the individual property-level. To estimate the property's value, the resulting NOI estimated for a property is then divided by a market-based capitalization rate, representing the expected annual return on a real estate investment. By incorporating-projected climate-driven increases in insurance premiums while holding other factors constant in current dollars, the model quantifies how escalating insurance costs alone will impact home values through increased operating costs and reduced NOI.

| METRIC | DITRIBUTED PORTFOLIO (CURRENT) | CONCENTRATED PORFOLIO (FUTURE) | DIFFERENCES CURRENT(%) |
|---|---|---|---|
| Annual Rent | $21,000 | $21,000 | $21,000 |
| Homeowners Insurance | -$1,436 | -$3,200 | -$5,436 |
| Other Ownership Costs | -$4,734 | -$4,734 | -$4,734 |
| Net Operating Income (NOI) | $14,830 | $13,066 | $10,840 |
| Capitalization Rate | 5% | 5% | 6% |
| (NOI/CapRate) | $296,600 | $261,320 | $180,667 |
| Home Value Impact | | -$35,280 (-11.9%) | -$115,933 (-39.1%) |

**Figure 17.** Example of the NOI approach to property valuation

# METHODOLOGY

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This isolation of the insurance cost effect provides a clear view of how climate risk-driven changes in the cost of homeownership could depress property values, independent of other market forces or general price appreciation. Figure 17 presents an example calculation of First Street's approach using NOI. The market-based property value model, using a similar framework as the downstream economic models described below, analyzes the historical relationship between population change and property transactions. The model is motivated by prior findings that suggest effective climate change communication strategies can heighten public awareness and concern, shifting consumer perceptions about the livability of climate-vulnerable areas (Keane et al., 2024). This model employs the same 20 years of population data from the Census as used by the FS-CMM with granular transactions data from Lightbox over the same time period at the census tract-level. First Street developed an advanced statistical model using this data to derive the nuanced relationship between population change and property transaction prices, capturing non-linear trends within the geographic context of each observation. Figure 18 presents a summarized version of First Street's modeled results nationally, illustrating how both residential real estate values and commercial real estate values fluctuate as populations change. The results from this model provide a basis for understanding how population change will drive changes in home values, allowing for projections of future value changes as climate migration unfolds in the coming decades.

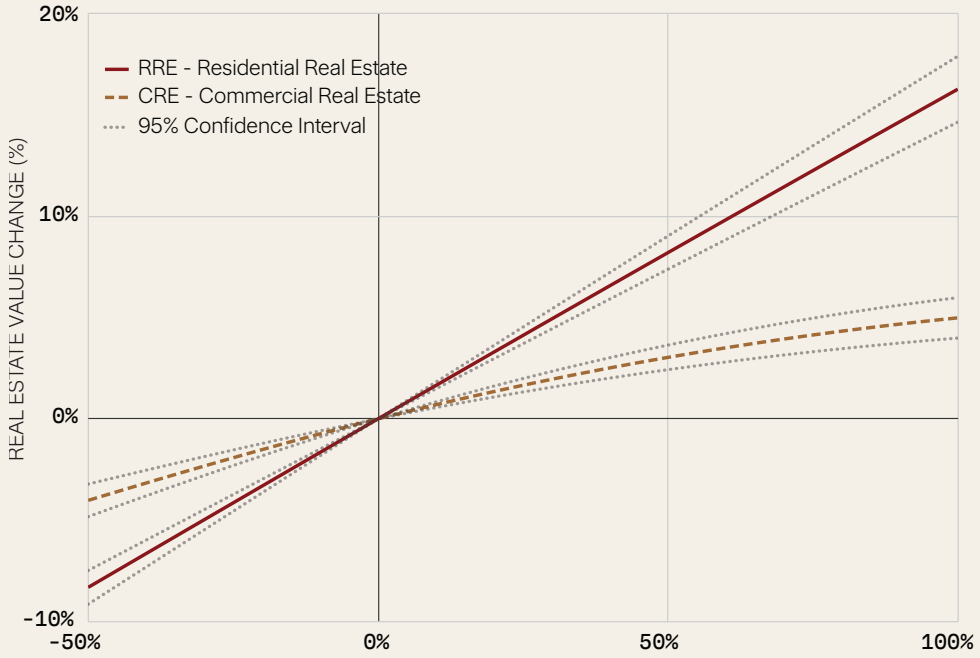


**Figure 18.** Relationship between real estate values and population change

Property value impacts due to both acute and chronic climate risks captured in the above two models are combined to produce an overall picture of how values will fluctuate over time in a changing climate. While insurance premiums are expected to continue to increase, leading to decreases in property values, market-based forces may reinforce these decreases through a retreat of populations or contradict and even override these effects as demand for housing in certain areas leads to a net gain in property values over time. These impacts are projected forward using First Street's insurance projections and Climate Migration Model results to estimate changes through 2055. The property value models apply these projections to predict future changes anchored to current market valuations from transaction data, meaning all projected impacts represent relative changes from present-day property values in nominal terms. This approach intentionally excludes the effects of traditional market appreciation, depreciation, or time-value discounting to isolate the specific impacts of climate risk on property values.

# METHODOLOGY

## Downstream Economic Implication Models

While the FS-CMM informs changes in community population size, First Street also examined how these climate-driven population shifts may lead to downstream impacts on local economies (Buresch et al., 2024). These models focus on three key economic indicators: Gross Domestic Product (GDP), housing prices, and household debt levels. First Street took a retrospective and geographically-specific approach to modeling these indicators by analyzing the same 20 years of population data from the Census as used by the FS-CMM in conjunction with 20 years of economic data, adjusted for inflation, from several public sources at the county-level. In doing so, the models seek to understand how population change is associated with economic productivity and household financial stability across different types of communities.

To capture the diverse ways population changes impact economies in specific parts of the country, the analysis divided the U.S. into 11 distinct categories based on three key characteristics. First, it separated the country into four major regions: Northeast, South, Midwest, and West. Then, using established USDA classifications (USDA ERS, 2024), it distinguished between metropolitan and non-metropolitan areas. Finally, for metropolitan areas, it identified whether they were coastal (Ocean or Gulf facing border) or inland—recognizing that coastal economies may respond differently to population shifts than inland areas.

For each economic measure, the analysis uses advanced statistical modeling to capture the complex relationships between population changes and economic outcomes. These models allow for flexible, non-linear relationships—recognizing that the impact of population shifts isn't always straightforward or proportional. The results of this model capture how economic indicators change with population change, allowing First Street to predict future changes in local economies based on anticipated climate migration.

# NATIONAL RISK ASSESSMENT

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First Street explores the indirect effects of both the acute impacts of climate damages on the costs of living via risk-based insurance premiums as well as chronic climate exposure and its impact on the livability of neighborhoods and the resulting movement of people. This analysis provides a comprehensive understanding of the effect of climate change on home valuation–through increasing costs of homeownership and shifting consumer perceptions that subsequently impact the demand for housing. Furthermore, as climate exposure to both acute and chronic risks vary across the country, geographic patterns of insurance premium increases, climate migration, and resulting property values and macroeconomics emerge. Together, these forces will lead to both positive and negative outcomes in the housing market, as climate risk and consumer demand interact with varying levels of impact. To understand the differences in these results, First Street disaggregates the results from their models into five divergent trajectories of climate migration and insurance changes and their cascading effects on home values and community economies. The results presented in the following sections first provide an overview of results from First Street's risk-based insurance premium changes, the First Street-Climate Migration Model, and impacts to property values. Then, these results are disaggregated into distinct growth trajectories to show how these trends will impact home values and community economics differently.

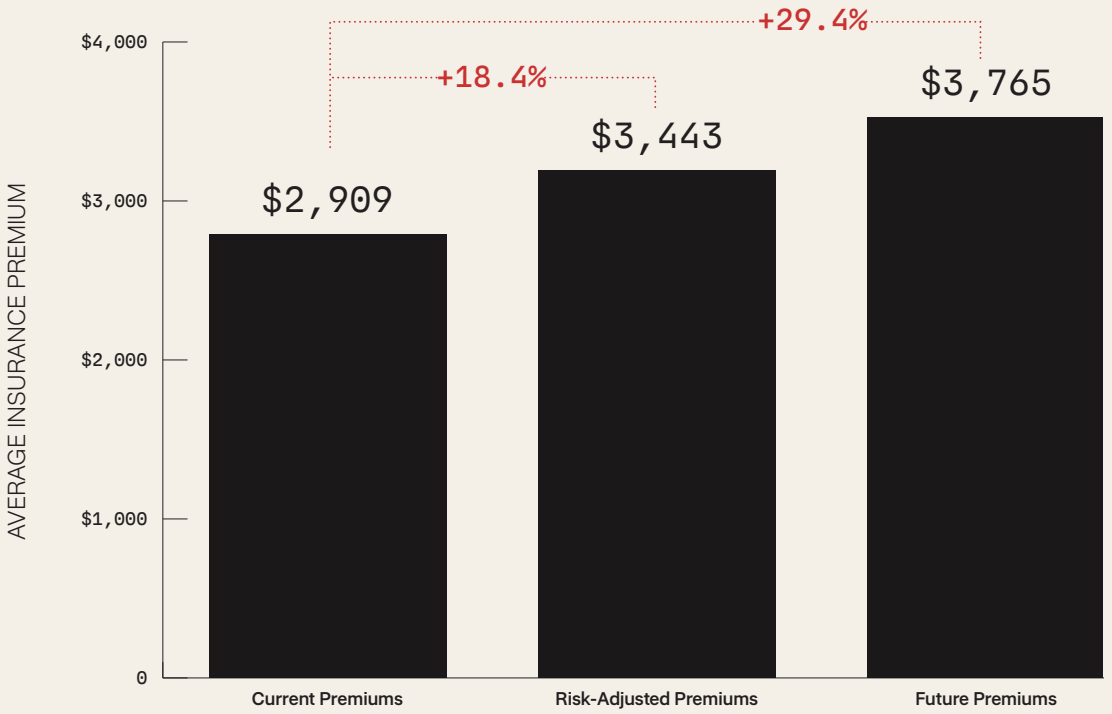


**Figure 19.** National map of homeowners insurance increases by 2055

## Insurance Premiums Surge as Climate Damages Escalate

As wildfires, hurricanes, and hail storms become more frequent and severe, the mounting risk of damage to people's homes will drive up the cost of homeowners insurance policies. Overall, First Street estimates that risk-based pricing corrections could lead to an average increase in premium prices of 29.4% from current premium levels as of June 2024 to 2055. This comprises both a 18.4% insurance shock, where First Street estimates that current insurance premiums are underpriced by this amount, and a 11.6% increase in average annual losses over the next 30 years, not accounting for inflation (Figure 19).

When put into perspective with the national average homeowners' insurance premium, this amounts to an average increase of $856 that is non-inflation adjusted, including a $534 increase to offset current levels of expected risk damages.

# NATIONAL RISK ASSESSMENT

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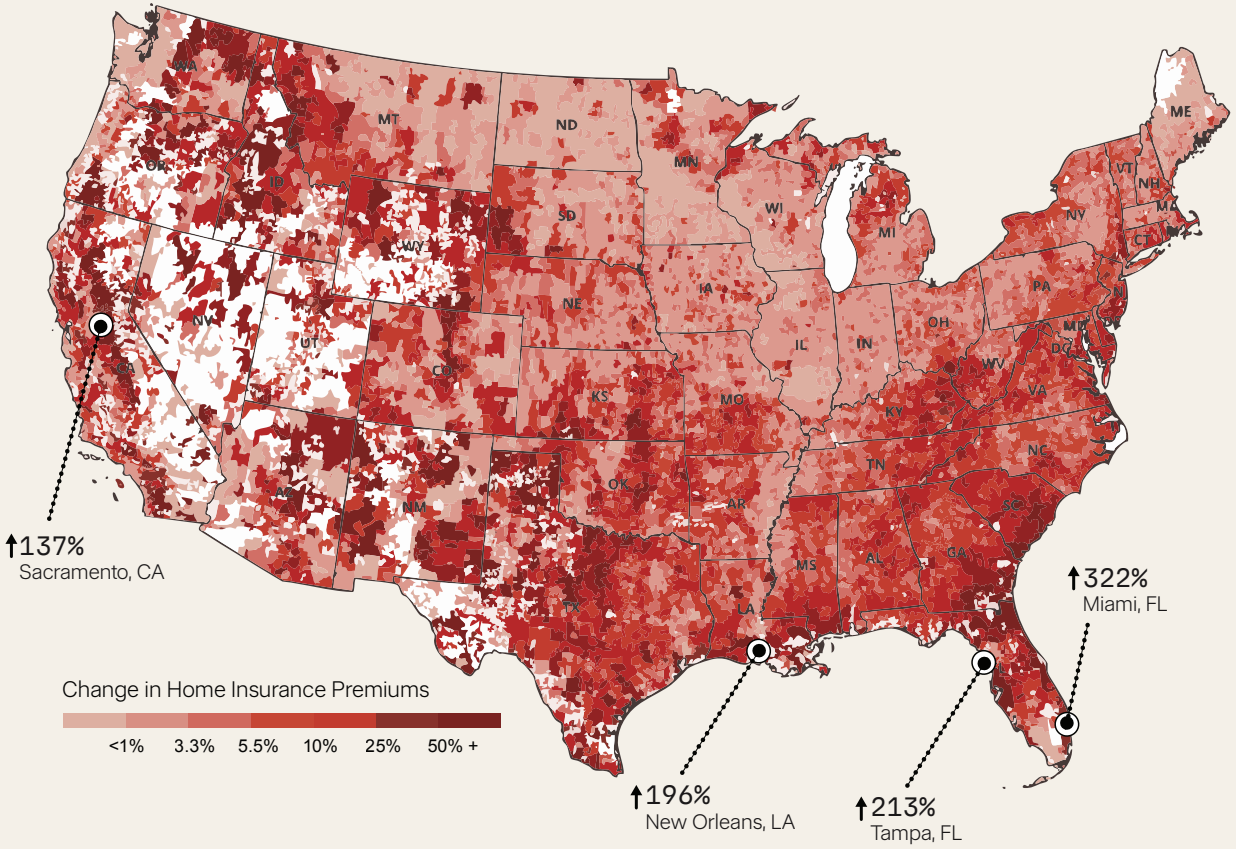


The risk-based increases in insurance will vary widely across parts of the U.S., heavily skewed by more extreme or rapidly increasing natural disasters and extreme weather in some parts of the country versus others (Figure 20). In particular, Western communities in states like California, Oregon, and Washington are projected to face increases in insurance of 46.8%, 39.7%, and 20.1%, respectively, primarily driven by increases in wildfires. Along the East Coast, states like South Carolina and Georgia will see increases of 37.9% and 25.0% due to their increasing hurricane wind risk.

Central states like Texas, Kansas, and Utah may also face increases amounting to 54.7%, 54.6%, and 48.6% driven by intensifying hail. Altogether, large metro areas with at least 1 million or more residents in 2024 that have the highest insurance premium increases include Miami, FL, Jacksonville, FL, Tampa, FL, New Orleans, LA, and Sacramento , FL, which face premium increases of 322%, 226%, 213%, 196% and 137%, respectively. When considering the additive effect of inflation, premiums in these states and cities will skyrocket over the next decade.

**Figure 20.** National map of homeowners insurance increases by 2055 by zip code with aggregated metropolitan statistical area examples

**Note:** Percent increases are proportional to the percent increase in avergae annual losses (AAL).

# NATIONAL RISK ASSESSMENT

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## Climate Migration Reshapes Population Distribution Across America

In 2025, First Street estimates that 5.2 million Americans will voluntarily relocate within the U.S. to areas less vulnerable to climate risks. This climate-driven domestic migration is expected to increase dramatically over the following decades, reaching more than 55 million people by 2055 (Figure 21). The primary factors driving this migration include exposure to extreme heat, wildfire smoke, flooding, and drought.

In particular, extreme heat is expected to drive 14.7 million Americans to relocate by 2055. This driver is illustrated by findings previously summarized in First Street's report on Hazardous Heat, which estimates that the incidence of heat that exceeds the threshold of the National Weather Service's (NWS) highest category for heat (i.e., "Extreme Danger", or a Heat Index above 125°F), is expected to grow from impacting roughly 8 million people in current conditions to 107 million over the next 30 years. The majority of climate migrants moving away from their current homes due to heat will likely be concentrated in the middle of the country, where the increase in "Extreme Danger Days" is expected to increase the most due to a lack of coastal influences mitigating extreme temperatures.

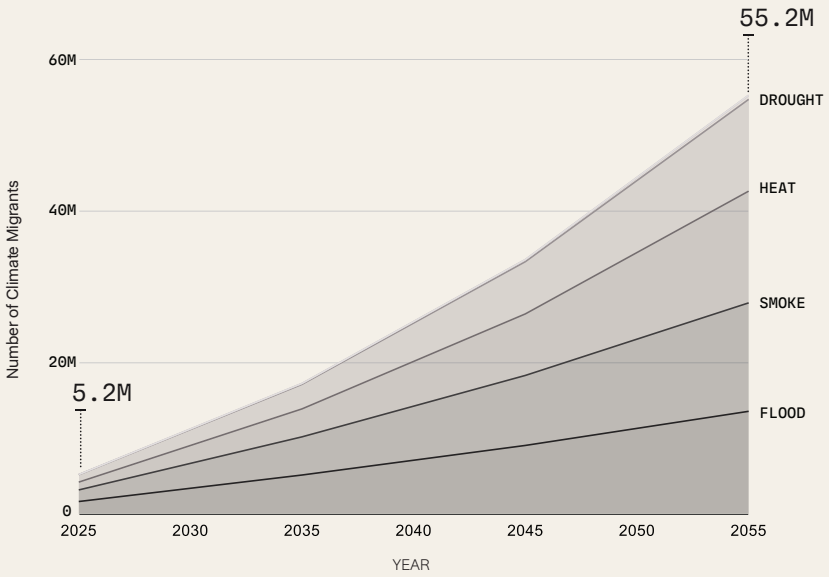


**Figure 21.** Climate migration projections by hazard from 2025 to 2055

**Note:** Climate migration from wildfire and smoke is included in the 2055 total but not shown in visualization due to its minimal contribution to overall migrant numbers.

By 2055, the combined impact of wildfires and their smoke will drive significant migration across the U.S. Wildfire smoke, measured as fine particulate matter (PM2.5), will likely cause 12.8 million Americans to relocate, primarily in western states including California, Washington, and Oregon. This is driven by projections from First Street's air quality models, which predict that some particularly vulnerable communities in the West will experience over two months of poor air quality annually, with levels reaching "orange" (unhealthy for sensitive groups) or worse on the EPA's Air Quality Index scale. This severe smoke exposure extends along the West Coast and into parts of the Southeast, where historic wildfire patterns and increasing risk create persistent air quality challenges, which poses significant threats to human health and impacts the long-term habitability of swaths of the country. Beyond smoke exposure, the FS-CMM estimates that direct wildfire risk as quantified by the FS-WFM will motivate an additional half a million people to relocate by 2055.

Flooding will emerge as the most geographically widespread driver of climate migration, leading 11.9 million Americans to relocate by 2055. This migration pattern affects every region of the U.S., from coastal communities facing sea level rise and storm surge to inland areas facing fluvial flooding from rivers and streams to urban areas subject to pluvial flooding from heavy rainfall events. The scale of impact is reflected in current First Street projections: over one-third of U.S. counties and more than half the population are exposed to frequent, chronic flooding from precipitation alone. Particularly vulnerable areas include Appalachian communities along flood-prone waterways subject to tropical cyclone-driven rainfalls as well as coastal towns along the East Coast where sea-level rise amplifies storm surge and coastal flooding risks. Hurricane impacts compound these risks in coastal regions, with extreme winds from tropical storms expected to motivate thousands of additional relocations. Together, these combined flood and storm risks are reshaping settlement patterns across vulnerable regions as households evaluate both current risks and projected climate impacts when deciding whether to relocate to areas with lower flood exposure. This movement is likely to accelerate as flood insurance costs rise and property values respond to changing risk assessments, though the pace and scale of migration will vary based on local adaptation measures, economic factors, and individual risk tolerance.

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Drought is projected to be another major driver of climate migration, with an estimated 11.1 million Americans expected to move due to strained water resources by 2055. As of November 2024, the U.S. Drought Monitor estimates that 50% of the country is in a drought, impacting almost 150 million people across the U.S. Drought events have become more frequent: nearly one severe drought event has occurred annually for the past decade from 2014 to 2023, compared to every two years during the 1980s (NOAA's billion-dollar disaster tracker). These conditions are projected to continue to intensify over the coming decades, with longer dry spells and more severe water shortages. Communities facing chronic water stress will see cascading impacts on local economies and quality of life, from failing crops and rising food prices to water use restrictions and declining property values, ultimately compelling residents to seek more water-secure locations.

The U.S. population is projected to grow by 18 percent over the next three decades under the middle-of-the-road SSP2-4.5 scenario, reaching over 400 million by 2055. This population growth, combined with climate-driven shifts in location desirability, will significantly reshape the distribution of populations across the country as different regions face varying intensities of climate hazards and associated livability challenges (Figure 22). This redistribution of population represents selective migration that tends to concentrate younger, more educated, and economically mobile residents in receiving areas while potentially accelerating aging and socioeconomic challenges in communities experiencing outflow. These demographic shifts create feedback loops that influence future migration decisions, as changing neighborhood characteristics reshape local economies.

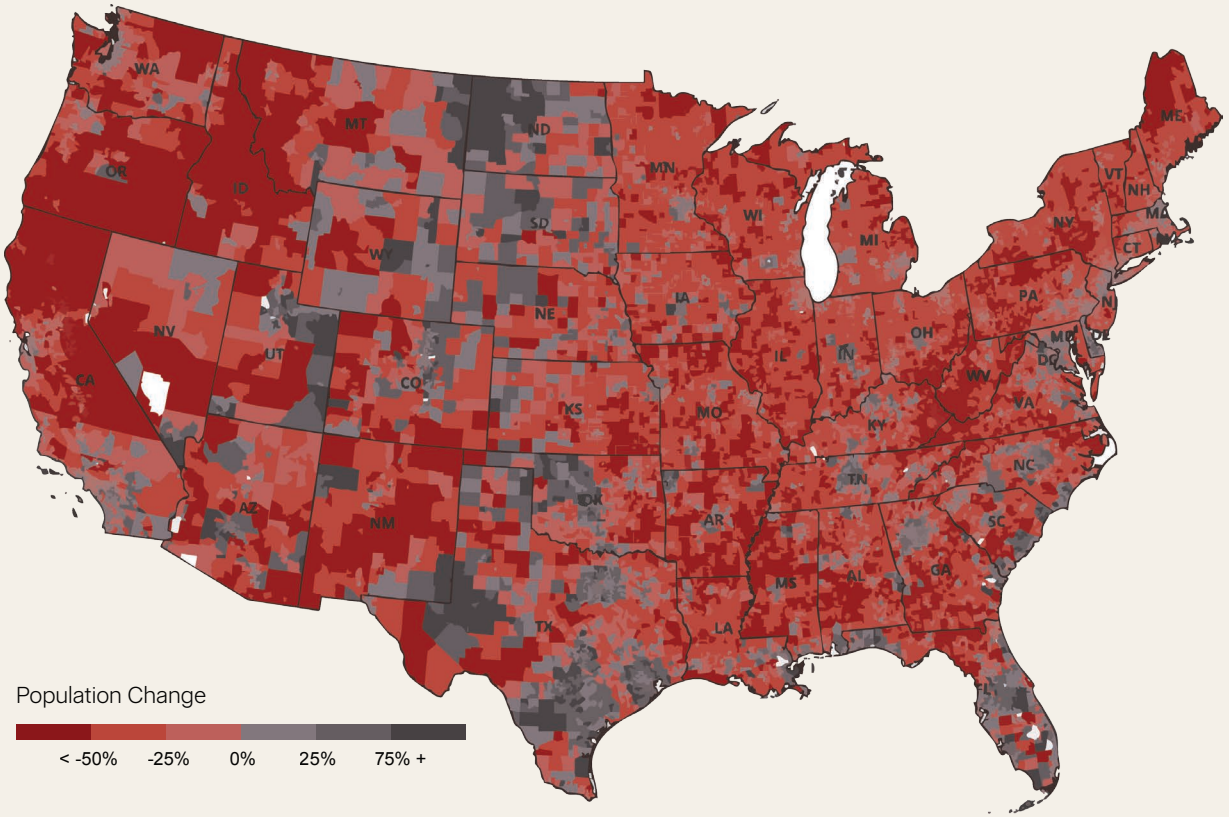


**Figure 22.** Climate-corrected population change from 2025 to 2055

# NATIONAL RISK ASSESSMENT

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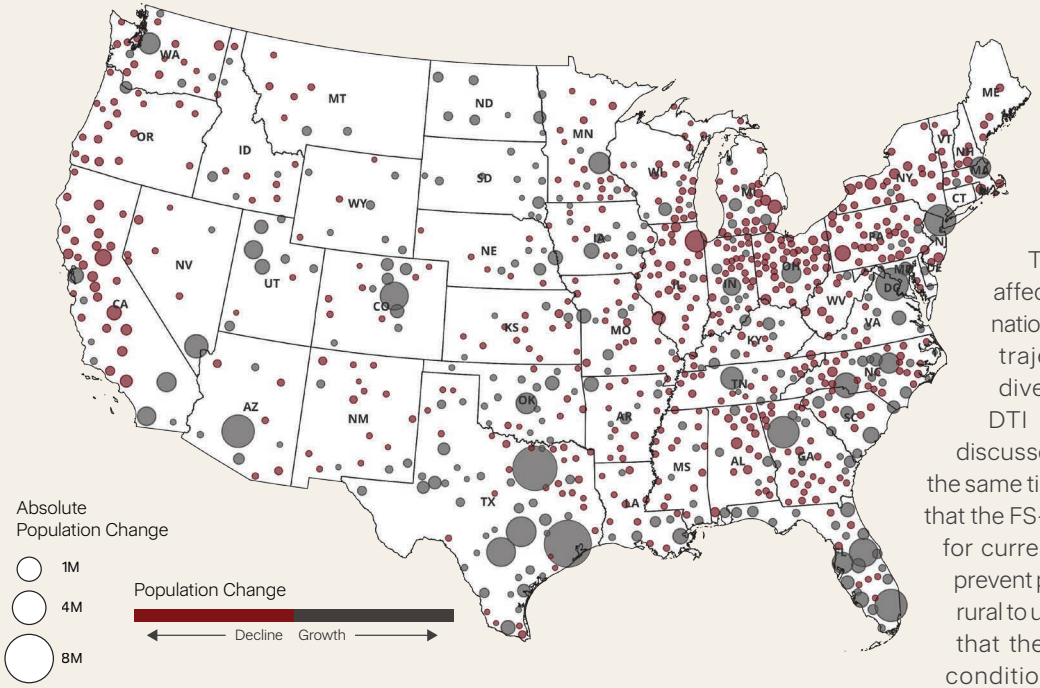


**Figure 23.** Climate-correct population change in metropolitan areas across the U.S. from 2025 to 2055

Findings from the FS-CMM demonstrate that climate migration will intensify existing migration patterns, particularly accelerating rural-to-urban movement, with much of the population growth occurring in larger metro areas (Figure 23). These rural-to-urban shifts may reflect several underlying factors: rural communities often have more limited municipal budgets and infrastructure for climate adaptation, their economies typically have less diversification to absorb climate shocks, and their workforce markets may provide fewer alternative employment options when climate impacts disrupt traditional rural industries. The socioeconomic composition of this rural-to-urban migration often skews toward residents with greater educational attainment and economic mobility, depleting rural areas of vital human capital while strengthening urban labor markets. This selective migration affects both origin and destination communities' economic trajectories, reflected in divergent patterns of HPI, DTI ratios, and local GDP discussed later in the report. At the same time, it's important to note that the FS-CMM does not account for current skill gaps that could prevent people from moving from rural to urban areas, but suggests that the underlying economic conditions in urban areas as well as capacity for climate adaptation may motivate such changes. The model results also show that some growing metropolitan areas are expected to hit a tipping point within the next thirty years, where mounting climate pressures begin to overpower even strong economies or compound with existing issues facing communities, leading to a doubling down of population migration out of the area. This tipping point pattern suggests that economic strength alone may not be sufficient to retain population in certain areas facing severe climate impacts. This is most apparent in coastal neighborhoods of Miami, where the historic appeal of these areas will motivate population growth over the next decade but this trend will reverse in the following decades as sea level rise and intensifying storm surge begin to degrade coastal livability (Figure 24).

The model's neighborhood-level projections reveal that climate migration patterns can vary significantly within cities based on highly localized differences in exposure to climate risks. Variations in physical characteristics like elevation or proximity to burnable vegetation, combined with differences in protective infrastructure, create distinct risk profiles even between adjacent neighborhoods.

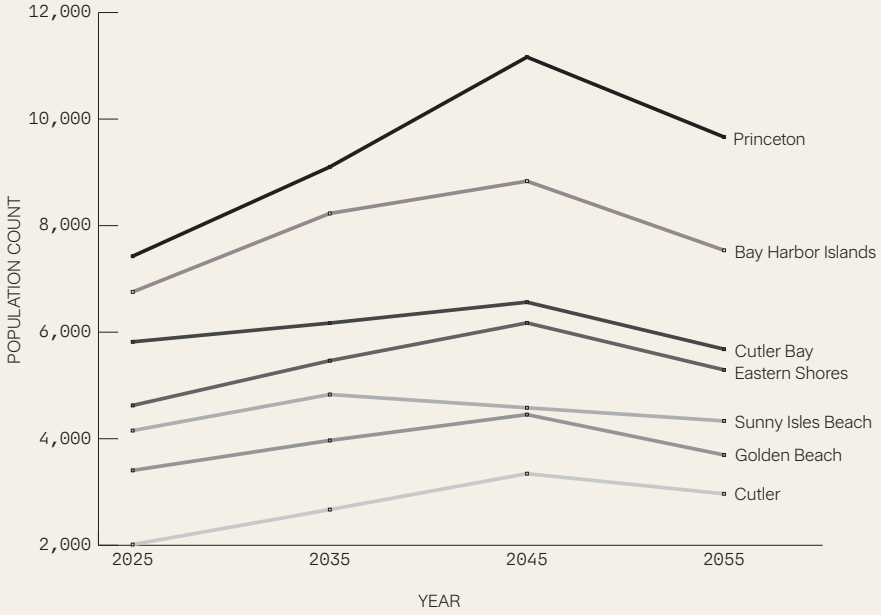


**Figure 24.** Population trajectories of tipping point neighborhoods in Miami, FL from 2025 to 2055

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## Climate Risk Transforms Property Values

Climate change affects housing beyond property damage by transforming both consumer preferences for location and the fundamental costs of homeownership. Through comprehensive modeling of climate migration and evolving ownership costs, First Street uncovers how climate-driven changes in location desirability and insurance expenses can either compound or counteract each other in their effects on property values.

These projected impacts are analyzed relative to current property valuations based on recent transaction data, ensuring the analysis isolates climate-specific effects from broader market trends and traditional real estate valuation methods. The magnitude of these impacts are most striking in the country's metropolitan areas, varying widely as insurance effects either exacerbate or lessen the effects of shifting consumer demand due to population migration in positive and negative ways (Figure 25).

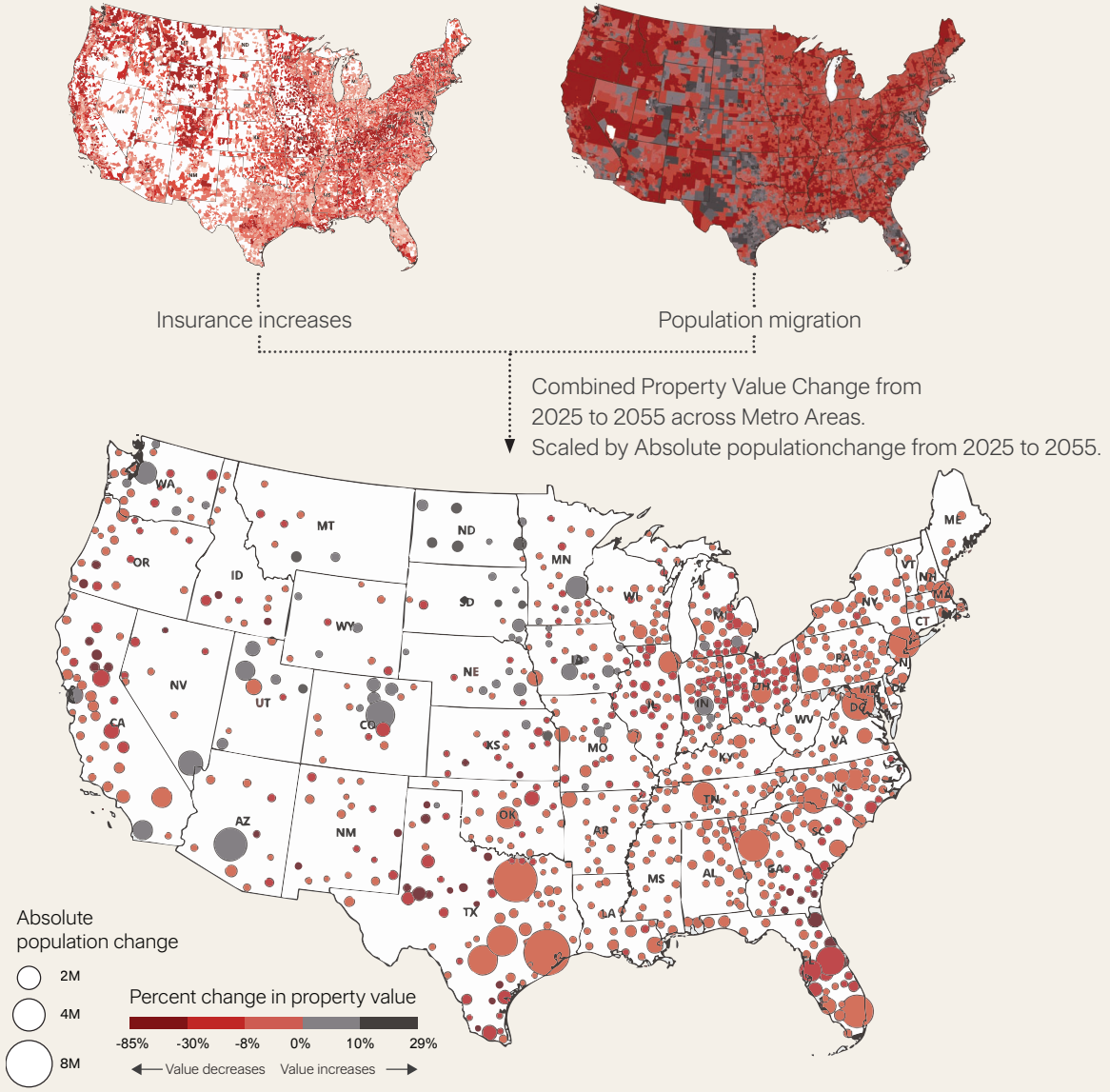


**Figure 25.** Climate migration projections by hazard from 2025 to 2055

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## Climate Risk Divides Communities into Distinct Growth Paths

The interplay between local social, political, and economic conditions drive the severity of environmental pressures, risk industries' response, and human mobility. Applying the First Street macroeconomic models at a hyper-local level reveals that these dynamics lead to alternative trajectories of insurance changes, population growth, and derivative impacts on home values and local economies across communities. These divergent growth trajectories both reflect and reinforce demographic sorting across communities, as climate resilient areas often attract and retain residents with higher levels of educational attainment and income, according to peer-reviewed research (Buresch et al., 2024). This demographic transformation helps explain the pronounced differences in economic indicators across growth categories, as changes in population composition directly influence local GDP, housing demand, and household financial stability. To analyze these complex dynamics, First Street developed a classification system identifying five distinct climate migration patterns projected from 2025 to 2055 at the census tract (neighborhood) level. The classification first divides areas into high-risk and low-risk categories based on whether they score 3 or greater on any of First Street's hazard models. It then considers population change trajectories over the thirty-year period, specifically examining whether changes are consistently positive, consistently negative, or show an inflection point from growth to decline.

THE RESULTING FIVE NEIGHBORHOOD CLASSIFICATIONS ARE:

### 1 Climate Abandonment

High-risk areas experiencing population decline and premium spikes, leading to a sustained exodus of residents, affecting 21,750 neighborhoods (26% of census tracts)

### 2 Risky Growth

High-risk areas where population continues to grow despite escalating insurance premiums, suggesting other strong economic or social drivers, occurring in 25,594 neighborhoods (31%)

### 3 Tipping Point

High-risk areas that show initial population growth followed by decline as rising premiums and climate impacts reach unsustainable levels, impacting 22,682 neighborhoods (27%)

### 4 Economic Decline

Low-risk areas losing population despite stable insurance rates, suggesting economic factors rather than climate drive the decline, affecting 9,063 neighborhoods (11%)

### 5 Climate Resilient

Low-risk areas attracting population growth while maintaining stable insurance rates, indicating sustainable development, found in 4,107 neighborhoods (5%)

**Note:** For the purposes of this analysis, neighborhood is synonymous with census tract, as it's defined by the U.S. Census Bureau.

# NATIONAL RISK ASSESSMENT

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The spatial distribution of these patterns reveals distinct regional trends (Figure 26). High-risk classifications cluster along the Sun Belt, particularly in Texas and Florida, with additional concentrations along the East Coast, West Coast, and Midwest where flooding, wildfires, extreme heat, and drought pose increasing threats. In contrast, lower-risk areas are predominantly found in the Midwest and parts of the Eastern U.S., with urban-rural divides influencing whether they follow growth or decline trajectories. Of the total 83,776 census tracts analyzed, 580 (0.7%) were excluded due to being unpopulated in 2024.

## GROWTH CATEGORIES

- **21,750** Climate Abandonment Neighborhoods
- **25,594** Risky Growth Neighborhoods
- **22,682** Tipping Point Neighborhoods
- **9,063** Economic Decline Neighborhoods
- **4,107** Climate Resilient Neighborhoods

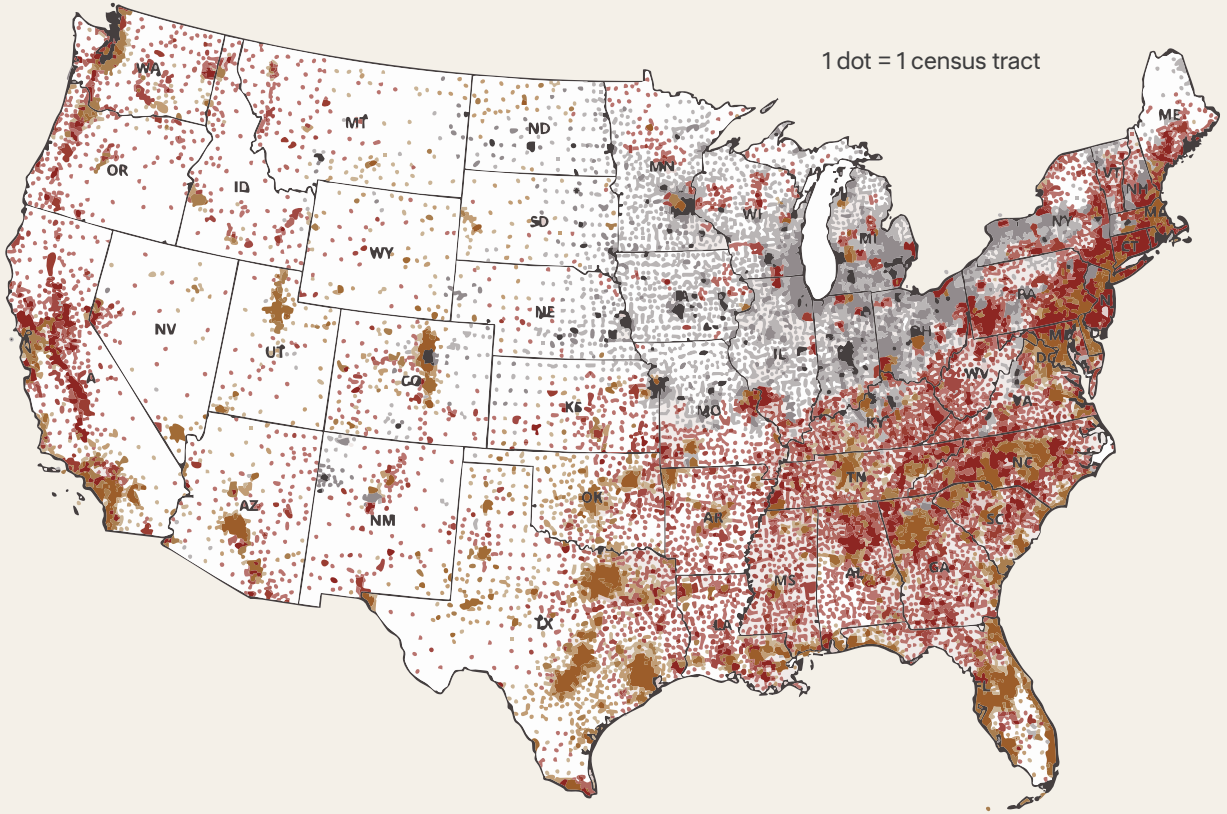


**Figure 26.** Neighborhood-level growth categories

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Splitting communities out into these growth categories demonstrates that growing, climate resilient communities will drive much of national population growth over the next thirty years, with 68% population growth from 2025 to 2055 (Figure 27). Similarly, risky growth communities will see 76% population growth over this period. However this form of population growth may ultimately follow a tipping point trajectory past 2055. Subsequently, tipping point communities will result in population growth at a slowing rate until 2040 before dipping to negative change year over year, resulting in net negative population change of almost 1% between 2025 and 2055. Climate abandonment areas, on the other hand, will lead to aggregate declines in population in these communities, amounting to 38% over thirty years. Economic decline neighborhoods will add to this population loss by 28%.

Similarly, the varying levels of climate exposure across neighborhood types manifest in distinct insurance premium trajectories, revealing how migration patterns intersect with climate risk through 2055 (Figure 28). Risky growth neighborhoods face the steepest average increases over the next thirty years at 62% above current levels, likely because continued population growth in high-risk areas leads insurers to price in both escalating climate hazards and rising concentrated exposure of assets. Tipping point communities see the second-largest average premium increases at 47%, while climate abandonment areas show a still substantial but lower average increase of 27%. The higher premiums in tipping point versus abandonment areas suggests these communities initially offer benefits that outweigh climate risks, though this balance eventually shifts. Climate resilient and economic decline communities have the smallest average insurance increase of 9% and 6%, respectively, meaning these communities are still exposed to climate impacts but well below the averages seen in highly exposed communities.

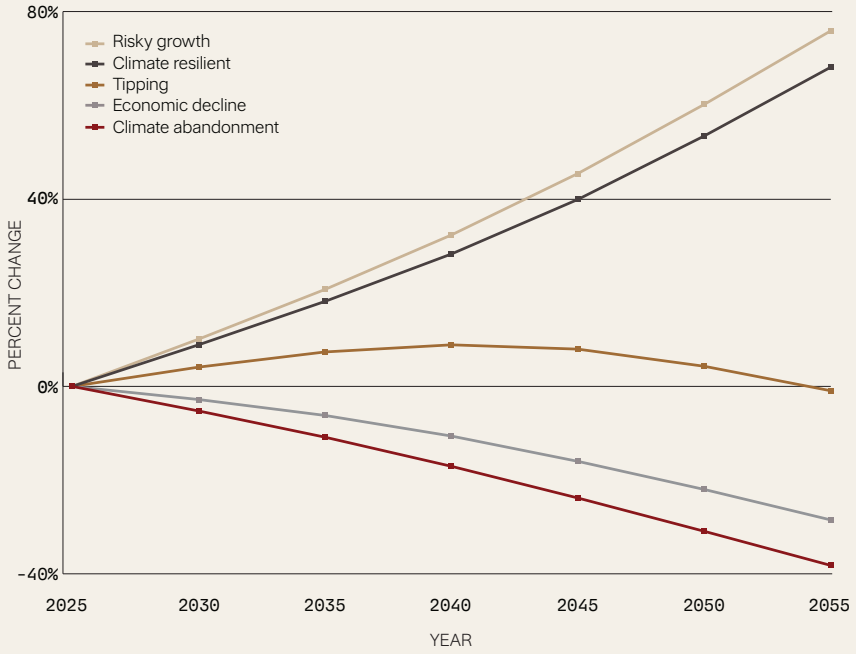


**Figure 27.** Population change by growth category from 2025 to 2055

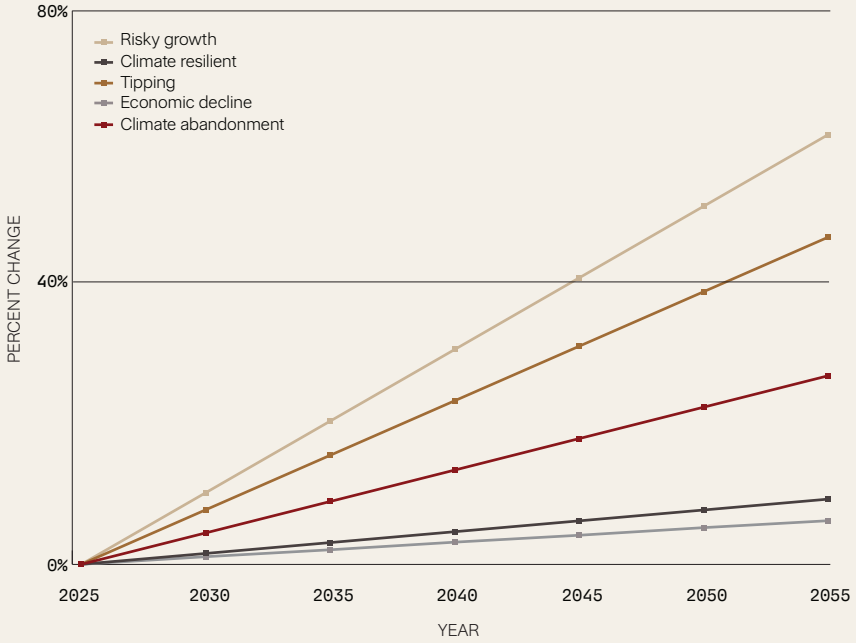


**Figure 28.** Insurance change by growth category from 2025 to 2055

# NATIONAL RISK ASSESSMENT

Looking at examples of these growth categories across counties illustrates these patterns (Table 2). Climate abandonment is evident in areas like Fresno County, CA and Ocean County, NJ, where significant population losses coincide with sharp insurance increases. Texas dominates risky growth areas, with counties in the Houston, Austin, and Dallas metros showing population gains over double amid varying levels of insurance increases. Tipping point trends appear in major metropolitan counties like Los Angeles and St. Louis, where insurance rises accompany population declines. Climate resilient areas cluster in select metros like Denver, where both Denver and Madison counties show strong population growth with minimal insurance increases.

| RANK | COUNTY | ASSOCIATED METRO AREA | POPULATION CHANGE | INSURANCE CHANGE |
|---|---|---|---|---|
| **Top 5 Climate Abandonment Counties** | | | | |
| 1 | Fresno County, California | Fresno, CA MSA | -45.8% | 55.5% |
| 2 | Ocean County, New Jersey | New York-Newark-Jersey City, NY-NJ MSA | -33.3% | 23.1% |
| 3 | Monmouth County, New Jersey | New York-Newark-Jersey City, NY-NJ MSA | -32.4% | 19.4% |
| 4 | Sacramento County, California | Sacramento-Roseville-Folsom, CA MSA | -27.8% | 8.9% |
| 5 | Jefferson County, Alabama | Birmingham, AL MSA | -25.7% | 9.4% |
| **Top 5 Risky Growth Counties** | | | | |
| 1 | Fort Bend County, Texas | Houston-Pasadena-The Woodlands, TX MSA | 170.2% | 5.8% |
| 2 | Denton County, Texas | Dallas-Fort Worth-Arlington, TX MSA | 146.7% | 11.5% |
| 3 | Williamson County, Texas | Austin-Round Rock-San Marcos, TX MSA | 146.2% | 12.4% |
| 4 | Travis County, Texas | Austin-Round Rock-San Marcos, TX MSA | 144.3% | 34.2% |
| 5 | Montgomery County, Texas | Houston-Pasadena-The Woodlands, TX MSA | 140.8% | 10.0% |
| **Top 5 Risky Growth Tipping Point Counties** | | | | |
| 1 | St. Louis County, Missouri | St. Louis, MO-IL MSA | -10.6% | 2.1% |
| 2 | Bernalillo County, New Mexico | Albuquerque, NM MSA | -5.9% | 7.9% |
| 3 | Los Angeles County, California | Los Angeles-Long Beach-Anaheim, CA MSA | -1.2% | 11.2% |
| 4 | Montgomery County, Pennsylvania | Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA | -1.2% | 9.4% |
| 5 | Jackson County, Missouri | Kansas City, MO-KS MSA | -1.2% | 6.0% |
| **Top 5 Risky Growth Climate Resilient** | | | | |
| 1 | Denver County, Colorado | Denver-Aurora-Centennial, CO MSA | 144.1% | 6.7% |
| 2 | Arapahoe County, Colorado | Denver-Aurora-Centennial, CO MSA | 101.7% | 3.9% |
| 3 | Dane County, Wisconsin | Madison, WI MSA | 81.6% | 2.0% |
| 4 | Douglas County, Nebraska | Omaha, NE-IA MSA | 74.6% | 9.7% |
| 5 | Johnson County, Kansas | Kansas City, MO-KS MSA | 59.0% | 10.1% |

**Table 2.** Examples of counties in each category ranked by population change

# NATIONAL RISK ASSESSMENT

## Future Property Values Vary Based on Local Climate Risk

Honing in on the four categories of neighborhood growth, First Street's property value models reveal that a community's growth trajectory largely determines the way the market effects of consumers' perceptions of climate risk interact with the additive costs of insurance. In particular, climate abandonment areas face compounding effects of negative property value changes due to population declines and decreasing demand for housing as well as sharply increasing insurance premiums (Figure 29).

Climate-driven population losses will cause the average property value to decline by 2% in 2055 compared to its 2025 value. Adding to this impact, the increasing costs of insurance will lead to a 4.2% decline in the average property's value, resulting in aggregate losses of 6.2% over this time period. In contrast, climate resilient communities will see conflicting impacts of insurance and population gain on property values. The growing population of these communities will drive substantial demand for housing, leading to an 11.9% increase in property value for the average home from 2025 to 2055. The minimal increase in insurance over this timeframe will lead to a slight decline in property values, averaging 1.1%. However, the overwhelming effect of consumer demand will offset the effect of insurance, resulting in average property value increases of 10.8% in 2055 compared to 2025 (Figure 30).

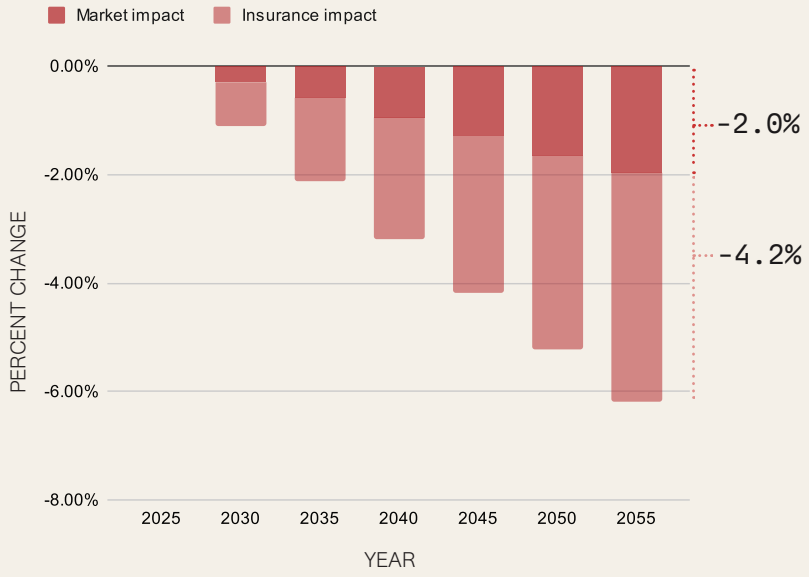


**Figure 29.** Combined property value impacts in climate abandonment neighborhoods, 25 to 2055

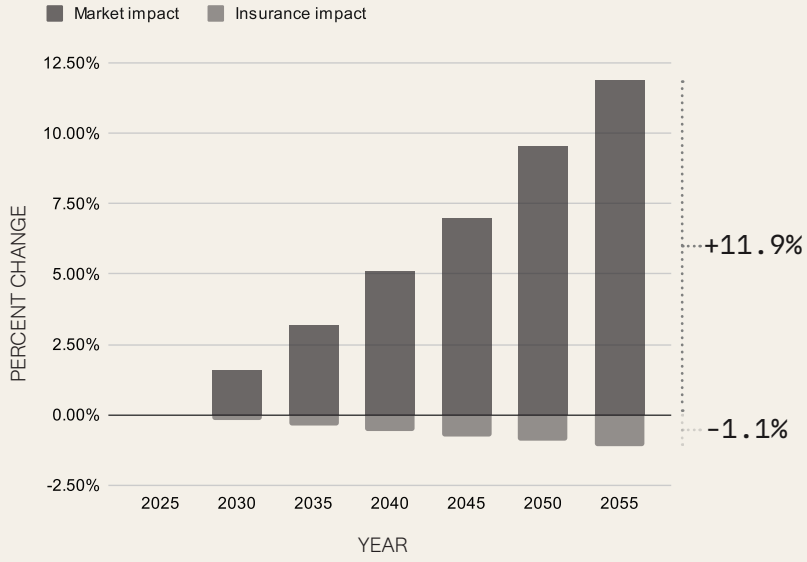


**Figure 30.** Combined property value impacts in climate resilient neighborhoods, 2025 to 2055

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Risky growth areas see similar conflicting impacts of insurance and consumer demand; however, the overwhelming effects of insurance increases lead to net negative changes in property values by 2055. Specifically, increasing consumer demand will drive a 1.8% increase in property values in thirty years, but substantial increases in insurance premiums will cause property values to fall by 3.5%. In aggregate, this leads to property values that are 1.7% less in 2055 compared to 2025 (Figure 31).

Tipping point communities exhibit a unique trend in property value impacts due to climate migration, where increasing populations from 2025 to 2050 will lead to net positive property value impacts. However, as these communities reach a breaking point in their growth by 2055, the average home's net value will decline by 0.1% compared to 2025. This is further compounded by the effect of insurance, which causes an additional decline in the average property value by 3.3%. In sum, the average home in tipping point communities will be worth 3.4% less in 2055 than in 2025 (Figure 32).

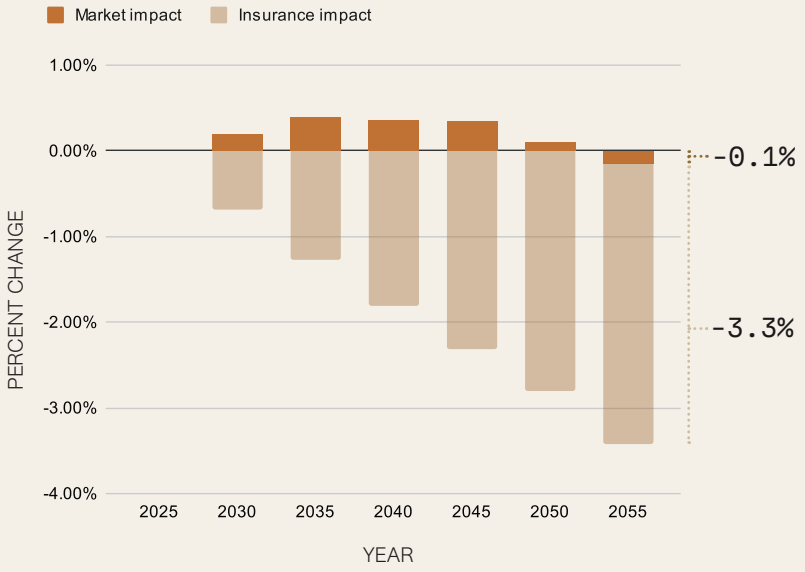


**Figure 31.** Combined property value impacts in tipping point neighborhoods, 2025 to 2055

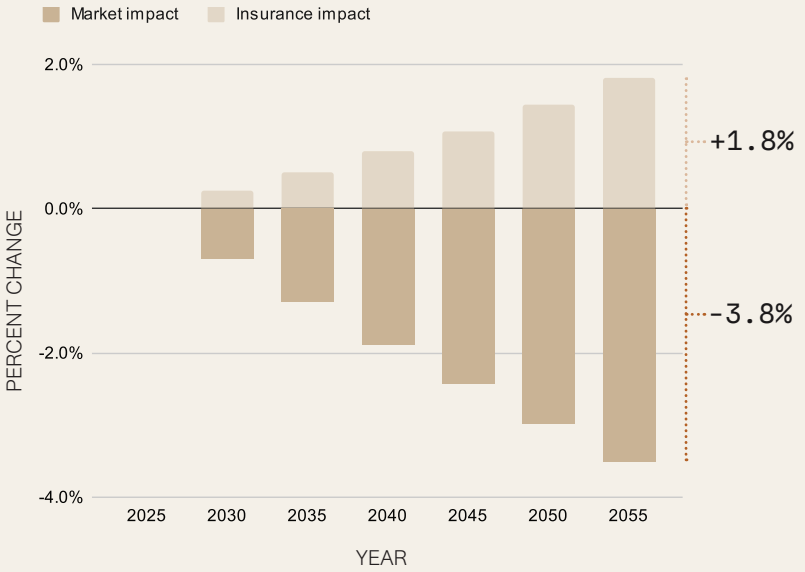


**Figure 32.** Combined property value impacts in risky growth neighborhoods, 2025 to 2055

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While the above results show the average property value impacts nationally, individual communities in each category may face even more extreme impacts. Table 3 highlights the top five counties in each category in terms of the magnitude of total property value impacts. Climate abandonment impacts are most severe in California's Central Valley and coastal New Jersey, where Fresno and Ocean counties face substantial combined losses from market and insurance effects. Florida dominates both risky growth and tipping point categories, with counties in the Tampa-St. Petersburg and Jacksonville metros showing significant property value declines despite population growth, driven primarily by insurance impacts. In contrast, climate resilient areas cluster in the Midwest and Mountain regions, where counties like Dane (Madison, WI) and Ramsey (Minneapolis, MN) show positive property value impacts as stable insurance costs complement population gains and growing demand for housing.

| RANK | COUNTY | ASSOCIATED METRO AREA | MARKET IMPACT | INSURANCE IMPACT | TOTAL PROPERTY VALUE IMPACT |
|---|---|---|---|---|---|
| Top 5 Climate Abandonment Counties | | | | | |
| 1 | Fresno County, California | Fresno, CA MSA | -4.6% | -9.8% | -14.4% |
| 2 | Ocean County, New Jersey | New York-Newark-Jersey City, NY-NJ MSA | -3.3% | -1.1% | -4.4% |
| 3 | Monmouth County, New Jersey | New York-Newark-Jersey City, NY-NJ MSA | -0.7% | -3.6% | -4.2% |
| 4 | Sacramento County, California | Sacramento-Roseville-Folsom, CA MSA | -2.7% | -1.6% | -4.2% |
| 5 | Kern County, California | Bakersfield, CA MSA | -1.8% | -2.3% | -4.1% |
| Top 5 Risky Growth Counties | | | | | |
| 1 | Broward County, Florida | Miami-Fort Lauderdale-West Palm Beach, FL MSA | 0.9% | -77.1% | -76.1% |
| 2 | Miami-Dade County, Florida | Miami-Fort Lauderdale-West Palm Beach, FL MSA | 0.6% | -70.2% | -69.6% |
| 3 | Pasco County, Florida | Tampa-St. Petersburg-Clearwater, FL MSA | 0.7% | -48.7% | -48.0% |
| 4 | Hillsborough County, Florida | Tampa-St. Petersburg-Clearwater, FL MSA | 0.8% | -43.7% | -42.9% |
| 5 | Palm Beach County, Florida | Miami-Fort Lauderdale-West Palm Beach, FL MSA | 0.8% | -38.2% | -37.4% |
| Top 5 Tipping Point Counties | | | | | |
| 1 | Duval County, Florida | Jacksonville, FL MSA | 0.1% | -73.9% | -73.8% |
| 2 | Brevard County, Florida | Palm Bay-Melbourne-Titusville, FL MSA | 0.2% | -60.2% | -60.0% |
| 3 | Pinellas County, Florida | Tampa-St. Petersburg-Clearwater, FL MSA | 0.2% | -20.4% | -20.2% |
| 4 | San Bernardino County, California | Riverside-San Bernardino-Ontario, CA MSA | 0.6% | -5.1% | -4.5% |
| 5 | St. Louis County, Missouri | St. Louis, MO-IL MSA | -2.4% | -0.4% | -2.8% |
| TOP 5 Top 5 Climate Resilient Counties | | | | | |
| 1 | Dane County, Wisconsin | Madison, WI MSA | 13.6% | -0.2% | 13.5% |
| 2 | Ramsey County, Minnesota | Minneapolis-St. Paul- Bloomington, | 12.4% | -2.1% | 12.2% |
| 3 | Douglas County, Nebraska | MN-WI MSA | 13.3% | -3.3% | 10.1% |
| 4 | Denver County, Colorado | Omaha, NE-IA MSA | 11.0% | -1.5% | 9.5% |
| 5 | Johnson County, Kansas | Denver-Aurora-Centennial, CO MSA | 10.5% | -1.1% | 9.5% |

**Table 3.** Top five counties with property value impacts in each category ranked by total property value impact from 2022 to 2025

**Note:** Counties included if they contained 600,000 residents or more in 2025.

# NATIONAL RISK ASSESSMENT

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To quantify the total scale of climate risk's indirect impacts on property values from both insurance impacts and shifting consumer demand, First Street analyzed population counts and residential real estate stock at the census tract level. Drawing from the 2022 5-year American Community Survey, First Street calculated the current value of residential real estate stock for each neighborhood using census tract median home values and number of housing units, with dollar amounts inflation-adjusted to 2024. Similarly, First Street used baseline population values from its model to estimate the current population of each census tract. By aggregating these values across growth categories, First Street approximated the total number of people and value of residential stock along each growth trajectory. These current valuations serve as the foundation for applying First Street's projected property value impacts, which reflect how climate risks in 2055 will affect property values relative to present-day nominal values. First Street's analysis reveals both value losses in climate abandonment, risky growth, and tipping point areas, alongside potential value appreciation in climate resilient neighborhoods, quantifying how climate risks will reshape residential real estate markets.

The collective impacts of climate risk on property values across high risk categories indicate that by 2055, 70,026 neighborhoods across the U.S. (or 84% of all census tracts) may see some form of negative property value impacts from climate risk by 2055, amounting to $1.47 trillion in losses relative to the current value of U.S. residential real estate. This represents a significant portion of current U.S. residential real estate wealth (or 2.9% of current value) that could be affected by increasing climate risks over the next three decades. Specifically, 47,344 neighborhoods are collectively at risk of losing $1.1 trillion in property value due to compounding losses in population and spikes in average increase in property insurance premiums. These vulnerable neighborhoods currently encompass 176 million residents and make up 51.3% of the country's total residential real estate value—approximately $26.2 trillion. Among these, climate abandonment neighborhoods, housing 68.1 million individuals and containing $9.7 trillion in residential real estate, face the steepest projected losses at 6.1% from compounding insurance and migration effects, amounting to approximately $592.0 billion. Tipping point neighborhoods, home to 107.5 million individuals with $16.6 trillion in residential real estate, face intermediate losses of 3.3%, translating to approximately $543.2 billion. Adding to this negative property value impact, risky growth areas, despite housing the largest population at 177.8 million individuals with $19.7 trillion in residential real estate, are projected to see losses of 1.7% from competing migration and insurance pressures, resulting in approximately $335.5 billion in value losses. In contrast, climate resilient neighborhoods, housing 25.4 million individuals with $2.3 trillion in residential real estate, stand to gain 10.8% in property values from favorable insurance and migration patterns, representing approxi-

| GROWTH CATEGORY | NUMBER OF NEIGHBORHOODS | POPULATION COUNT | NUMBER OF HOUSING UNITS | RESIDENTIAL REAL ESTATE VALUE | PROPERTY VALUE IMPACTS BY 2055 |
|---|---|---|---|---|---|
| Climate Abandonment | 21,750 (26.0%) | 75,992,852 (22.2%) | 33,362,364 (24.1%) | $9.7T (18.9%) | -$591.9B (-6.1%) |
| Tipping | 22,682 (27.1%) | 94,790,336 (27.7%) | 36,935,303 (26.7%) | $16.6T (32.4%) | -$543.2B (-3.3%) |
| Risky Growth | 25,594 (30.6%) | 122,043,762 (35.7%) | 46,496,003 (33.6%) | $19.7T (38.5%) | -$335.5B (-1.7%) |
| Climate Resilient | 4,107 (4.9%) | 18,341,996 (5.4%) | 7,391,102 (5.3%) | $2.3T (4.5%) | +$244.0B (+10.8%) |
| National Total | 83,776 | 341,815,190 | 138,490,266 | $51.13T | -$1.2T |

**Table 4.** Count of neighborhoods, populations, housing units, and residential real estate value across growth categories

**Notes:** Values in parentheses show each category's percentage of the national total. National totals include all neighborhoods, including economic decline areas which are excluded from the individual categories to focus on climate-relevant trajectories. Dollar amounts are shown in trillions (T) and billions (B). Population figures reflect 2025 projections and property values and impacts are presented in $2024. Property value impacts show the average percentage change projected for each category by 2055 relative to 2024 levels.

# NATIONAL RISK ASSESSMENT

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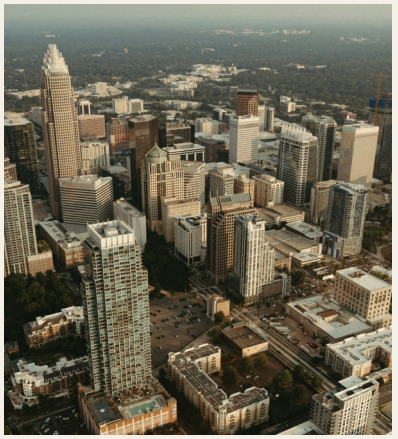
mately $244 billion in value increases. In aggregate, First Street estimates the net effects of climate risk on the residential real estate market across these four groups may amount to $1.23 trillion in value losses by 2055. Table 4 presents these figures in more detail. In summary, the interaction between insurance costs and migration patterns creates distinct trajectories for property values across neighborhood types through 2055. Climate resilient areas show the strongest outlook, as robust population growth overwhelms minor insurance-driven declines, while climate abandonment areas face compounding negative pressures, with population exodus and rising insurance costs driving substantial declines in property values. Despite current positive population trends, risky growth areas face net property value declines as substantial insurance increases outweigh modest population-driven gains. Tipping point communities follow a unique trajectory where initial population growth turns negative, combining with rising insurance costs to drive overall declines. When viewed across the total residential real estate market, these patterns suggest substantial net property value losses by 2055, highlighting how climate risk is fundamentally reshaping real estate markets across the U.S.



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## Communities Face Different Economic Futures

Property price changes offer a distinct window into how climate risk and migration patterns affect local housing markets over the next thirty years, capturing shifts in consumer demand and population movement independently from insurance impacts. While property values capture the total market worth of residential real estate including both structural and land value components regardless of recent sales activity, housing price index (HPI) captures the actual transaction prices of homes in an area, tied more directly to current market conditions and recent buyer behavior. This distinction is important because HPI can show more immediate market responses to changing consumer preferences and migration patterns, while property values tend to reflect longer-term fundamental changes in an area's desirability and economic conditions. First Street's analysis reveals divergent HPI trends across neighborhood types through 2055: risky growth areas show the strongest HPI increases at 18%, followed by climate resilient areas at 11%, and tipping point communities at 3% (Figure 33). These positive HPI trends suggest that sales prices initially lag behind the longer-term climate impacts captured in First Street's property value models. In contrast, climate abandonment areas face an 11% decline in HPI—a steeper drop than predicted by property value models—as immediate population losses and visible climate risks rapidly affect home sales prices in these vulnerable areas.

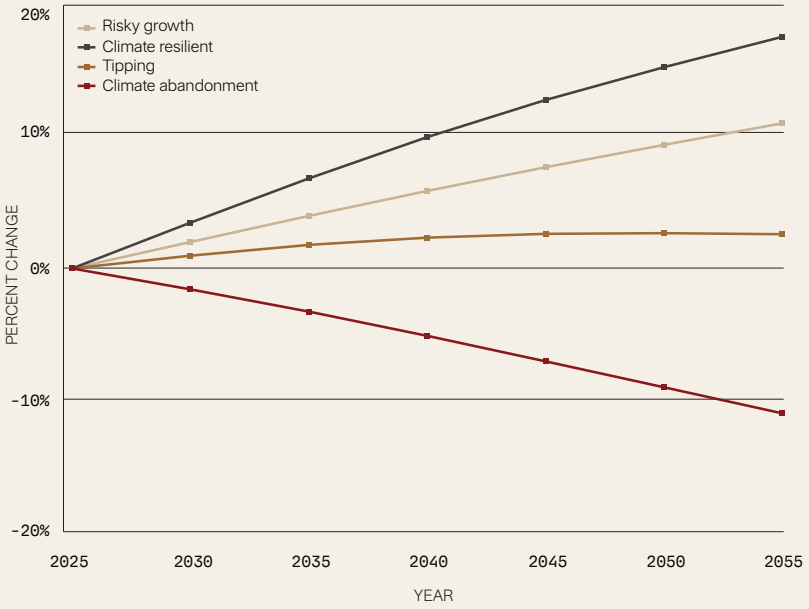


**Figure 33.** Housing price index change by growth category from 2025 to 2055

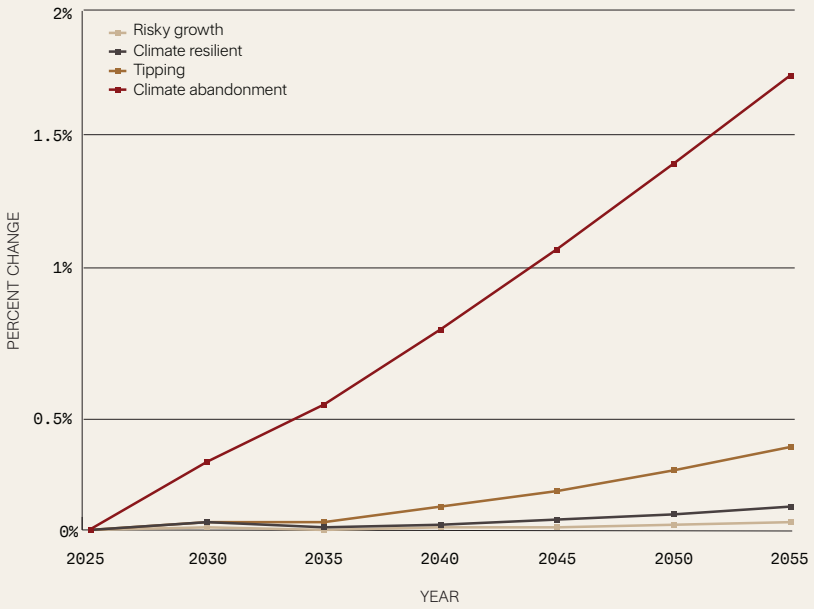


**Figure 34.** Household debt-to-income ratio change by growth category from 2025 to 2055

Housing's significance to household finances and the economic health of communities at large means that climate risk impacts to property values and damages will impact communities in several ways. Household finances may strain under the effect of accumulating property damages, increasing insurance premiums, and the declining value of their homes. This may be captured by a household's debt-to-income (DTI) ratio, measuring the amount of debt they have relative to their income. Specifically, for residents in high risk areas that choose to remain, household debt levels may rise across the community, by an average of 1.8% in climate abandonment areas and 0.3% in tipping point areas (Figure 34).

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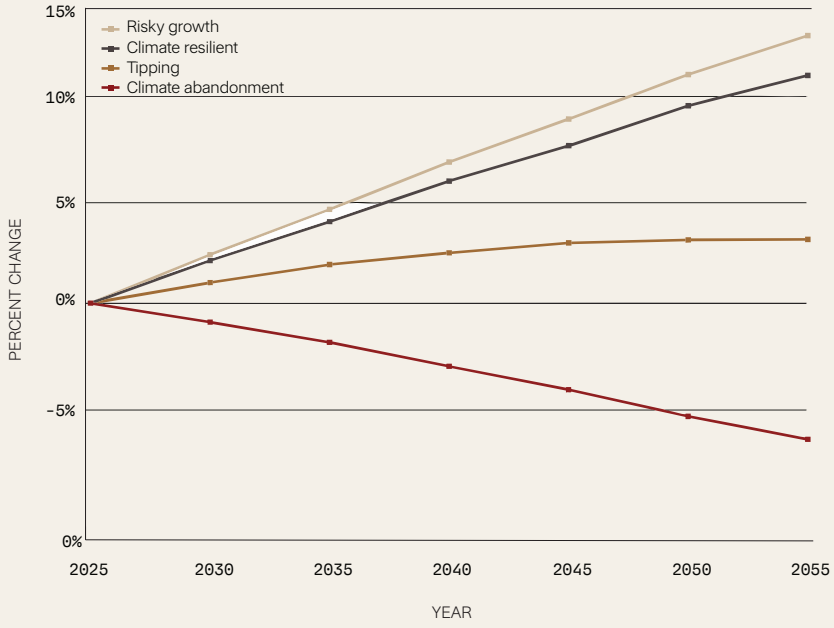
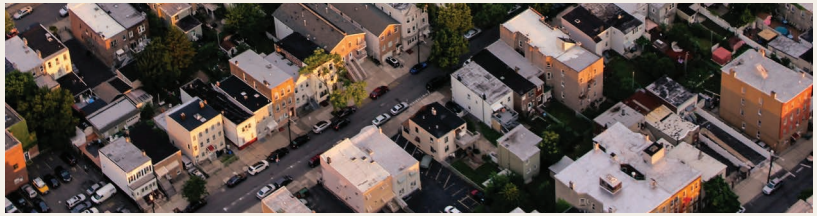
A the macroeconomic level, these migration and property value trends translate into distinct patterns of economic productivity, as measured by gross domestic product (GDP). Climate resilient communities, benefiting from stable population growth and property appreciation, are projected to see their local economies expand by an average of 11% by 2055 (Figure 35). Risky growth areas show even stronger economic expansion at 13%, as continued population influx drives economic activity despite mounting climate risks. However, this growth may prove unsustainable as climate impacts intensify. Tipping point areas face economic stagnation with growth of just 3%, as the gradual population decline and climate pressures begin to constrain economic activity. Climate abandonment areas experience the most severe economic contraction, averaging 6% decline by 2055, as population exodus and falling property values create a negative feedback loop that dampens local business activity and investment.



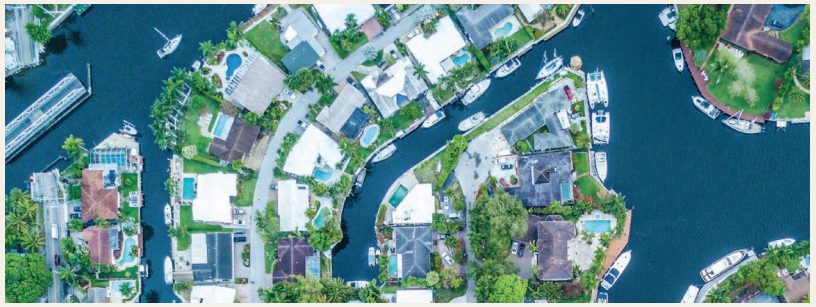


**Figure 35.** Local gross domestic product change by growth category from 2025 to 2055

# NATIONAL RISK ASSESSMENT

Altogether, the indirect effects of insurance increases and population changes will lead to downstream implications across market responses to property prices, household debt levels, and economic productivity. Divergent trends across these macroeconomic indicators point to a growing economic divide between communities as climate risks intensify, with some areas locked into sustainable growth, others following unstable growth patterns, and others trapped in decline. Table 5 elaborates on this growing divide across counties. Climate abandonment impacts are most severe in California's Central Valley and parts of the Rust Belt, with Fresno County facing significant declines across GDP, rising household debt, and falling home prices. Risky growth areas, concentrated in major metropolitan counties like Kings County (Brooklyn) and Philadelphia, show modest GDP gains and stable debt levels despite varying housing price trends. Tipping point patterns emerge in large metro counties like St. Louis and Los Angeles, where slight GDP declines accompany modest drops in home prices. Climate resilient areas, exemplified by Denver and Madison, demonstrate strong positive trends across all indicators, with robust GDP growth matching substantial home price appreciation while maintaining stable household debt levels.

| RANK | COUNTY | ASSOCIATED METRO AREA | GDP CHANGE | DTI CHANGE | HPI CHANGE |
|---|---|---|---|---|---|
| Top 5 Climate Abandonment Counties | | | | | |
| 1 | Fresno County, California | Fresno, CA MSA | -12% | 4% | -24% |
| 2 | Jefferson County, Alabama | Birmingham, AL MSA | -9% | 1% | -4% |
| 3 | Sacramento County, California | Sacramento-Roseville-Folsom, CA MSA | -7% | 3% | -15% |
| 4 | San Joaquin County, California | Stockton-Lodi, CA MSA | -5% | 2% | -10% |
| 5 | Kern County, California | Bakersfield, CA MSA | -4% | 1% | -8% |
| Top 5 Risky Growth Counties | | | | | |
| 1 | Kings County, New York | New York-Newark-Jersey City, NY-NJ MSA | 2% | 0% | 11% |
| 2 | Middlesex County, New Jersey | Eddison, NJ MSA | 2% | 0% | 14% |
| 3 | Philadelphia County, Pennsylvania | Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA | 3% | 0% | 1% |
| 4 | El Paso County, Texas | El Paso, TX MSA | 4% | 0% | 2% |
| 5 | Baltimore County, Maryland | Baltimore-Columbia-Towson, MD MSA | 4% | 0% | 3% |
| Top 5 Climate Tipping Point Counties | | | | | |
| 1 | St. Louis County, Missouri | St. Louis, MO-IL MSA | -4% | 0% | -7% |
| 2 | Bernalillo County, New Mexico | Albuquerque, NM MSA | -2% | 1% | -4% |
| 3 | Los Angeles County, California | Los Angeles-Long Beach-Anaheim, CA MSA | -2% | 0% | -1% |
| 4 | Jackson County, Missouri | Kansas City, MO-KS MSA | -1% | 0% | -2% |
| 5 | Montgomery County, Pennsylvania | Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA | -1% | 0% | 0% |
| TOP 5 Top 5 Climate Resilient Counties | | | | | |
| 1 | Denver County, Colorado | Denver-Aurora-Centennial, CO MSA | 19% | 0% | 33% |
| 2 | Dane County, Wisconsin | Madison, WI MSA | 19% | 0% | 32% |
| 3 | Douglas County, Nebraska | Omaha, NE-IA MSA | 18% | 0% | 30% |
| 4 | Arapahoe County, Colorado | Denver-Aurora-Centennial, CO MSA | 15% | 0% | 28% |
| 5 | Johnson County, Kansas | Kansas City, MO-KS MSA | 15% | 0% | 25% |

**Table 5.** Top five counties with macroeconomic impacts in each category ranked by change in GDP from 2025 to 2055

**Note:** Counties included if they contained 600,000 residents or more in 2025. DTI changes of 0 indicate no change in current household debt levels.

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## Case Study: Tampa, FL

Tampa, FL and its surrounding neighborhoods emerge as a risky growth area in First Street's assessment, highlighting how climate exposure can undermine potential gains from population growth. Despite projections showing the city's population increasing by 33.2% from 2025 to 2055, mounting climate impacts are set to diminish property values primarily through insurance costs. Property values are projected to see minimal benefit from Tampa's population expansion, with population growth and resulting demand for housing expected to add just 0.4% to property values by 2055, while a dramatic 213% spike in property insurance premiums is projected to drive a 22.5% loss in property values. This results in property value losses of 22.1% across the city. Tampa's housing prices reflect this stagnation, with unadjusted HPI growing by only 4.8% over thirty years, while local GDP shows similarly constrained growth at just 6%.

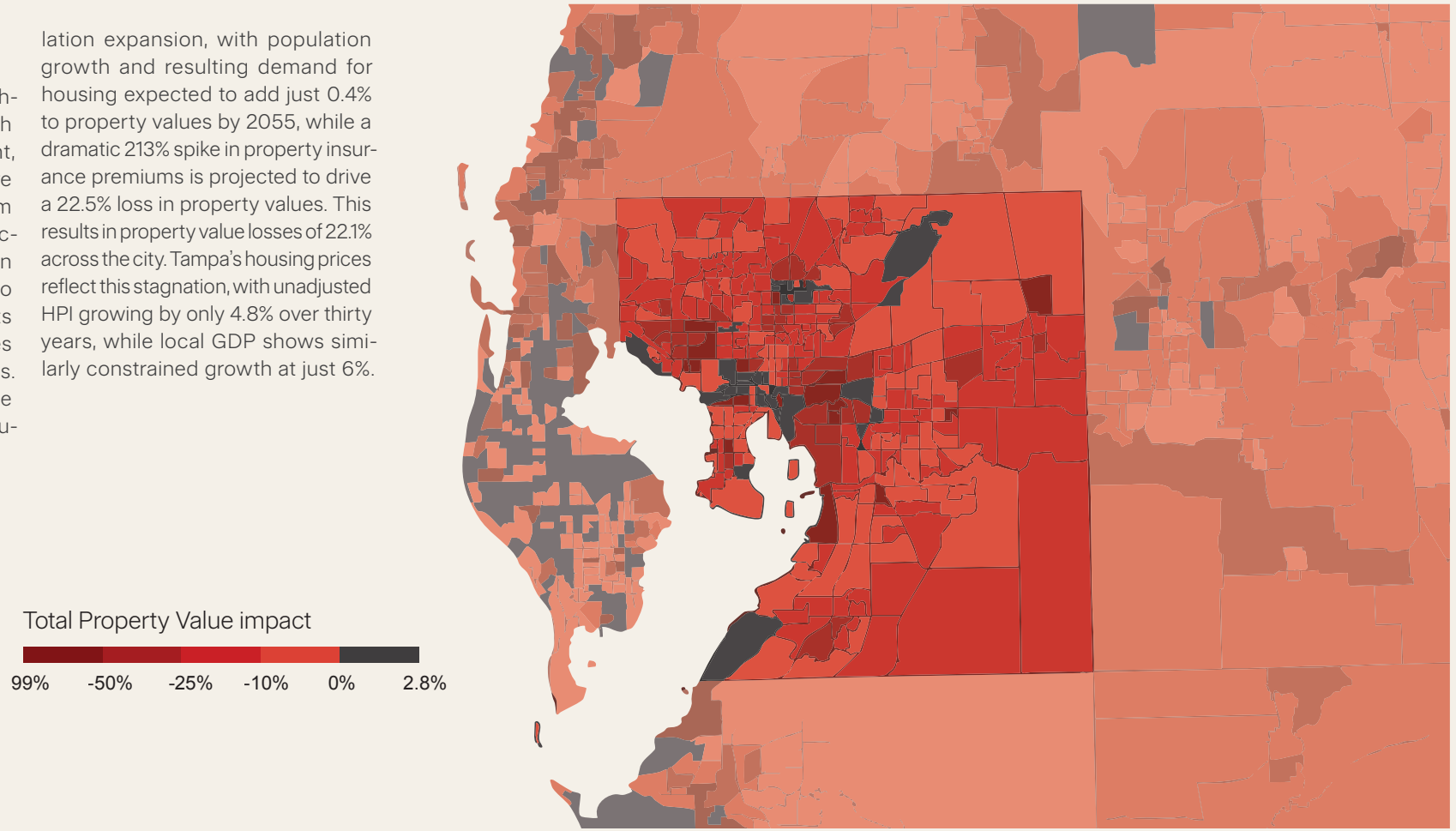
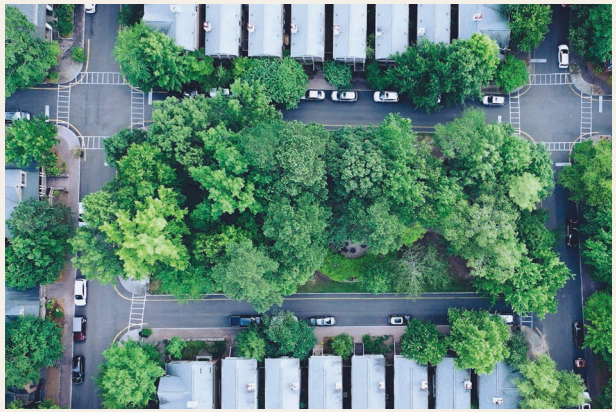



**Figure 36.** Total property value impacts across insurance and market effects in Tampa, FL by 2055

# IMPLICATIONS AND DISCUSSION

Residential real estate in the United States stands at a historic turning point. For generations, homeownership has served as both the bedrock of household wealth and a driving force in the national economy. Americans have traditionally chosen where to live based on a straightforward calculus of economic opportunity and quality of life, with many gravitating toward areas offering affordable housing, pleasant weather, and natural amenities. This pattern helped fuel the dramatic growth of Sun Belt cities and coastal communities over recent decades.



However, climate change is fundamentally reshaping this landscape. Environmental forces are transforming both the desirability and financial feasibility of living in many parts of the country. The combination of increasing natural disasters, chronic environmental stressors, and rising insurance costs is creating new patterns of migration and housing costs that will redraw the map of valuable real estate across America.

First Street's novel analysis of these trends reveals an emerging geography of climate risk and resilience that is creating divergent futures for communities across the country. Some areas, particularly in the Midwest and parts of the Eastern U.S., are positioned to thrive as they combine economic strength with relative climate stability. These climate-resilient communities are attracting new residents due to moderate increases in insurance, driving property appreciation and economic growth. In stark contrast, other regions face a future of declining property values and economic contraction as climate risks mount. These high climate risk areas, concentrated along coastlines and throughout the Sun Belt, are experiencing the compound effects of environmental threats and rapidly increasing insurance costs. Perhaps most striking are those communities approaching climate tipping points—places where strong economies and desirable amenities are increasingly overshadowed by growing environmental pressures.

This transformation extends far beyond individual property values to reshape the economic foundation of entire communities. Local governments in climate-vulnerable areas face eroding tax bases at the same time that adaptation needs grow most acutely. Meanwhile, areas receiving climate migrants must manage rapid growth while maintaining affordability and quality of life. The resulting shifts in property values and population are not just reshaping individual housing markets but reconfiguring the economic geography of the entire nation.

These findings underscore a fundamental shift in how Americans must now think about housing and community investment. The traditional drivers of real estate value—location, economy, and amenities—are being transformed by a new calculus that must account for long-term environmental vulnerability. As this reality reshapes patterns of development and migration across the country, it will challenge long-held assumptions about where and how Americans choose to live.