COMMON SENSE INSTITUTE

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INSURING IOWA'S FUTURE:

UNDERSTANDING THE ROLE OF INSURANCE AND NATURAL DISASTERS IN IOWA'S ECONOMY

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ABOUT COMMON SENSE INSTITUTE

Common Sense Institute is a non-partisan research organization dedicated to the protection and promotion of Iowa's economy. CSI is at the forefront of important discussions concerning the future of free enterprise and aims to have an impact on the issues that matter most to Iowans. CSI's mission is to examine the fiscal impacts of policies, initiatives, and proposed laws so that Iowans are educated and informed on issues impacting their lives. CSI employs rigorous research techniques and dynamic modeling to evaluate the potential impact of these measures on the economy and individual opportunity.

TEAMS & FELLOWS STATEMENT

CSI is committed to independent, in-depth research that examines the impacts of policies, initiatives, and proposed laws so that Iowans are educated and informed on issues impacting their lives. CSI's commitment to institutional independence is rooted in the individual independence of our researchers, economists, and fellows. At the core of CSI's mission is a belief in the power of the free enterprise system. Our work explores ideas that protect and promote jobs and the economy, and the CSI team and fellows take part in this pursuit with academic freedom. Our team's work is informed by data-driven research and evidence. The views and opinions of fellows do not reflect the institutional views of CSI. CSI operates independently of any political party and does not take positions.

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INTRODUCTION

Investing in mitigation can reduce losses caused by natural disasters and expand Iowa's economy—and mitigation measures have become increasingly important in the state.

The 2008 flooding of central and eastern Iowa, the 2020 derecho, and other weather disasters have caused billions of dollars in damage to properties across Iowa over the last two decades. According to data from the National Oceanic and Atmospheric Administration (NOAA), the dollar amount of estimated losses in Iowa since 2000 from natural disasters with an impact of $1 billion or total $366 billion, inflation adjusted.[1] Meanwhile, the United States has gone through a period of the highest inflation in four decades over the past four years, sending the cost to replace lost or damaged property soaring. While the property and casualty (P&C) insurance industry has provided crucial loss recovery to property owners through recent tragic and catastrophic disasters, the evolving circumstances in Iowa create challenges for the industry and the insured. According to data from the Iowa Insurance Division, P&C premium collections rose nearly 50% from 2020 through 2024. A rise in insurance premiums generally reflects an increase in the risk insurers assume when they sell a policy. If sudden price shocks force property owners to go un- or under-insured or cause insurers to drop out of the Iowa market entirely, the knock-on effects can be devastating for Iowa's economy.

This report examines the role of P&C insurance market in protecting Iowans and Iowa's economy from financial losses resulting from natural disasters through evolving challenges in Iowa today. It begins with a look at the outsized role the broader insurance industry plays in Iowa's economy, modeling the macroeconomic impact of the industry in the state. It then provides a layman's overview of the P&C business model, explaining the market mechanisms that allow the industry to provide risk protection across Iowa. After identifying the conditions necessary for a well-functioning P&C market, the report turns to the risk factors insurers face when pricing policies. The section of the report, entitled "Evolution of Severe Weather Events in Iowa," explores historic data trends for the most common types of severe weather events in Iowa to understand how weather risk has evolved over time. It then investigates the industry's exposure to rising claims payouts as property values rise and Iowa's population centers increase in density. Recognizing that increasing risks lead to higher insurance costs, the report then explains how the so-called "protection gap" can grow as rising costs cause the market to break down.

While insurers can change the terms of policies to bring costs down and make insurance more accessible as risks rise, doing so may leave property owners under-insured and on the hook for larger deductibles when disaster strikes. With the economic importance of the industry and the risks it faces well established, the report turns to solutions.

Before concluding, CSI fellow and co-author of this report, Dr. Cameron MacKenzie, explores cost efficient ways to reduce financial losses from natural disasters. He explores real-world examples of steps communities have taken to make infrastructure more resilient when hit with natural disasters. The section makes the case for collaboration between private industry, research institutions, governments, and consumers through initiatives like Iowa State University's forthcoming CyInsurance Research Initiative (CyRI). Such efforts can bring prudent and targeted investments aimed at mitigating financial losses after natural disasters that ensure a positive return on investment (ROI). At the conclusion of this report, CSI presents the results of macroeconomic model forecasting, which show the potential economic benefit of successful mitigation efforts.

KEY FINDINGS

Economic Impact

- If left entirely unmitigated, CSI estimates hailstorms, strong winds, and tornadoes will cost Iowa's economy $174 million in GDP, lower statewide personal income by $64 million, and decrease employment by about 1,200 jobs a year.
- Through direct and indirect economic impacts, from 2025 to 2030 Iowa's industry will contribute a total of about $90 billion in personal income statewide and $244 billion to Iowa's GDP, according to CSI's economic modeling. For perspective, Iowa had a total GDP of $257 billion in 2024.
- About 3% of people statewide are employed in the insurance industry. At 15.7% and 7.4%, respectively, Dallas and Polk counties have the second and fourth highest share of their workforce employed in the insurance industry nationally.
    - In 2025, Iowa's insurance industry employs an average of about 47,000 workers. The industry is indirectly responsible for an additional 104,000 jobs outside the industry, according to CSI's economic modeling.
- The Federal Emergency Management Agency (FEMA) estimates the annual expected building and agricultural damage each year from natural disasters in Iowa to be $580 million.
    - CSI estimates Iowans will likely see two exceptionally damaging 2-sigma catastrophic weather event years in a lifetime, causing approximately $1.7 billion in the damage.
    - In an extremely damaging year, known as a 3-sigma event that occurs every eight generations, the damage may balloon to approximately $2.9 billion.

Rising Costs

- Total premium payments for all types of P&C insurance in Iowa rose 78% from 2012 to 2024. A 48.5% increase occurred from 2020 through 2024 alone. In 2024, insurers reported about $10 billion in premium revenue.
  - Average premiums for homeowners insurance have risen 273% over the last 15 years, from $679 per year in 2011 to $2,533 in 2025. Most of that rise has occurred since 2017.
- The National Risk Index suggests the P&C insurance industry could expect to pay approximately $580 million per year in Iowa to cover property losses to buildings and agriculture due to severe weather.
- Since 2010, valuations of Iowa properties have risen 125%, from $182 billion in 2010 to $410 billion in 2024, driving up the cost to insure properties. The projected 2025 statewide value of Iowa properties is approximately $430 billion.

Natural Disasters

- Iowa experienced 52 presidential declared disasters from 1990 to 2025. Every disaster declaration, except for the COVID-19 pandemic, resulted from severe weather.
- Based on NOAA data, property damage losses from severe weather remained variable with no clear trend from 1990 through 2024. The annual property damage since 2013 exhibits less variability than damage prior to 2013, and less variation should make it easier to forecast future losses. On average, losses from severe weather peaked in 2012 and have fallen substantially since then. Improved mitigation and/or inconsistent data collection could explain the decline.
- Of the major categories of severe weather, only tornadoes have seen a clear uptrend in Iowa over the long term, based on NOAA data. The state saw an average of one more tornado every year from 1950 through 2024. More tornadoes occurred in Iowa in 2021 (146 tornadoes) and 2024 (155 tornadoes) than in any other year.
- On average from 2020 to 2024, 378 high wind events (over 50 knots) occurred in Iowa. That compares to 451 events on average from 1996 to 2019. With the threshold set at 75 knots, an uptrend appears in the data starting from 2000.
- The 2008 Iowa flood caused the most property damage of any Iowa weather event in the NOAA database going back to at least 1950. However, no clear trend exists in the number of National Flood Insurance Program (NFIP) claims in Iowa over the long term. Investments in flood mitigation may account for the particularly few claims since 2020.

Mitigating Losses

- Collaborative research between academia and the private sector could help identify the most cost-effective solutions to mitigate the risk of severe weather. Iowa State University is in the process of launching the first of such initiatives in Iowa, the CyInsurance Research Initiative.
- A case study from Oklahoma shows improved construction of wood frame homes, enhanced roof fasteners, better connections in the roof framing, strengthening walls, and structural changes to garages could mitigate up to 30% of residential damages from tornadoes.
- A case study from Missouri demonstrates stronger enforcement and improved roofing materials can reduce hail damage by approximately 20%, translating to an average savings of $1,500 per residential claim.
- Elevating structures above the Base Flood Elevation (BFE) and dry and wet floodproofing results in benefit-cost ratios (BCRs) ranging from 5:1 to 7:1. Elevating existing homes yields a BCR of around 2:1.
- If just 20% of losses from hailstorms, strong winds, and tornadoes were mitigated, CSI estimates the mitigation efforts would increase Iowa's GDP by $35 million, raise statewide personal income by nearly $13 million, and lead to about 230 new jobs in one year.

IOWA'S INSURANCE LANDSCAPE

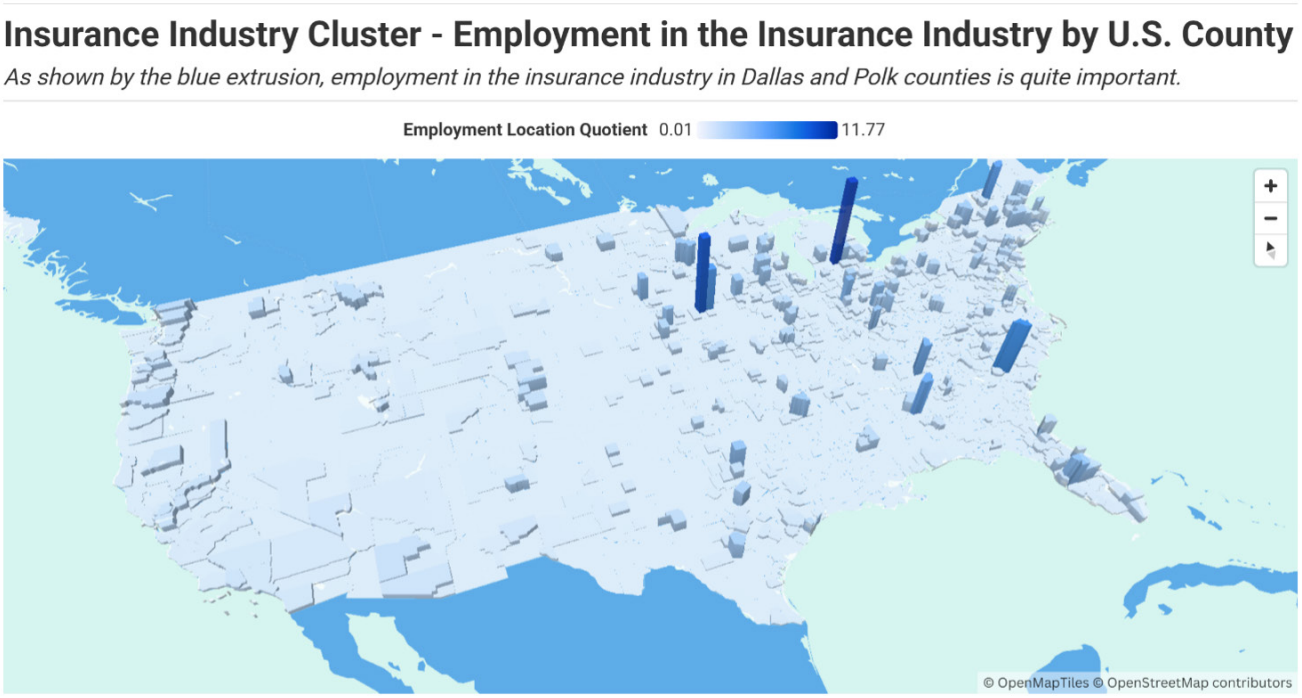
Since its import from London in the 18th century, insurance has been an important financial building block of the American economy. Founded in 1735 in Charleston, South Carolina, the Friendly Society was the country's first insurance company. It went out of business five years later.[2] Today, the insurance industry is active in all 50 states, employing more than 1.2 million individuals across more than 35,000 establishments and paying almost $143 billion in wages.[3] In Iowa, the industry has an outsized impact on employment and economic growth.

Iowa values and actively fosters its insurance sector. The state has strategically positioned itself as a leading destination for insurance companies by offering one of the lowest premium tax rates in the country at just below 1%. Beyond tax incentives, the state has built strong infrastructure to support industry growth, including partnerships with public universities that offer 24 accounting programs, 21 in finance, and three of the nation's top 25 actuarial science degrees. To strengthen its talent pipeline, Iowa also launched *Insure Your Future*, the nation's first early-stage internship program designed to introduce college students to careers in insurance. These efforts collectively encourage insurers to headquarter, hire, and expand operations within the state. These initiatives have contributed to Iowa ranking first among the 50 states in insurance industry output as a share of GDP, reinforcing its reputation as a hub for insurance activity.[4]

Iowa boasts two of the top 10 counties nationally for insurance industry employment

According to Iowa's Workforce Development, there were 3,456 insurance carrier locations as of the first quarter of 2025 that employed 47,293 people.[5] At 768 locations and 21,574 employed individuals, Polk County maintains the largest industry presence in the state. Linn County had the second largest presence with 237 locations and 4,121 employees, followed by Dallas County with 185 locations and 6,627 employees. When annualizing average weekly wages from the first quarter of 2025, total wages paid to workers in the insurance industry will total approximately $7.3 billion.[6]

FIGURE 1. INSURANCE INDUSTRY CLUSTER, EMPLOYMENT IN THE INSURANCE INDUSTRY BY U.S. COUNTY



Source: U.S. Census Bureau's cartographic boundary shapefiles (2021), Bureau of Labor Statistics

Much of the insurance industry operates out of financial capitals around the world, like New York City, Chicago, London, Frankfurt, and Tokyo, but Iowa plays an outsized role in the industry. Based upon information from U.S. Bureau of Labor Statistics (BLS), of the top 10 counties for insurance industry employment as a share of total employment (e.g., the Employment Location Quotient), Dallas and Polk counties in Iowa are second and fourth nationally with their share of employment at 15.7% and 7.4%[7], respectively.[8] In economics parlance, they have location quotients of 10.77 and 6.26. The insurance industry is of outsized importance for Iowa employment, especially in Dallas and Polk counties, rightly earning the state the nickname "the Hartford of the West."[9] When comparing across states, Iowa has the 23rd most insurance industry employees, eight spots ahead of its 31st population ranking.[10] The insurance industry employs about 47,000 people in Iowa, or 3% of all workers in the state.[11]

THE INSURANCE INDUSTRY'S IMPACT ON IOWA'S ECONOMY

The insurance industry has a substantial impact on Iowa's economy. To estimate that impact, CSI employed the Regional Economic Models Incorporated's (REMI) Tax PI+ model. To represent the macroeconomic contribution of the industry to Iowa's economy, CSI's REMI model simulation assumes all employment in the "Insurance carriers and related activities" sector went to zero from 2025 through 2036. Therefore, the simulation assumes a direct loss of all approximately 47,000 jobs from 2025 through 2036 in Iowa's insurance industry based upon REMI's accounting of jobs in the sector.[12] The simulation results, shown in table 1, suggest losing the industry would induce a deep recession for the state.

From 2025 through 2030, the state would see a cumulative decline in GDP, business sales, personal income, and disposable personal income of—

- $244 billion in GDP.
- $495 billion in statewide business sales (output).
- $90 billion in statewide personal income.
- $79 billion in statewide disposable personal income.

Forecasting the economic impact of eliminating all employment in the insurance industry from the state provides a rough picture of the industry's direct and indirect contribution to the state's economy. If all jobs from Iowa's insurance carriers and related activities' industry were suddenly eliminated in 2025, the immediate direct and indirect impact would cause the state to lose about 151,000 jobs across all industries that year. Of the total job losses, 47,000 would come directly from the insurance industry. The remaining 104,000 non-farm workers would be lost across other industries as an indirect result of job losses in the insurance industry. The model projects that change would result in about 171,000 fewer people employed across all sectors statewide by 2030, relative to the counterfactual. The hypothetical loss of the industry's contribution to employment would result in a $45 billion annual reduction in GDP by 2030. To put that in perspective, Iowa's economy employed about 1.6 million workers in August 2025.[13] Its 2024 nominal GDP was $257 billion.[14] That means losing all insurance industry jobs in the state would cost Iowa an estimated 10% of its workforce by 2030, representing a substantial spillover from the direct employment share of 3%.

TABLE 1. ECONOMIC IMPACT TO IOWA IF EMPLOYEES OF INSURANCE CARRIERS AND RELATED ACTIVITIES WENT TO ZERO

Economic Impact to Iowa if Employees of Insurance Carriers and Related Activities Went to Zero

Year	Total Employment	Population	Gross Domestic Product (Thousands)	Output (Thousands)	Personal Income (Thousands)	Disposable Personal Income (Thousands)
2025	-151,707	-49,788	-$33,710,991	-$69,939,576	-$11,065,588	-$9,698,572
2026	-166,174	-86,040	-$38,248,010	-$77,947,205	-$13,107,678	-$11,461,181
2027	-173,473	-115,837	-$40,732,165	-$82,421,317	-$14,760,992	-$12,894,045
2028	-174,723	-140,264	-$42,524,998	-$85,725,563	-$16,023,731	-$14,049,531
2029	-173,261	-160,712	-$43,947,927	-$88,426,105	-$17,080,173	-$15,015,754
2030	-170,670	-178,087	-$45,194,135	-$90,883,790	-$18,013,816	-$15,878,033
2031	-167,952	-192,769	-$46,398,567	-$93,338,148	-$18,868,421	-$16,670,423
2032	-164,792	-204,128	-$47,717,826	-$95,665,802	-$19,590,469	-$17,346,167
2033	-163,234	-212,991	-$48,866,307	-$98,666,469	-$20,366,255	-$18,053,153
2034	-161,891	-219,882	-$50,257,892	-$101,760,487	-$21,132,443	-$18,743,137
2035	-161,231	-225,400	-$51,798,350	-$105,178,594	-$21,939,159	-$19,475,929
2036	-161,146	-229,935	-$53,498,932	-$108,896,827	-$22,803,433	-$20,257,714

Source: CSI, REMI

Table 2 shows the top 25 industries most impacted by the state's insurance industry. Overall, the most highly impacted industries include (in year 2030) Insurance carriers and related activities (-100%), Construction (-16%), State and Local Government (-11%), Real estate (-8%), and Securities, commodity contracts, investments, and funds and trusts (-8%).

Iowa would have a radically different—and a substantially smaller—economy without its insurance industry. The next section of this report, "The P&C Business Model," provides an overview of how the property and casualty segment of the insurance industry functions and what conditions enable the industry to continue operating in the market.

TABLE 2. TOP 25 MOST IMPACTED SECTORS IF EMPLOYEES OF INSURANCE CARRIERS AND RELATED ACTIVITIES IN IOWA WENT TO ZERO

Top 25 Most Impacted Sectors if Employees of Insurance Carriers and Related Activities in Iowa Went to Zero

Year	2025	2030	2036
Insurance carriers and related activities	-100%	-100%	-100%
Construction	-14.4%	-16.4%	-7.6%
State and Local Government	-5.4%	-11.4%	-11.8%
Real estate	-7.4%	-8.3%	-8.3%
Securities, commodity contracts, investments, and funds and trusts	-8.5%	-7.7%	-7.4%
Religious, grantmaking, civic, professional, and similar organizations	-8.6%	-7.7%	-6.9%
Support activities for mining	-8.1%	-7.5%	-4.3%
Professional, scientific, and technical services	-7.3%	-7.4%	-6.8%
Food services and drinking places	-5%	-6.9%	-7.7%
Transit and ground passenger transportation	-5.4%	-6.7%	-6.8%
Administrative and support services	-6.5%	-6.4%	-6.1%
Retail trade	-4.7%	-5.7%	-5.7%
Repair and maintenance	-4.4%	-5.3%	-5.5%
Rental and leasing services; Lessors of nonfinancial intangible assets	-5.5%	-5.1%	-4.3%
Beverage and tobacco manufacturing	-3%	-4.8%	-5.4%
Air transportation	-5%	-4.7%	-4.1%
Data processing, hosting, and related services; Other information services	-4.2%	-4.6%	-4.5%
Waste management and remediation services	-4%	-4.4%	-4.3%
Personal and laundry services	-4.2%	-3.8%	-3.7%
Social assistance	-3.5%	-3.8%	-3.9%
Accommodation	-4%	-3.7%	-3.9%
Ambulatory health care services	-4.8%	-3.7%	-3.4%
Wood product manufacturing	-3.9%	-3.4%	-1.2%
Amusement, gambling, and recreation industries	-3.6%	-3%	-2.8%
Warehousing and storage	-2.9%	-2.9%	-2.6%

Source: REMI

THE P&C BUSINESS MODEL

At its core, the P&C insurance business is based on the simple principle of paying to transfer risk. The mechanics that allow this exchange, however, can be far more esoteric. A comprehensive understanding of the industry would require a deep dive into concepts such as underwriting, actuarial analysis, catastrophe modeling, reinsurance, retrocessionaries, exceedance probability curve, tail risks, and others. While this section and report touch on many of these topics, it does not attempt to explore them exhaustively. Rather, this section provides a layman's overview of the key components and market mechanisms that lead to price discovery and allow the P&C industry to work for the benefit of property owners, insurers, and the broader economy.

Insurance is risk transfer

Insurance exists to transfer risk from one party to another. The P&C segment of the insurance industry allows individuals, households, and businesses to offload risks associated with property ownership. These risks include the possibility of financial losses resulting from damage to the insured property and the chance of civil liability connected to the property. Property owners pay an insurer an agreed upon sum of money, usually monthly, in exchange for the insurer agreeing to compensate the insured against loss under an enumerated set of circumstances.

The cost of insurance, known as the premium, represents the cost of transferring risk. Put differently, the cost to own insurance reflects the likelihood an insurer will have to pay out a claim to the insured. To determine the price of coverage, insurers must determine their risk exposure and determine how much to charge the policyholder for taking on the defined risk. This process, known as underwriting, will be discussed in more detail later in this section. The cost of a premium on an insurance policy, however, does not end with determining and pricing risk. The premium by necessity also includes other costs that allow the transaction to work from a business perspective. To price an insurance policy, insurers must underwrite the policy by assessing the risk and add extra costs to allow for a profit after administrative overhead costs and taxes.

Importantly, insurance does not prevent financial loss. It guarantees a fixed amount of financial loss to the insured in exchange for protection against the possibility of much greater loss. It provides certainty and stability. This guarantee enables other economic activity to take place that would not happen without insurance. Mortgage lending for homeownership is one example. Banks assume risk when they lend money for the purchase of a home. To reduce their exposure to risk, banks require borrowers to purchase

homeowner's insurance, a form of P&C insurance. Thus, the P&C industry directly supports the banking industry, the real estate industry, and homeownership and this support, in turn, generates more activity and growth across the economy. This report quantifies some of these indirect economic benefits in the section entitled "The Insurance Industry's Impact on Iowa's Economy." For a state's economy to realize these benefits, insurance companies must have an economic incentive to operate in the state.

Insurers must price risk appropriately to stay in business

Without adequate revenue from premiums, insurers cannot pay claims to mitigate against losses from disasters, and they cannot continue to provide insurance in the future. Hyperbolically, if the entire P&C industry went bankrupt and ceased to exist, it would send devastating ripple effects through the economy. The entire U.S. real estate market would cease to function absent the P&C industry, for example. Insurance companies, like any company, would not exist without the ability to charge for their product.

Unsuitably low premiums can have the same result. While paying less for insurance than the true cost of risk transfer may sound appealing, it can ultimately result in P&C insurance becoming unavailable to property owners. Though it may sound counterintuitive, everyone—including the insured—benefits when insurers properly identify the true cost of risk transfer when underwriting and pricing policies.

Thus, the first and most important component of the P&C business model is risk assessment. Insurers look at three main elements when pricing risk:

1. the likelihood a covered event, such as a severe storm, will occur,
2. the expected cost to repair or replace the affected covered property, and
3. the terms of the policy, such as the deductible and the coverage limit.[15]

If for any of these three reasons the policy has a higher chance of paying out a claim to the insured, the policy will cost more. Moreover, if the policy comes with the possibility of paying out larger sums of money, it will also cost more. Assessment of risk under the first two factors largely informs the third factor, the terms of the policy. The policy terms serve as a dial the insurer can adjust to bring down premiums and make coverage more economical when the first two factors create expensive risk. Later sections of this report investigate how each of these three factors have evolved in recent years in Iowa, impacting the cost of risk transfer.

Actuaries have the job of assessing risk and pricing policies accordingly. They rely on highly complex and proprietary catastrophe models, or cat models. These models include a tremendous amount of data on properties and natural disasters to help actuaries predict the risk of future disasters and how much damage might accrue to the insurer's covered properties. Using this data, models estimate the distribution of possible losses and the firm's exposure to financial loss. Ultimately, these models inform what an insurer must charge in premiums and how well capitalized the insurer needs to be to remain solvent in a worst-case scenario. However, models are imperfect. Therefore, firms have more tools at their disposal than just premium dollars to cover their downside risk after a natural disaster.

Insurers must protect themselves against risk

Insuring against natural disaster poses unique challenges not seen in other segments of the insurance industry. While in principle P&C insurance is about properly pricing risk transfer, it proves much more difficult to execute in practice.

Because disasters often affect more than a few insured, pooling disaster risk does not necessarily protect insurers from major losses that occur within a short timeframe. Insurance pools risk by guaranteeing small known financial losses to avoid large unknown losses for the insured. If an insured individual experiences a car accident, for example, they may personally receive a payout larger than the sum of their premiums paid, but the premiums of others cover the cost of the payout for the insurer. When insuring disasters, however, one incident could cause thousands of claims all at once in a localized or larger region, leading to large payouts in a short time for the insurer. The 2020 derecho storms in Iowa resulted in $3.6 billion in claims, exceeding what insurance companies received in premiums from Iowa policyholders that year.[16] One Iowa P&C company saw its loss ratio climb above 80% for the years 2017 through 2022.[17] In 2020 and 2022, the firm paid more in claims than it received in premiums, according to a *Des Moines Register* report.[18] This is problematic, because, as explained above, for the P&C insurance market to function, firms must stay solvent.

To ensure solvency through large-scale catastrophic disasters like the 2008 flooding in Cedar Rapids or the 2020 derecho, insurers use several backstops. First, during years when they collect more premium dollars than what they pay in claims, insurers store capital reserves. Second, they buy insurance for insurance companies, known as reinsurance. Finally, they may sell catastrophe bonds or use other financial instruments to hedge risks. These tools provide insurers liquidity to pay out claims. Importantly, they do not eliminate the need to increase premiums or change business practices when risks increase over time, however. After the 2020 derecho, some Iowa insurers dropped policies or dropped out of the market entirely. While the backstops they had in place allowed them to pay out claims on current obligations, the storms caused them to reconsider their risk analysis.

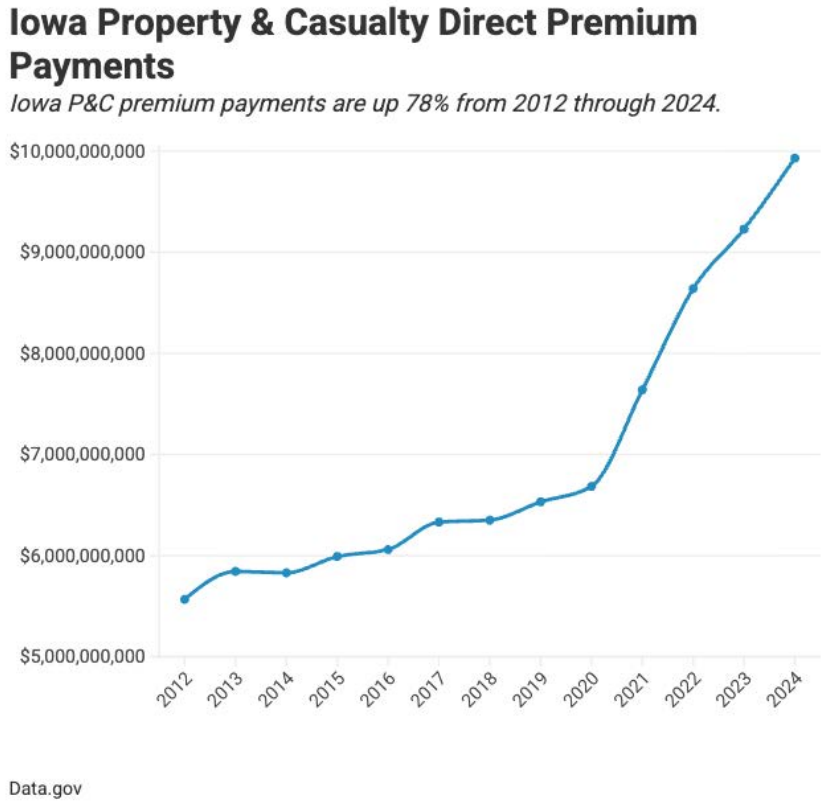
Ultimately, if risk rises, the cost to transfer that risk must also rise over time. Either premiums rise, deductibles rise, coverage decreases, or a combination of these elements. If property owners cannot or will not purchase P&C insurance at the price necessary for insurers to stay in business, then the market breaks down. In such cases, insurers may drop out of a market entirely or drop policies to reduce their own risk exposure.

RISING P&C PREMIUMS IN IOWA

Despite Iowa's supportive environment for insurers, its P&C insurance companies have been experiencing increasingly narrow profit margins.[19] In 2023, Iowa's home insurance market faced its fourth consecutive year of losses, with insurers paying out $1.44 in claims and costs for every $1 dollar earned in premiums, according to United Policyholders.[20] As the cost of providing insurance coverage has continued to rise, so have premiums. In October 2024, the *Iowa Capital Dispatch* reported that Iowa is among many states facing higher insurance rates due to extreme weather.[21] In December, an article in *The Guardian* explored whether climate risks are driving up insurance premiums around the United States.[22] In February of this year, *Business Insider* noted that hailstorms have caused insurers to raise insurance premiums.[23] And in July, a *ValuePenguin* post examined why auto insurance rates nationwide are projected to go up 7.5% in 2025, marking the seventh year in a row of rate increases.[24] Figure 2 confirms this trend.

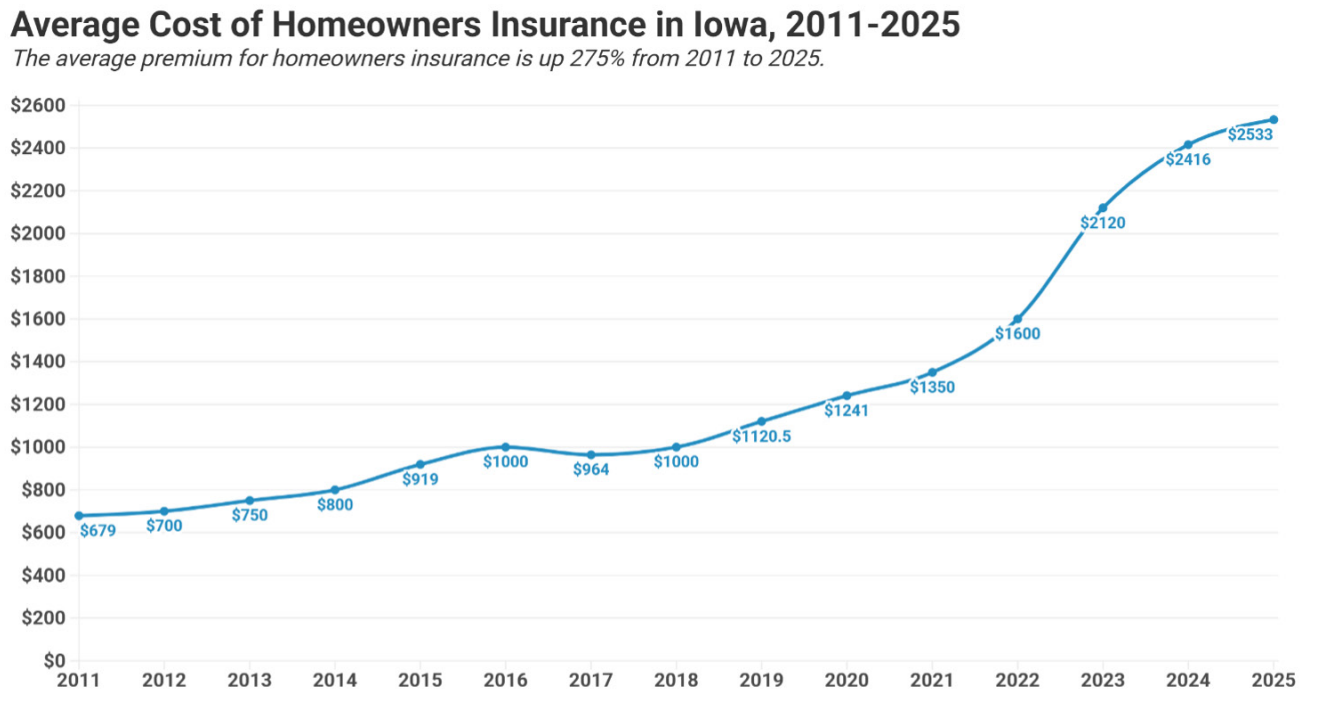
In 2024, insurers reported about $10 billion in premium revenue for policies sold in Iowa, as shown in figure 2.[25] From 2012 through 2024, Iowa insurers received approximately $91 billion in premium payments for P&C insurance. Total premium payments for all types of P&C insurance in Iowa rose 78% from 2012 to 2024. A 48.5% increase occurred from 2020 through 2024 alone. Of the P&C lines, the largest sources of premium payments are from homeowners, private passenger vehicles, farmers/crops, and workers. See figure 18 in the Appendix for a breakdown including every type of P&C insurance.[26] Figure 3 shows the trend of rising premiums for Iowa homeowners insurance.

FIGURE 2. IOWA PROPERTY & CASUALTY DIRECT PREMIUM PAYMENTS



Source: Data.gov

FIGURE 3. AVERAGE COST OF HOMEOWNERS INSURANCE IN IOWA, 2011-2025



Source: CSI research & analysis of publicly available data from various sources

Based upon research using publicly available sources, CSI found average premiums for homeowners insurance have risen 273% over the last 15 years, from $679 per year in 2011 to $2,533 in 2025. Most of that increase has occurred since 2017, including a large spike in 2022 that coincided with 40-year highs in U.S. consumer price inflation. According to an October 2025 report in The Wall Street Journal, Iowa has seen one of the top five highest rates of increase in homeowners insurance rates since January 2020.[27] See figure 15 in the appendix.

In a typical year for weather disasters, a portion of the $10 billion in estimated direct P&C premiums shown in figure 2 may cover the expected damage from some share of the $430 billion in property—though these figures represent rough estimates rather than precise sums. For instance, of the $10 billion in P&C premiums, only approximately $1.5 billion was for homeowners insurance, meaning that approximately $1.5 billion in premiums for one year covers some measure of expected damage to the residential property portion of the $430 billion in real property. Disasters would impact not only real property, but vehicles, crops, farmlands, commercial businesses, and to a lesser extent, injuries on the job (workers compensation).

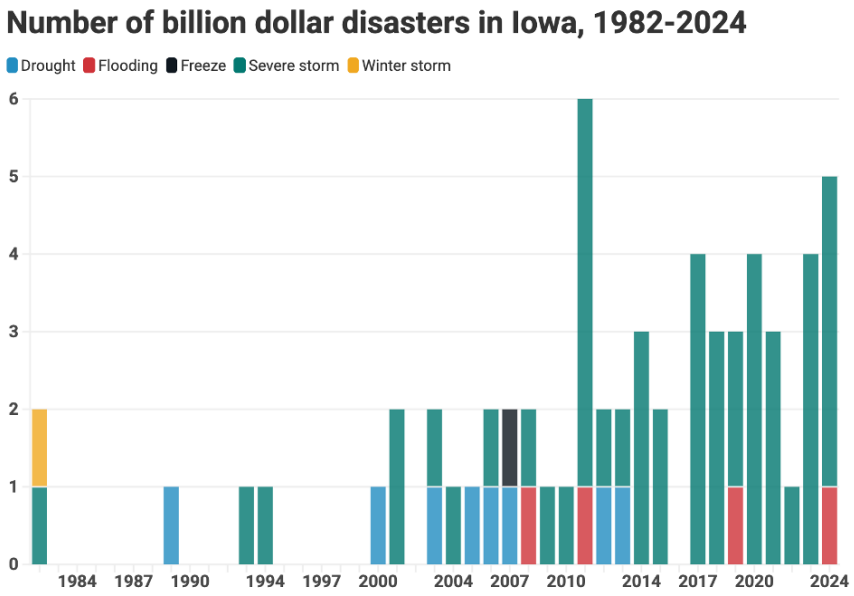
In a year with exceptionally costly disasters, however, premiums often do not cover losses. While insurers protect themselves and their insured for such years with tools like reinsurance, if risks consistently rise over the long-term, then premiums must also rise. As explained in more detail in the section of this report entitled "The P&C Business Model," the cost of insurance rises when risk factors rise. The following three sections of this report dive deeper into each of the three main factors insurers consider when pricing risk: 1) the likelihood a covered event, such as a severe storm, will occur; 2) the expected cost to repair or replace the affected covered property; and 3) the terms of the policy, such as the deductible and the coverage limit.

EVOLUTION OF SEVERE WEATHER EVENTS IN IOWA

This section investigates the first of the three factors insurance companies consider when pricing risk: the likelihood of a severe weather event occurring. Iowa has experienced 52 presidential declared disasters from 1990 to 2025. Every disaster declaration, excepting the COVID-19 pandemic, resulted from severe weather.[28] Heavy rain, flooding, tornadoes, high winds, hail, and winter storms are the most frequent severe weather events that impact Iowa. A severe weather event, especially the presidential declared disasters, often include multiple types of weather such as high winds or tornadoes occurring simultaneously with a thunderstorm.

The billion-dollar disasters include all severe weather events that cost the United States at least $1 billion. Figure 4 depicts billion-dollar disasters that have impacted Iowa. Most of these events also impacted other states. The years 2020-2024 generated some of the largest costs due to severe weather events, although the years 2011 and 2012 also proved exceptionally costly.

FIGURE 4. NUMBER OF BILLION-DOLLAR DISASTERS IN IOWA, 1982-2024



Source: National Oceanic and Atmospheric Administration

National Risk Index

FEMA produces the National Risk Index, which shows natural hazard risk for each county and state in the United States. The National Risk Index provides expected losses for 18 natural hazards. The expected losses can be interpreted as an average value for a year. Expected losses are categorized as population losses—a combination of fatalities and injuries where 10 injuries are equivalent to one fatality—building damage, and agricultural losses.[29]

Table 3 depicts the annual expected losses for six hazards in Iowa from the National Risk Index. Tornadoes, strong wind, and floods are expected to result in the most severe population losses and the greatest damage to buildings. The expected damage to buildings from hail is also relatively large. The National Risk Index suggests the P&C insurance industry could expect to pay approximately $400 million in Iowa to cover property losses due to severe weather.

TABLE 3. ANNUAL EXPECTED LOSSES FOR IOWA ACCORDING TO THE NATIONAL RISK INDEX

Damage category	All 18 hazards	Flood	Hail	Strong wind	Tornado	Winter weather	Ice storm
Population losses (number of people)	22.5	2.2	0.7	3.6	11.6	1.0	0.3
Building damage ($ million)	410.8	73.2	49.0	92.6	169.3	10.4	6.3
Agricultural losses ($ million)	169.8	36.8	21.1	9.4	1.0	0.1	0.0

Source: Federal Emergency Management Agency

Table 3 reflects average expected annual average losses in a typical year, but as shown in the following subsection of this report, losses tend to be highly variable from year to year. See table 4. One year may have relatively few severe weather events, creating losses of only a few million dollars, while another year may show losses far in excess of the typical expected losses shown in table C. To provide a better understanding of what this variable year-to-year risk means for insurers, CSI assessed insurers' risk exposure in years when severe weather causes abnormally high damages.

For its analysis, CSI used the annual damage from natural disasters from 1996 through 2024 and defined the 2-sigma and 3-sigma thresholds from this history. From this metric, the "outlier" or "exceptional" damage year could be much larger than the $580 million in buildings and agricultural damage reported in table 3. Figure 5 reports that twice in a lifetime, an Iowan may experience a year of exceptional damage, which would be three times the typical year at $1.7 billion. Every eight generations, an Iowan may experience a truly terrible year of natural disaster damage, around five times as much damage for a cumulative cost totaling around $2.9 billion.

FIGURE 5.

Exceptionally Damaging Years - Estimates for Twice in a Lifetime (2-Sigma) and Once in Eight Generations (3-Sigma) Natural Disaster Damage to Buildings and Agriculture

Source: Federal Emergency Management Agency, CSI Modeling

The results, shown in figure 5, have the 2-sigma and 3-sigma protection gap amounts of $1.7 and $2.9 billion, respectively. As a note of explanation: A 2-sigma event, assuming normality, has a 2% chance of occurring (one-in-44 chance) and a 3-sigma event has a 0.14% chance of occurring (one-in-741 chance).

Storm Events Database

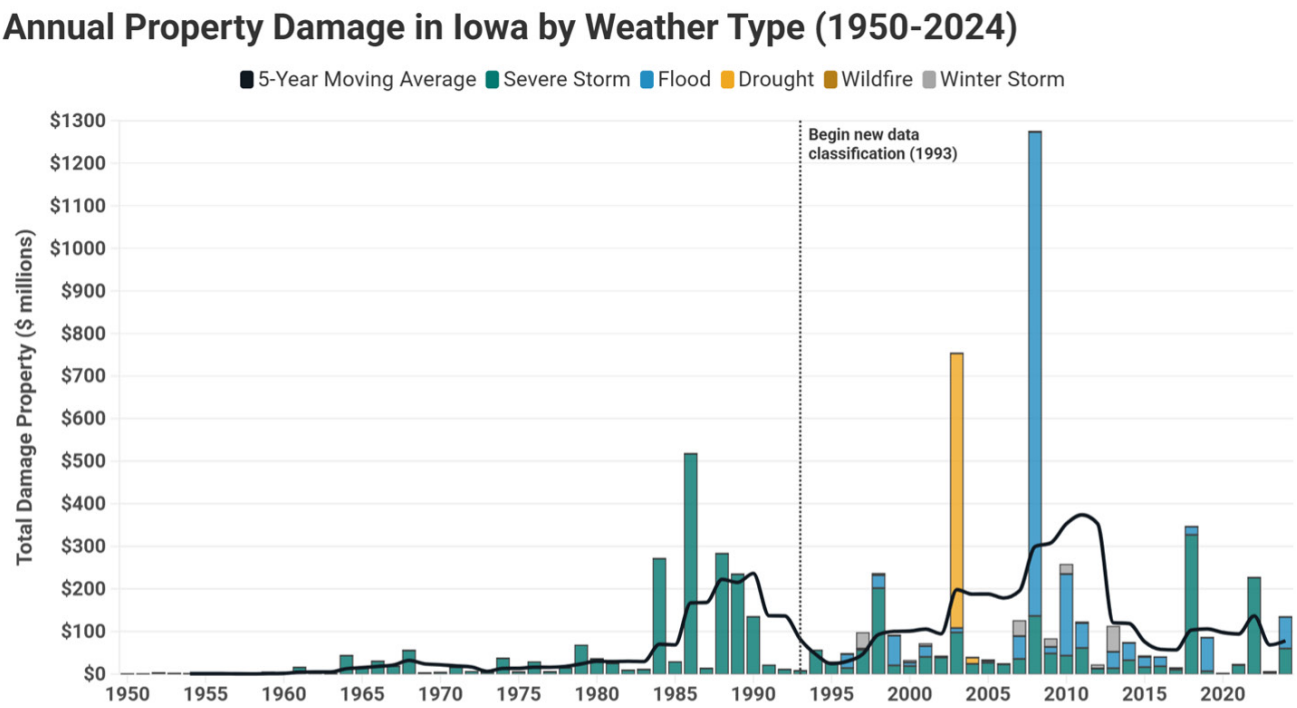
The Storm Events Database published by NOAA contains a list of weather events for each county in every state since 1950. From 1950 to 1954, only tornado events were recorded. From 1955 to 1992, the database only contained tornado, thunderstorm wind, and hail events. Since 1993, 48 weather events have been recorded in Iowa.

The Storm Events Database includes damages from these events including injuries, fatalities, property damage, and crop losses.[30] This report plots the annual property damage in actual dollars from the Storm Events Database in Iowa. Although the Storm Events Database contains 48 weather events, the report categorizes these events into six different event types to align with the categorization of the billion-dollar disasters: drought, flood, freeze, severe storm, wildfire, and winter storm. Extreme heat is included as part of drought. Freeze includes ice storms, sleet, cold wind chill, and freezing fog. The winter storm classification includes blizzard and heavy snow.

Severe storm is perhaps the broadest category and one of the most significant weather events in Iowa. Severe storms, frequently called severe convective storms in the Midwest, include tornadoes, high winds, lightning, thunderstorms, hail, and dense fog. Figure 6 shows severe storms generate property damage nearly every year in Iowa. The Storm Events Database, however, only records weather events classified as severe storms (tornadoes, thunderstorm wind, and hail) from 1950 to 1992, which explains why none of the other five events appear before 1993.

Although NOAA attempts to collect accurate damage information, damage to property and crops likely underestimates the true cost of severe weather events. For example, on August 10, 2020, a severe derecho impacted the entire state of Iowa. The derecho caused approximately $11 billion in damage, including damage to between 200 and 400 million U.S. bushels of crops. The Storm Events Database only records that $23,000 of property damage and $69,500 in crop damage occurred in Iowa on

FIGURE 6. ANNUAL PROPERTY DAMAGE IN IOWA BY WEATHER TYPE, 1950-2024



Source: National Oceanic and Atmospheric Administration

August 10, 2020, which is significantly less than the actual cost. Because the property damage costs according to the Storm Events Database underestimate the actual cost to property in Iowa, readers should refrain from putting too much faith in the actual numbers depicted in figure 6. Nonetheless, the database can help researchers examine trends and understand the variability in weather events and their costs.

According to the data, there is substantial annual variation in property damage without a clear trend over time. Significant property damage caused by severe storms (e.g., tornadoes) occurred in the mid-1980s. Property damage from severe storms occurred in just about every year with large losses in 2018 and 2022.

Substantial property damage occurred in 2003 due to drought and in 2008 due flooding. Much of the central and western United States experienced a severe drought in 2003 that cost the country $8.5 billion and led to 35 fatalities. According to the Storm Events Database, the costliest property damage in Iowa occurred in 2008 due to flooding. The 2008 flood remains the worst flood in Cedar Rapids history and the worst in Iowa in the 21st century. Although the flood mainly impacted Cedar Rapids and eastern Iowa, 85 counties were declared a federal disaster area. Total statewide damage was estimated at $10 billion. More than 40,000 people were affected, and 2.5 to three million acres of corn and soybean cropland were underwater.

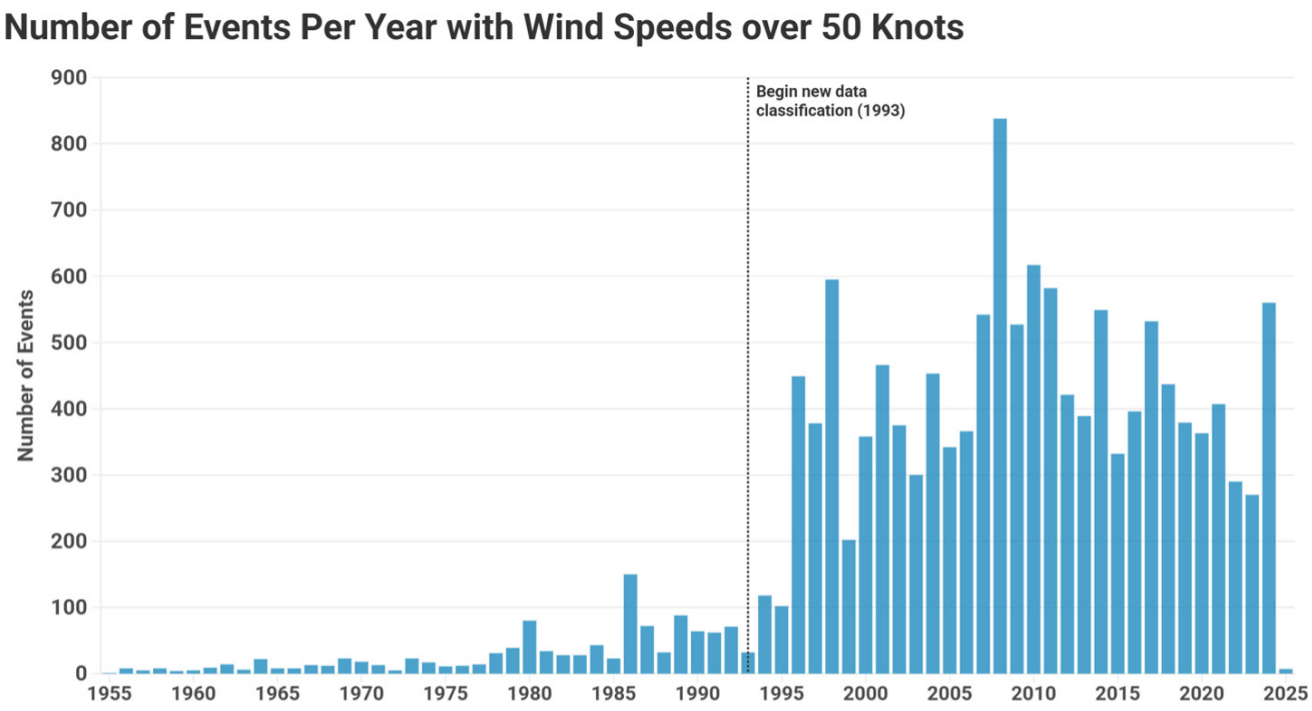
Figure 6 also depicts a five-year moving average for annual property damage as a solid black line. The moving average remained quite variable from 1990 through 2024, ranging from approximately $25 million in 1995 to more than $350 million in the period from 2010 to 2012. Since 2013, the moving average of annual property damage is less variable than the moving average prior to 2013. The annual

property damage from 2015 to 2024 is less than the annual property damage from 2005 to 2014 on average. A reduced level of property damage more recently could be due to better mitigation strategies, especially since Iowa has implemented several projects to mitigate the risk of flooding. Another explanation could be that the data collection for property damage has been less consistent in recent years. The disparity in costs from what has been reported due to the August 2020 derecho and what the Storm Events Database shows provides evidence for this latter point.

Severe Convective Storms

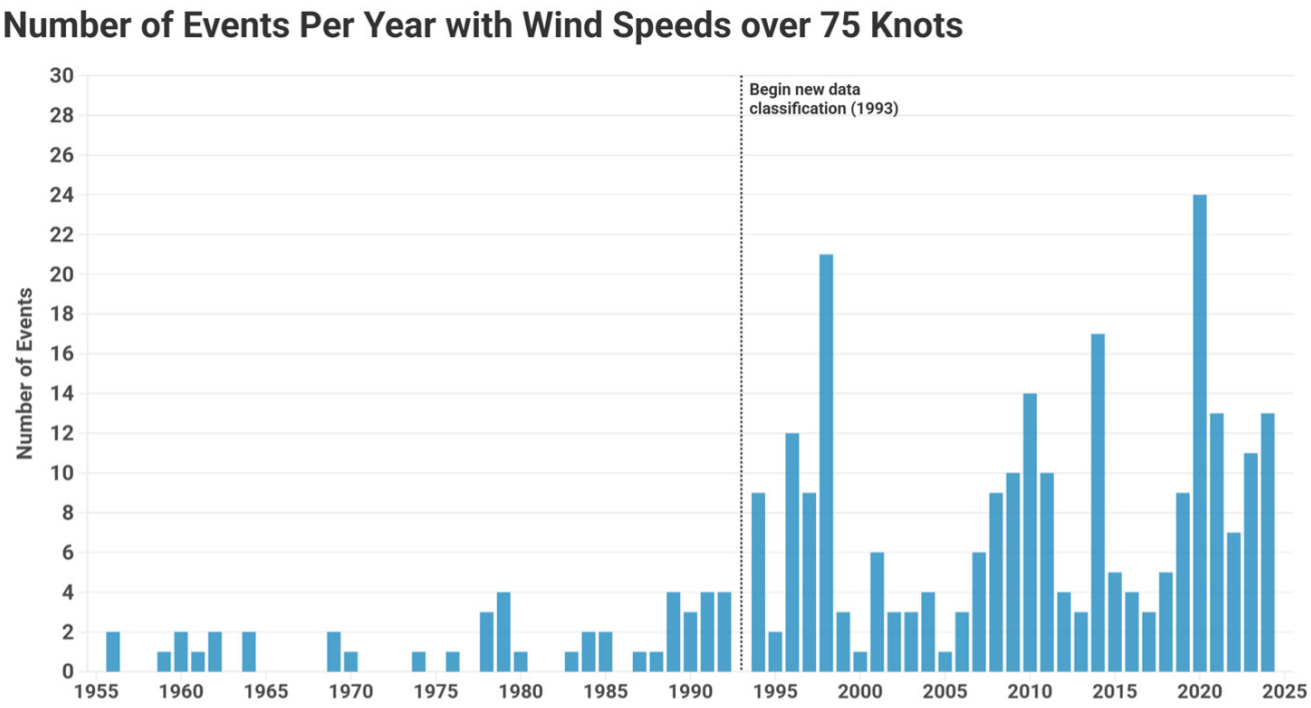
This report investigates specific weather events using data from different sources to analyze if trends exist in these weather events over time. It does not analyze or depict the data for annual property damage for individual events from the Storm Events Database given the unreliability of that data in capturing the actual cost from weather events in Iowa. The Storm Events Database provides weather characteristics from weather events in Iowa, which appear to be more reliable than the data for property damage. For example, the database shows wind speeds of 120 miles per hour in two counties in Iowa near Cedar Rapids on August 10, 2020, which aligns with other reported wind speeds during the 2020 derecho. Specifically, we analyze wind speed, the amount of hail, and the frequency and severity of tornadoes from the Storm Events Database.

FIGURE 7. NUMBER OF EVENTS PER YEAR WITH WIND SPEEDS OVER 50 KNOTS



Source: *National Oceanic and Atmospheric Administration*

FIGURE 8. NUMBER OF EVENTS PER YEAR WITH WIND SPEEDS OVER 75 KNOTS



Source: National Oceanic and Atmospheric Administration

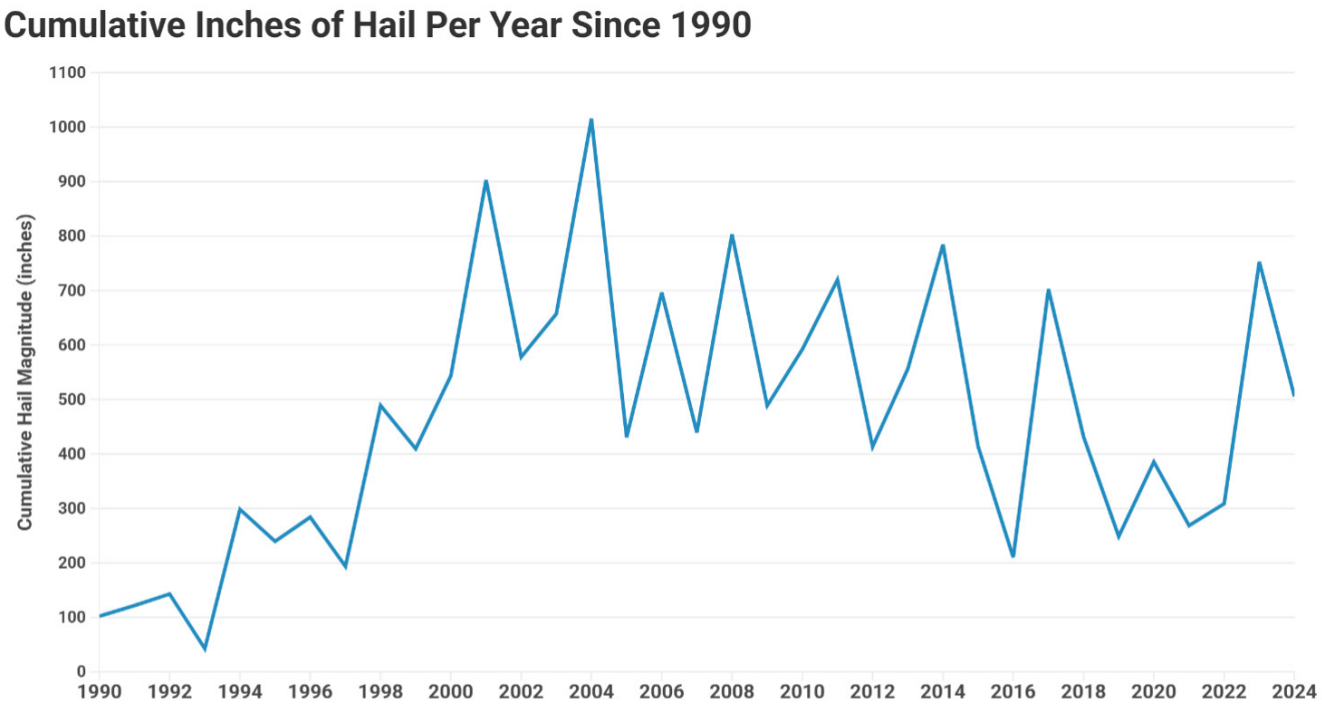
Severe convective storms, which include derechos, hailstorms, thunderstorms, and tornadoes, can generate significant property losses. Figure 7 depicts the number of weather events with wind speeds greater than 50 knots in the Storm Events Database. The wind speed could be recorded as greater than 50 knots for either sustained winds or wind gusts. If two different counties in Iowa experience wind speeds greater than 50 knots on the same day, the data count these wind speeds as two events.

Many more high wind events appear in the database beginning in 1996. The sudden increase in the number of high wind events could be due to the Storm Events Database expanding its collection of events from tornadoes, thunderstorm wind, and hail events (1955-1992) to 48 different events (1993-present).

The number of events with wind speeds greater than 50 knots has not increased since 1996. The years 2007-2011 saw many high wind events and an annual average of 620 events during that five-year time span. The data does not show that more high wind speed events have occurred recently. Data also shows 378 high wind events occurred on average from 2020 to 2024, and 451 high wind events occurred on average between 1996 and 2019.

If the threshold for a high wind event is set at 75 knots rather than 50 knots, Iowa has experienced a few more high wind events recently. Almost 14 high wind events occurred on average from 2020 to 2024, and eight high wind events occurred on average from 1996 to 2019. Although the 2020 derecho contributes significantly to the annual average of 14 high wind events, Iowa experienced at least 11 events with wind speeds greater than 75 knots in 2021, 2023, and 2024.

FIGURE 9. CUMULATIVE INCHES OF HAIL PER YEAR SINCE 1990

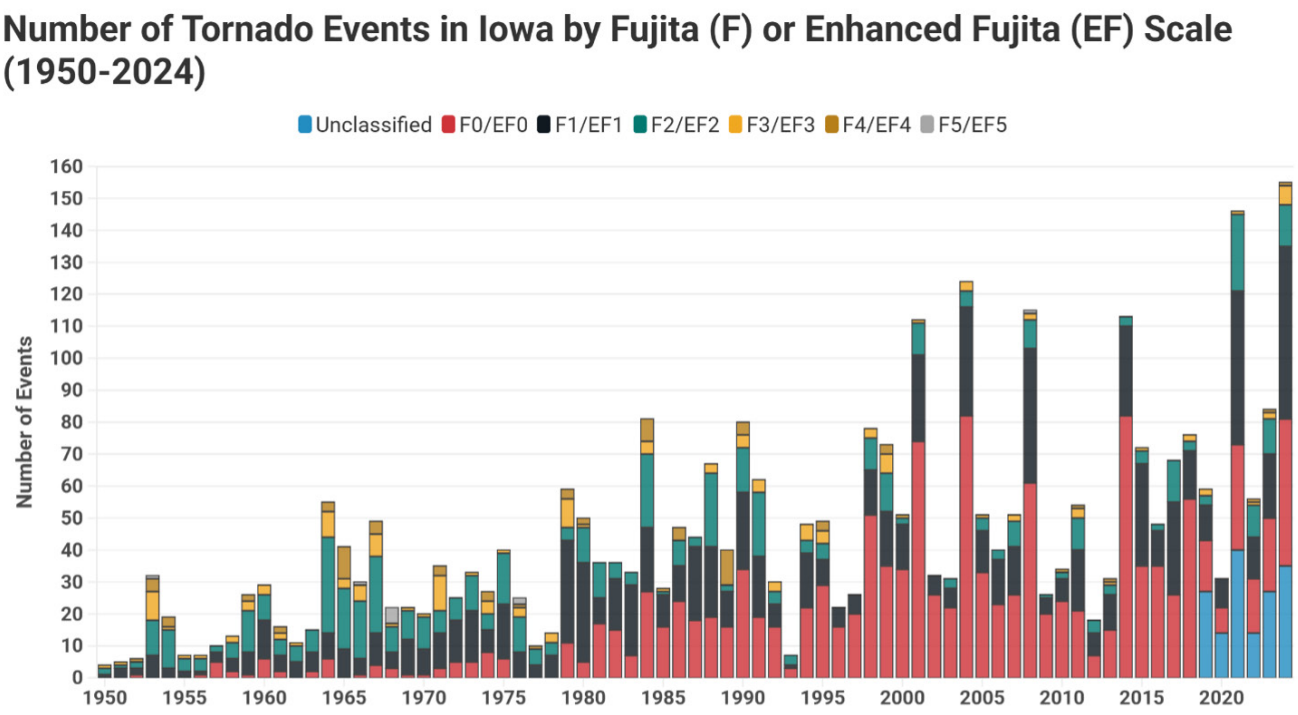


Source: National Oceanic and Atmospheric Administration

Hailstorms are increasingly generating more property claims in the insurance industry. The Storm Events Database records the number of inches of hail for each hailstorm in Iowa. Figure 9 depicts the total number of inches of hail that fell in Iowa in each year since 1980. The Storm Events Database records more hail since 2001 than before 2001. A significant amount of annual variability in the amount of hail has occurred since 2001. No trend indicates that more hail has fallen in Iowa in recent years. More hail fell in Iowa in 2001 and 2004 than in other years. Recently, more hail fell in 2023 than any other year since 2014. The number of hail events in Iowa follows a similar pattern to the annual inches of hail. The cost from hail events seems to be increasing. The inflation-adjusted cost from billion-dollar weather events that involved some hail damage and that at least partially impacted Iowa was $7 billion in 2000-2009, $20 billion in 2010-2019, and almost $30 billion in 2020-2024.[31]

The Storm Events Database records tornadoes in each year and classifies them according to the Fujita (F) scale or the Enhanced Fujita (EF) Scale, which became operational in 2007. Unlike the amount of hail in Iowa, the number of tornadoes is increasing in Iowa. Figure 10 shows a clear increasing trend in tornadoes in Iowa. The number of tornadoes has increased by almost one tornado on average in each year, but substantial variability occurs year-to-year. More tornadoes occurred in Iowa in 2021 (146 tornadoes) and 2024 (155 tornadoes) than in any other year. The third greatest wind speed for a tornado in the United States occurred on May 21, 2024, in southwest Iowa, devastating the city of Greenfield. Wind speeds for this tornado were estimated by a portable Doppler radar unit at 309-318 mph.[32] The tornado killed five people and caused $31 million in damage.

FIGURE 10. NUMBER OF TORNADO EVENTS IN IOWA BY FUJITA (F) OR ENHANCED FUJITA (EF) SCALE (1950-2024)



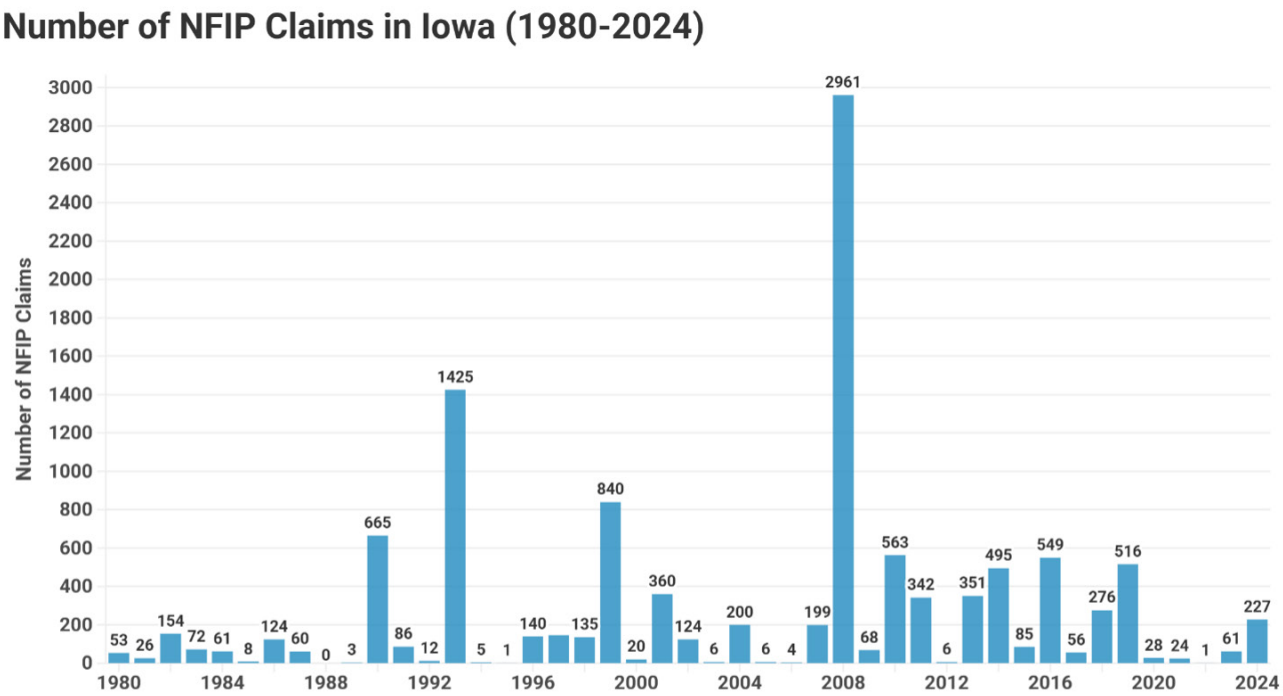
Source: *National Oceanic and Atmospheric Administration*

Claims in the National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a federal insurance program for floods, but almost half of homeowners will flood insurance purchase it from private insurers.[33] Still, data from NFIP can provide insight about the historical damage caused by floods in Iowa. Claim data for NFIP for Iowa is publicly available and figure 11 depicts the number of claims. More claims were submitted in 2008 than in any other year by far due to the 2008 flood that devastated Cedar Rapids and the surrounding region.

No obvious trend exists in the data over time. Since 2009, the number of NFIP claims has ranged between zero and 500 with substantial variability from year to year. The years 2020 to 2023 resulted in very few NFIP claims in Iowa. The state of Iowa has invested significant resources to prevent and protect against floods, and perhaps the smaller number of NFIP claims since 2020 are a result of that investment.

FIGURE 11. NUMBER OF NFIP CLAIMS IN IOWA (1980-2024)



Source: National Weather Service

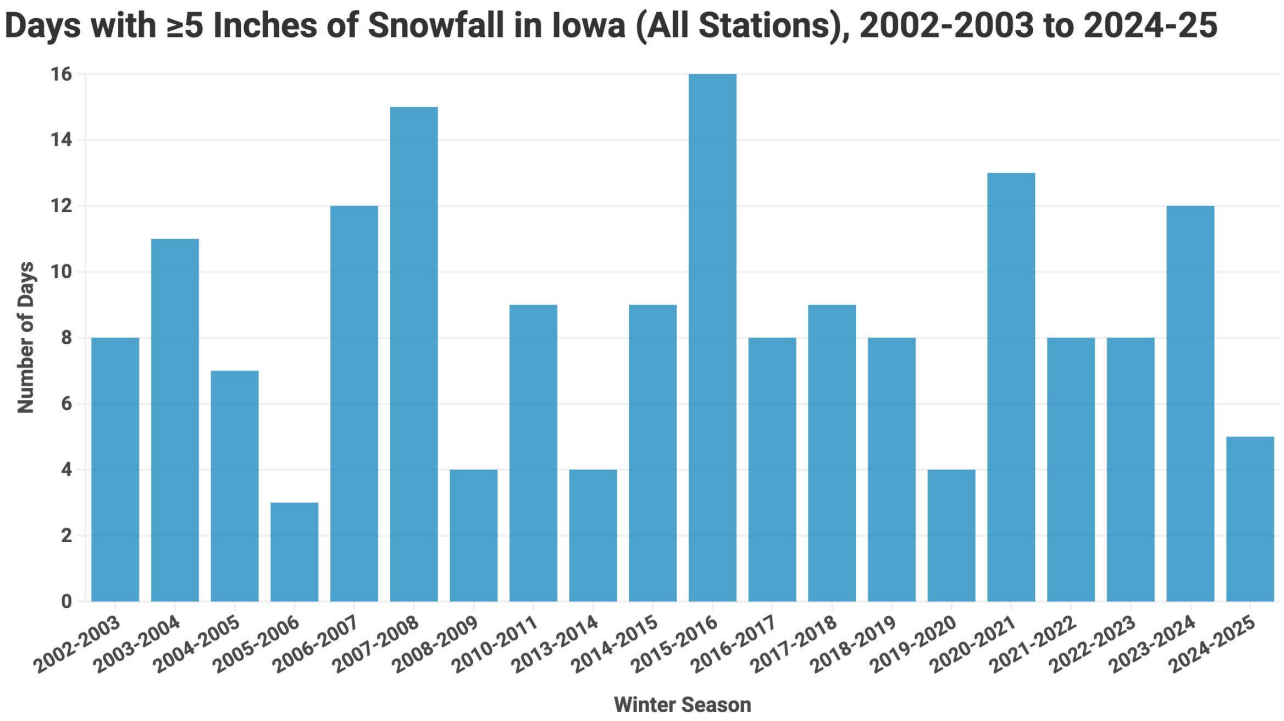
Winter Storms

Although very frequent, winter storms represent a less severe threat to property in Iowa than the threat posed by severe convective storms or floods. For example, the National Risk Index calculates that the expected building damage caused by flood, hail, strong wind, or tornado is at least $49 million for each hazard, but the expected building damage caused by winter weather is $10 million. Since property damage can still result from severe winter weather, and Iowa experiences its share of winter storms, examining the number of severe winter storms can help explain trends and variation like the preceding analysis of severe convective storms and floods.

The Iowa Environmental Mesonet has recorded daily snowfall in inches at 52 weather stations in Iowa since 2002. To capture significant snowfalls, this report counts the number of times a weather station recorded five inches or more of snow on a single day. A winter storm that generates more than five inches of snow in multiple stations on the same day is counted as multiple days, one for each station. The overall results are similar if counting multiple occurrences at different stations on the same day as one event.[34]

The data show a relatively constant trend in the number of days with a large amount of snowfall since 2002 with a significant amount of annual variability. (No data was recorded in winter 2011-2012 or 2012-2013.) More days with more than five inches of snow occurred during winter 2015-2016 than in any other winter season in Iowa. The number of days with a large amount of snow has ranged from five days to 12 days in every winter season since 2020-2021.

FIGURE 12. DAYS WITH ≥5 INCHES OF SNOWFALL IN IOWA (ALL STATIONS), 2002-2003 TO 2024-25



Source: Iowa Environmental Mesonet

Historic weather data show mixed trends

The evolution of severe weather in Iowa underscores a critical reality that risk is dynamic and increasingly complex. Certain hazards such as tornadoes and high-wind events have shown signs of greater frequency or intensity in recent years, but other events such as hail and winter storms exhibit wide swings without clear trends. Billion-dollar disasters and catastrophic events like the 2008 floods and 2020 derecho reveal that a single storm can generate losses far beyond historical averages. For insurers, these facts mean pricing models and capital reserves must account for both the unpredictability and potential severity of future events. Ultimately, understanding and preparing for this variability is essential to protect property, maintain market stability, and ensure resilience in the face of Iowa's evolving weather risks.

RISING REPLACEMENT COSTS

This section investigates the second of the three factors insurance companies consider when pricing risk: What is the expected cost to repair or replace the affected covered property? To help answer this question and understand this factor's influence on rising premiums, CSI developed a simple statistical model based on three factors:

1. The cost of construction/replacement of real property.
2. The value of real property (e.g., homes and other property are more valuable).
3. Demographic densification, meaning more people living closer together (population density/building density).

The first factor used in the model considers the influence of inflation on claims payments. Rising property insurance rates are tied to the escalating cost of construction and property replacement. As materials such as lumber, steel, and concrete have become more expensive and labor costs have surged, insurers face higher potential payouts when homes are damaged or destroyed. Inflation in construction inputs, the potential for supply-chain bottlenecks, and stricter building codes in disaster-prone areas can all contribute to this upward pressure in costs for rebuilding and replacement.[35]

The rising market value of real property also puts upward pressure on insurance premiums. According to Federal Reserve data, Iowa home prices rose by 45.7% from the second quarter of 2020 through the second quarter of 2025.[36] The value of all Iowa property is up 40%, as shown in figure 13. As property values rise, replacement costs naturally rise also. More valuable homes mean the potential for higher insured values and greater potential losses per claim, though the relationship is not a complete one-to-one for reasons discussed later in this report.

Finally, growing population density amplifies risk and replacement costs. Demographic densification—more people and structures packed into smaller areas—raises both the likelihood and the severity of losses. Fires, storms, and other perils can spread more quickly and affect multiple properties at once in dense neighborhoods, leading to large, correlated claims. Urban growth, infill housing, and multifamily development magnify these clustered risks, pushing insurers to price policies higher to maintain solvency.

Together, these factors—construction costs, property values, and densification—create an ongoing structural shift in insurance economics. Replacement costs form part of the foundation of insurance risk pricing. If it costs more to rebuild, premiums generally must rise to ensure insurers can cover expected future claims. Table 4 shows the summary output of CSI's predictive model, which illustrates the cause and effect of rising replacement costs on insurance premiums.

Although not a perfect representation of the factors that impact a homeowner's insurance premium or likely their magnitude, the impacts are illustrative of a relationship. When the cost of construction goes up by 1%, for example, CSI's model indicates a homeowner's insurance premium goes up by 0.25%. Similarly, when the value of assessed property goes up 1%, a homeowner's insurance premium goes up by 0.39%.

TABLE 4. RELATIONSHIP BETWEEN RISING REPLACEMENT COSTS AND INSURANCE PREMIUMS

Regression Results
Predicted Variable: Premium, Year-over-Year

Predictor Variables	Coefficient Model 1	p-value Model 1	Coefficient Model 2	p-value Model 2
Cost of Construction (Replacement of Improvements) (Year-over-Year)	0.25	0.43	0.18	0.73
Population Density	0.80	0.89	10.18	0.29
Value of propety (mostly improvements)	0.39	0.16	0.54	0.23
Cross_CostofConstruction_ValueofImprovements	18.84	0.00		
Adjusted R Square	0.71		0.37	
Significance F	0.00		0.03	

Last, as populations become more densely packed (the urbanization of cities), the cost of homeowners insurance payments goes up (see Model 1 in Table 4). Because the cost of construction and the value of property are related, the "Cross" variable captures the effect of the two together. Model 1 illustrates this relationship; Model 2 excludes the "Cross" variable. If the cost of construction and the value of property both go up by 1%, homeowners insurance premiums would go up an additional 0.2%.

Interestingly, in this simple model developed for illustrative purposes, a 1% rise in the cost of construction and a 1% rise in the value of property equates to a 0.84% rise in a homeowner's insurance premium. Notice that 0.84% is less than 1%. This finding—which, again, just as an example—indicates that homeowners insurance premiums do not rise one-for-one as claims (i.e., costs to insurance companies) rise. Instead, a number of decisions are made by the insurer and the insured property owner that may explain the lack of a one-for-one rise, such as homeowners choosing not to insure a higher value of their home, homeowners choosing higher deductibles instead of higher premium payments, and insurers attempting to smooth out the cost of insurance premiums to customers over years.

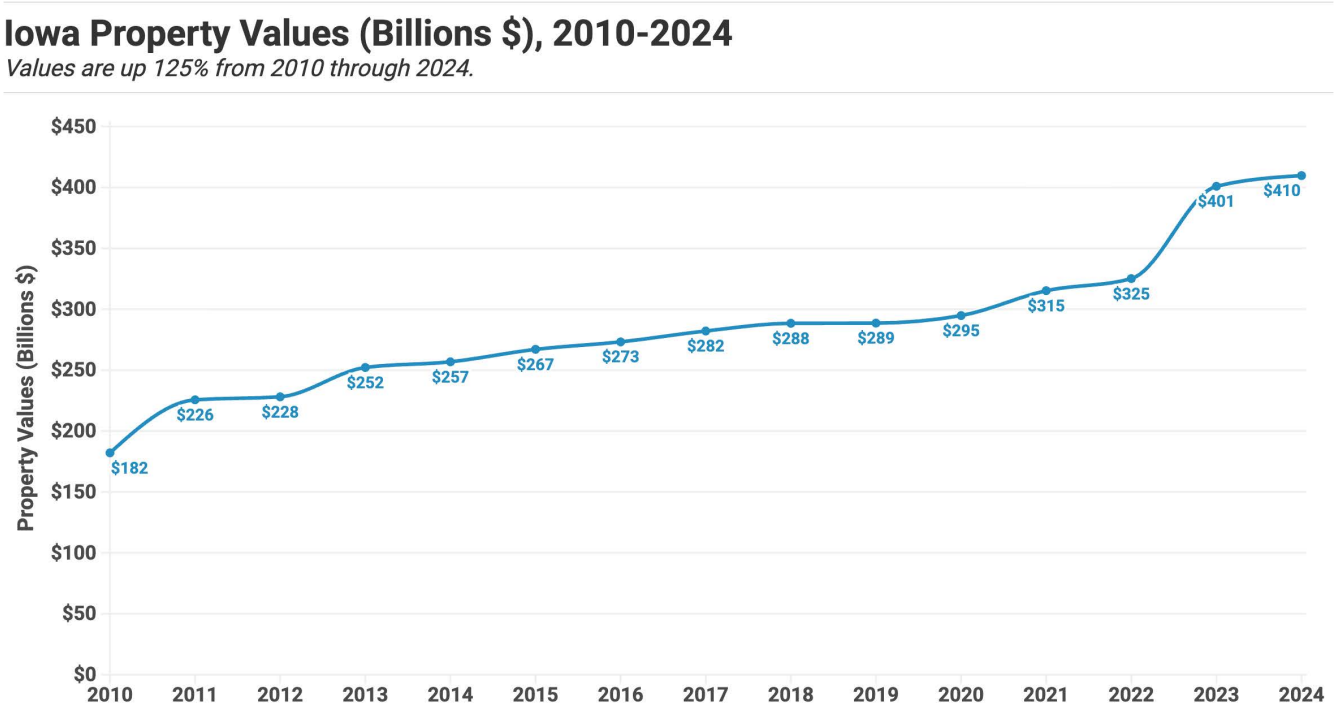
Iowa cumulative property values are up 125% since 2010

Since 2010, valuations of Iowa properties are up 125%, from $182 billion in 2010 to $410 billion in 2024.[37] The projected 2025 statewide value is $430 billion. Again, when properties become more valuable, it generally becomes more expensive to repair or replace the property when a loss occurs. Higher real estate prices may increase wealth, but they also increase replacement costs after disasters.

Figure 14 shows the wealthiest counties by cumulative value of all properties, with each nominal value shown in billions of dollars in parentheses: Polk ($64 billion), Linn ($26 billion), Johnson ($21 billion), Scott ($20 billion), and Dallas ($19 billion). Interestingly, property wealth in the state is concentrated, with just 10 counties accounting for more than half of all property value in the state.[38]

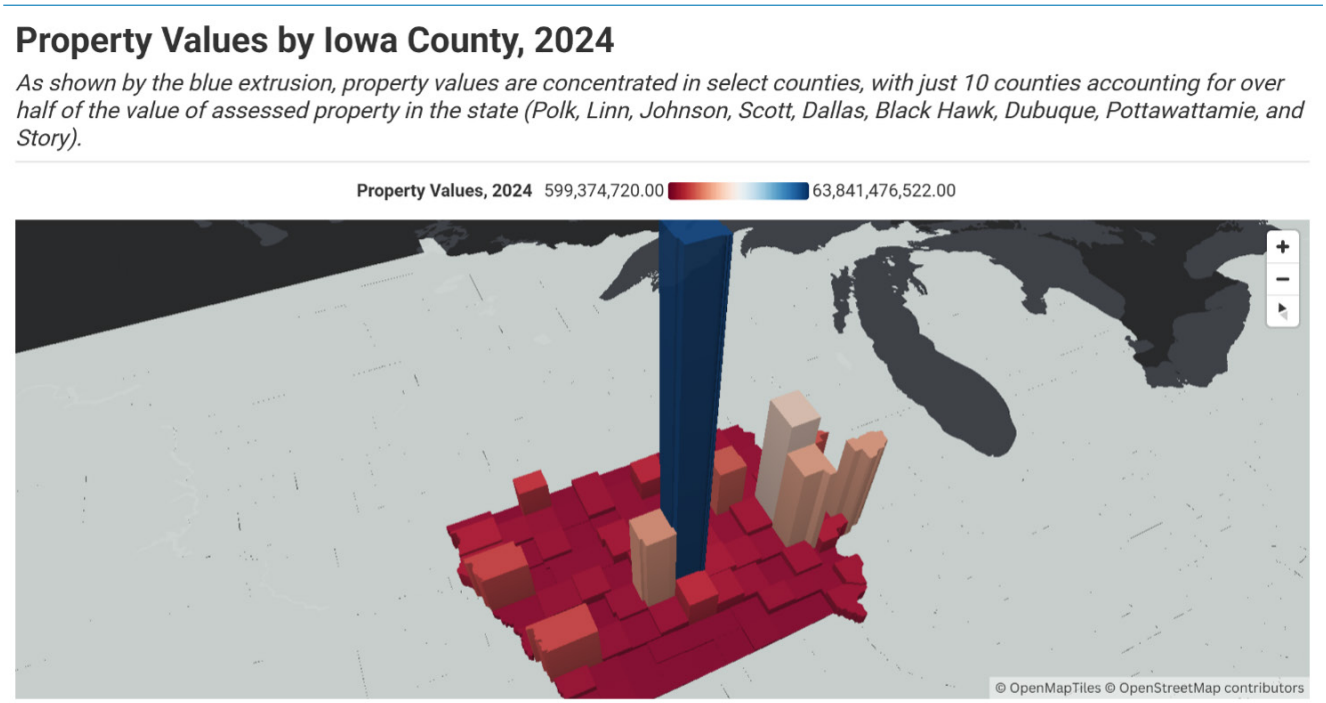
Residential property, both single-family and multi-family, makes up 62% of all property value across the state. This number is up from 56% in 2011, as shown in figure 16 in the appendix. The value of property is also increasingly shifting from more rural townships toward cities, as shown in figure 17 in the appendix. Since 2010, the share of assessed value in cities has increased from 58% to 66%. As property values rise, however, so does the gap between the total value of Iowa properties and the amount of that value protected by insurance.

FIGURE 13. IOWA PROPERTY VALUES (BILLIONS $), 2010-2024



Source: Iowa Department of Revenue

FIGURE 14. PROPERTY VALUES BY IOWA COUNTY, 2024



Source: U.S. Census Bureau's cartographic boundary shapefiles (2021), Iowa Department of Revenue

THE PROTECTION GAP

Whether the risk of financial loss from property damage rises because of changes in the prevalence and severity of natural disasters or because of rising replacement costs, the result is the same: risk rises. Therefore, the cost of risk transfer rises, and the price of insurance rises. In a market, the price is the place where supply of a good or service—in this case, P&C insurance—meets demand. In her book, *Understanding Disaster Insurance: New Tools for a More Resilient Future*, Carolyn Kousky explains the last criteria for insurability "is that supply must equal demand." She continues, "If no insurer is willing to offer insurance and no one is willing to buy it, the market breaks down."[39] In the discussion about insurers' need to protect themselves against risk in the section "The P&C Business Model," this report notes that several insurers dropped coverage or pulled out of the Iowa market entirely following the 2020 derecho.[40] In other instances, property owners may drop their insurance when premiums rise.

In either case, this breakdown of the market can result in a dangerous protection gap, leaving Iowa property owners and its economy exposed when natural disasters strike.

The protection gap equates to the difference between the value of potential economic losses resulting from catastrophic events and the amount of potential loss covered by insurance. Due to the depth of research required for an exhaustive study on the projected protection gap across all the property types in Iowa, CSI has not performed an exhaustive study.

As a start to the total value of property that could be affected by a natural disaster, CSI uses the Iowa Department of Management reported property valuations by each county in the state from 2010 through 2024. Figure 14 depicts the total value of all properties in each Iowa county in 2024.[41] This beginning point gives a projected 2025 total value of $430 billion for residential, agricultural, commercial, industrial, railroads, utilities, and other properties. Of course, no model would project natural disasters leading to the total loss of the entire $430 billion in statewide property value in just one year. Future research could quantify the protection gap in Iowa.

Two of the three main elements insurers look to when pricing risk are outside of their control. Insurers cannot prevent catastrophic weather, and replacement costs generally rise because of outside factors. They can, however, dictate the last of the three elements of their risk analysis. The terms of a policy, such as the deductible and the coverage limit, allow insurers to keep premiums lower by reducing their exposure to risk. In some cases, the premium an insurer would need to charge to fully insure a property

against certain classes of natural disasters would make coverage entirely cost prohibitive for a property owner. In such cases, insurers may consider placing limits on coverage. This practice allows insurers to limit their maximum possible downside in a worst-case scenario and helps them better forecast their risk. By reducing their risk exposure in this way, firms can in turn charge their customers less for the coverage. This approach might help a property owner maintain some protection, even if underinsured, when they otherwise would be priced out of the market entirely. This approach also helps minimize some moral hazard inherent in insurance contracts.

Amending policies can serve as an important tool for reducing the protection gap when disaster risk and increasing replacement costs would otherwise cause the market to break down entirely. They do not, however, eliminate the protection gap. The next section explores other options for adapting to the evolving P&C insurance landscape and ensuring maximum protection for properties across Iowa.

COST EFFICIENT WAYS TO REDUCE LOSSES FROM NATURAL DISASTERS

The two main severe weather events that threaten Iowa's P&C insurance market are floods and severe convective storms (SCS). Floods remain a recurring hazard, while SCS events such as hailstorms and tornadoes cause substantial damage annually. Traditional insurance models focus on recovery rather than prevention, which can leave properties vulnerable to repeat losses. A shift toward mitigation prior to the occurrence of severe weather events may offer significant economic benefits. Enhancing building codes, retrofitting existing buildings, and insurance incentives for incorporating disaster mitigating strategies in design can all help reduce financial losses from floods and SCS. Successful mitigation of severe weather events will require cooperation among federal, state, and local governments, private industry such as insurance firms, and commercial and residential property owners.

Flood Mitigation

Flood mitigation can reduce the frequency and severity of property damage from floods, which translates into fewer insurance claims and lower recovery costs. Proactive measures to mitigate against riverine flooding such as elevating structures above the Base Flood Elevation (BFE) and dry and wet floodproofing result in benefit-cost ratios (BCRs) ranging from 5:1 to 7:1. Constructing homes at BFE plus two to five feet significantly reduces flood damage, and the greatest BCR is constructing homes at BFE+2 or BFE+3.[42] The 2018 International Building Code (2018 I-Code) establishes that all new buildings in a riverine flood zone are required to have one foot above BFE.

Retrofit measures for existing structures also play a critical role. Elevating homes, though costly at $65–$101 per square foot, yields a BCR of around 2:1. Wet floodproofing, which involves using flood-resistant materials and creating openings in crawlspaces or basements, offers a BCR between 2:1 and 3:1. Relocating mechanical and plumbing systems above flood levels provides additional protection with BCRs ranging from 1.5:1 to 2:1. These ratios underscore that a dollar invested in mitigation can avoid multiple dollars in losses.

Iowa has made significant strides in addressing flood risk through comprehensive mitigation programs such as the Iowa Flood Mitigation Program, established in 2012. This initiative has prompted local governments to implement projects such as levees, floodwalls, pump stations, and improved stormwater systems. These efforts aim to enhance floodwater conveyance, protect critical infrastructure, and reduce

water elevations during major events. Cities participating in the program have achieved BCRs ranging from 2:1 to 10:1, demonstrating the economic viability of these investments.[43]

In addition to structural projects, Iowa has embraced nonstructural strategies such as property buyouts in high-risk areas. These buyouts permanently remove vulnerable structures from floodplains, providing long-term risk reduction and creating opportunities for green space or natural floodplain restoration. Financial assistance programs, including forgivable loans for low- to moderate-income households, help homeowners implement protective measures like waterproofing, sump pumps, and elevation of mechanical systems.

The state's proactive approach appears to have yielded measurable results. Although severe floods still occur, NFIP data for Iowa suggests that flooding events since 2015 have generally been less catastrophic than those in previous decades.

Severe Convective Storms Mitigation

Mitigating risks from SCS requires a focus on tornado, hail, and straight-line wind events. Tornadoes pose a severe threat to property, and the experience of Moore, Oklahoma, provides a compelling case for enhanced building codes. After a devastating tornado in 2013, Moore changed its building codes to require increasing design requirements from wind speeds of 90 mph to 135 mph. These changes aimed for structures to withstand Enhanced Fujita (EF) 2 tornadoes, as 90% of all tornados are EF2 or less. The new codes required improved construction of wood frame homes, enhanced roof fasteners, better connections in the roof framing, strengthening walls, and structural changes to garages. These improved construction standards could mitigate up to 30% of residential damages from tornadoes, equating to nearly $11 billion in avoiding future losses for residents of Moore.[44] The Moore example demonstrates that proactive code enhancements can reduce tornado-related destruction and insurance claims.

Hailstorms are a major driver of property losses in the Midwest. Most building codes are designed for wind or seismic resistance, but stronger enforcement and improved roofing materials can also reduce hail-related claims. An analysis of Missouri building codes found that enforced building codes reduced hail damage by approximately 20%, translating to an average savings of $1,500 per residential claim.[45] The quality of materials used to build the roof and other structures such as windows and siding is a determinant factor in the amount of damage and losses. The Insurance Service Office (ISO) Building Code Effectiveness Grading Schedule (BCEGS) ratings correlate with reduced hail losses although future research should analyze the reliability of the BCEGS ratings. The Insurance Institute for Business and Home Safety (IBHS) evaluates the ability of different brands of roof shingles to withstand the impact from hail.[46]

Straight-line winds, often associated with severe thunderstorms and derechos, can cause extensive property damage. Effective mitigation strategies focus on reinforcing vulnerable components of buildings. Strengthening roofs, windows, and garage doors is essential since these areas are most susceptible to wind pressure and debris impact. Installing storm shutters, impact-resistant glass, and reinforced door tracks can prevent structural failure during high-wind events. Landscaping also plays a role. Trimming trees and removing damaged branches reduce the risk of windborne debris, and securing outdoor furniture and equipment prevents secondary damage. These measures, though relatively inexpensive compared to full structural retrofits, can provide protection and complement broader resilience strategies for SCS.[47]

Evaluating Strategies to Reduce Losses and Benefit the Insurance Industry

The insurance industry can play a pivotal role in promoting mitigation through financial incentives and innovative products. Premium discounts for properties meeting resilience standards could further adoption of best practices. Parametric and microinsurance products can provide rapid payouts and coverage for vulnerable populations, while improved catastrophe modeling for SCS enhances risk pricing accuracy.[48] Encouraging policyholders to rebuild stronger rather than restoring pre-event vulnerabilities may ensure long-term benefits for both insurers and property owners.

Identifying the most cost-effective solutions to mitigate the risk of severe weather requires the collaboration of governments, private industry, research institutions, and individual consumers. The National Science Foundation (NSF) and NOAA have recognized the need for collaborative research between academia and the private sector to improve insurance against severe weather events. Formation of a research program similar to the NSF-supported Industry-University Cooperative Research Centers provides a model for private insurance companies to pay an annual fee to collectively fund academic research that solves their most important problems.

The CyInsurance Research Initiative at Iowa State University

Iowa State University is in the process of launching the CyInsurance Research Initiative (CyRI) to establish partnerships with the insurance industry to work on addressing challenges in the P&C market and providing solutions that benefit both consumers and the insurance industry. CyRI's mission is to provide a forum for academia, government agencies, and industry to foster resilience against severe weather events in the insurance industry. Insurance companies will join with Iowa State University researchers to formulate research questions. An advisory council, composed of membership companies, will select research projects to benefit the insurance industry and the state of Iowa.

The insurance industry is incredibly important to Iowa's economy, and the challenges are complex. Solving them requires integrating research across multiple disciplines such as actuarial science, engineering, statistics, economics, and meteorology. Iowa State University is well positioned to lead interdisciplinary research to tackle these challenges. CyRI's research will likely begin with an analysis of the root causes of the challenges in the insurance industry by modeling an environment with realistic frequency and severity of extreme events. One goal will be to quantify the individual contribution of multiple factors (e.g., increasing frequency and severity of severe weather, inflation especially in the construction industry, increasing population, rising property values) to the increased losses experienced by the insurance industry. Other potential research projects include the following: (i) assessing the risk of damage to property and buildings due to extreme weather events, (ii) identifying and quantifying how engineering solutions can mitigate the impact of severe weather, and (iii) proposing market and policy mechanisms that can contribute to adoption of mitigation measures. The integration of Artificial Intelligence (AI) based techniques could also help better understand industry challenges.

THE ECONOMIC IMPACT OF MITIGATION EFFORTS

As one might expect, reducing the financial loss from a disaster through mitigation efforts can prove fruitful if done prudently. Without making a judgement on the cost-benefit of any specific mitigation method or strategy, this section estimates the economic impact of mitigating the damages caused by natural disasters. Specifically, it projects the impact on Iowa's economy of reducing the cost of damages from natural disasters by 20%, 40%, 60%, and 80%.

Common Sense Institute used the REMI model to simulate the economic impact using the following assumptions:

- A baseline assumption of "no mitigation"
- Alternative assumptions assuming 20%, 40%, 60%, and 80% mitigation efforts for (1) building damage and (2) agricultural losses stemming from:
  - Strong wind
  - Tornado
  - Hail
- The annual expected losses for the scenarios presented above stem from the National Risk Index mentioned earlier in the paper.
- The impact comes in the form of:
  - Capital destruction: A one-time negative shock to capital loss in affected regions.
  - Employment loss: A short-term negative shock in local industries.
  - Production loss: A temporary reduction in output due to operational downtime.
  - Migration loss: A temporary reduction in migration due to a drop in output.
  - Private investment response: A temporary shift in private spending from other priorities toward rebuilding efforts. This shift is modeled as a short-term boost paid for through reduced spending in out-years (essentially assuming bonds are issued for the rebuilding efforts).
- The effects mentioned in the above bullet points are then compared with scenarios where 20%, 40%, 60%, or 80% of the losses are mitigated.
- The difference between the two scenarios is the economic benefits of mitigation.

Hailstorms Economic Impact of Mitigation Success

Table 5 shows the economic impact of hypothetical successful mitigation of hailstorms in 2026. As shown, the assumed direct impact of hailstorms results in broader economywide economic impacts presented in Table 5. The left column shows the "percent not mitigated." For example, if 20% of the damage from hailstorms is not mitigated (i.e., meaning 80% of the impact is mitigated), Iowa's economy would see fewer losses (see 20% row for year 2026):

- A decrease in employment of 48 jobs.
- Lower business sales (output) of $13.5 million.
- Missing GDP of $7.1 million.
- Lower Personal Income of $2.6 million.
- Missing Disposable Personal Income of $2.3 million.

In contrast, if none of the impact from hailstorms is mitigated (i.e., the 100% row for year 2026), the economywide economic impact is much larger:

- A decrease in employment of 237 jobs.
- Lower business sales (output) of $66.9 million.
- Missing GDP of $35.3 million.
- Lower Personal Income of $13.0 million.
- Missing Disposable Personal Income of $11.4 million.

Remember, the figures in table 5 are from one year of just hailstorms. Additionally, depending upon how the rebuild is financed, the impacts of hailstorms perpetuate through subsequent years, as shown by the 2030 impact in the above table. As a reference point, Iowa's GDP was about $257 billion in 2024.[49]

Within this context, imagine if hailstorms become more frequent and severe relative to other states. The annual impacts referenced in the above figure would then build on prior years. This fact speaks to the importance of being thoughtful about developing cost-effective mitigation strategies.

TABLE 5. ECONOMIC IMPACT OF LEVELS OF MITIGATION SUCCESS FROM HAILSTORMS

Economic Impact of Levels of Mitigation Success from Hailstorms

Percent Not Mitigated	Year	Employment	Business Sales (Output) (Millions $)	GDP (Millions $)	Personal Income (Millions $)	Disposable Personal Income (Millions $)
20%	2026	-48	-$13,462	-$7,103	-$2,614	-$2,289
40%	2026	-95	-$26,743	-$14,107	-$5,184	-$4,539
60%	2026	-142	-$40,206	-$21,209	-$7,798	-$6,828
80%	2026	-189	-$53,487	-$28,213	-$10,368	-$9,078
100%	2026	-237	-$66,892	-$35,285	-$12,966	-$11,354
20%	2030	-15	-$2,050	-$1,143	-$1,557	-$1,381
40%	2030	-29	-$4,115	-$2,293	-$3,120	-$3,120
60%	2030	-44	-$6,143	-$3,424	-$4,668	-$4,142
80%	2030	-59	-$8,207	-$4,574	-$6,231	-$5,529
100%	2030	-73	-$10,258	-$5,717	-$7,787	-$6,909

Source: REMI; CSI analysis

Strong Winds Economic Impact of Mitigation Success

The following table shows the economic impact of successful mitigation of strong winds in 2026. As shown, left unmitigated, the economic impact can be substantial. For the scenario where only 20% of the potential damage is **not mitigated,** the economic impact is (in year 2026):

- A decrease in employment of 69 jobs.
- Lower business sales (output) of $19.5 million.
- Missing GDP of $10.3 million.
- Lower Personal Income of $3.8 million.
- Missing Disposable Personal Income of $3.3 million.

In contrast, if none of the impact from strong winds is mitigated (i.e., the 100% row for year 2026), the economic impact is much larger:

- A decrease in employment of 347 jobs.
- Lower business sales (output) of $98.0 million.
- Missing GDP of $51.7 million.
- Lower Personal Income of $19.1 million.
- Missing Disposable Personal Income of $16.7 million.

TABLE 6. ECONOMIC IMPACT OF LEVELS OF MITIGATION SUCCESS FROM STRONG WINDS

Economic Impact of Levels of Mitigation Success from Strong Winds

Percent Not Mitigated	Year	Employment	Business Sales (Output) (Millions $)	GDP (Millions $)	Personal Income (Millions $)	Disposable Personal Income (Millions $)
20%	2026	-69	-$19,504	-$10,289	-$3,793	-$3,322
40%	2026	-139	-$39,310	-$20,743	-$7,662	-$6,710
60%	2026	-208	-$58,814	-$31,033	-$11,454	-$10,031
80%	2026	-278	-$78,319	-$41,322	-$15,247	-$13,353
100%	2026	-347	-$98,004	-$51,711	-$19,083	-$16,712
20%	2030	-21	-$2,994	-$1,669	-$2,273	-$2,017
40%	2030	-43	-$5,973	-$3,329	-$4,541	-$4,030
60%	2030	-64	-$8,967	-$4,998	-$6,814	-$6,047
80%	2030	-85	-$11,960	-$6,667	-$9,087	-$8,064
100%	2030	-107	-$14,939	-$8,328	-$11,353	-$10,075

Source: REMI; CSI analysis

Tornados Economic Impact of Mitigation Success

The last of the three disaster types presented in this section is the economic impact from tornados. As with hailstorms and strong winds, the economic impact from tornados can be substantial if left unmitigated, as shown in the following figure. Overall, for the scenario where 20% of the potential impact is **not mitigated,** the economic impact is—

- A decrease in employment of 115 jobs.
- Lower business sales (output) of $32.5 million.
- Missing GDP of $17.2 million.
- Lower Personal Income of $6.3 million.
- Missing Disposable Personal Income of $5.6 million.

In contrast, if **none of the impact** from strong winds is mitigated (i.e., the 100% row for year 2026), the economic impact is much larger:

- A decrease in employment of 582 jobs.
- Lower business sales (output) of $164.0 million.
- Missing GDP of $86.5 million.
- Lower Personal Income of $32.0 million.
- Missing Disposable Personal Income of $28.1 million.

TABLE 7. ECONOMIC IMPACT OF LEVELS OF MITIGATION SUCCESS FROM TORNADOS

Economic Impact of Levels of Mitigation Success from Tornados

Percent Not Mitigated	Year	Employment	Business Sales (Output) (Millions $)	GDP (Millions $)	Personal Income (Millions $)	Disposable Personal Income (Millions $)
20%	2026	-115	-$32,522	-$17,158	-$6,338	-$5,552
40%	2026	-233	-$65,704	-$34,675	-$12,846	-$11,253
60%	2026	-348	-$98,227	-$51,833	-$19,184	-$16,804
80%	2026	-464	-$130,752	-$68,993	-$25,518	-$22,352
100%	2026	-582	-$163,989	-$86,540	-$32,043	-$28,068
20%	2030	-36	-$5,008	-$2,791	-$3,801	-$3,374
40%	2030	-71	-$9,995	-$5,572	-$7,599	-$6,745
60%	2030	-107	-$15,001	-$8,363	-$11,400	-$10,118
80%	2030	-143	-$19,994	-$11,146	-$15,192	-$13,484
100%	2030	-179	-$24,992	-$13,933	-$18,997	-$16,862

Source: REMI; CSI analysis

Overall Impact from Hailstorms, Strong Winds, and Tornados

With the economic impact of the three destructive forces—hailstorms, strong winds, and tornados—presented, the following table presents the expected economic impact of all three together depending upon the share of potential impact is mitigated.

Overall, if left completely unmitigated (i.e., the 100% row), then the 2026 impact across all three natural disasters is:

- A decrease in employment of 1,166 jobs.
- Missing GDP of $174 million.
- Lower Personal Income of $64 million.

As a reference point, Iowa's GDP was approximately $257 billion. At first glance, these numbers may seem small compared to Iowa's GDP. Remember, though, that these impacts are representative of one-time shocks with the associated boost to GDP from rebuilding efforts. These impacts compound year over year and if natural disasters become more frequent in occurrence and disastrous in economic damage, then the compounding impact becomes much more significant. For instance, assuming the economic damage of natural disasters grows 5% faster than GDP from 2026 through 2035, then the missing jobs in 2035 amount to approximately 10,500 and cumulative lost GDP and personal income add up to $7.4 billion and $5.7 billion, respectively. These results have included an unproductive (because it reallocates capital from other uses) but positive impact from rebuilding damaged property. The impact would be worse but for this positive impact of rebuilding.

TABLE 8. OVERALL ECONOMIC IMPACT OF LEVELS OF MITIGATION SUCCESS FROM HAILSTORMS, STRONG WINDS, AND TORNADOS

Overall Economic Impact of Levels of Mitigation Success from Hailstorms, Strong Winds, and Tornados

Percent Not Mitigated	Year	Measure	Hail	Strong Winds	Tornados	Total
20%	2026	Employment	-48	-69	-115	-232
40%	2026	Employment	-95	-139	-233	-467
60%	2026	Employment	-142	-208	-348	-699
80%	2026	Employment	-189	-278	-464	-930
100%	2026	Employment	-237	-347	-582	-1,166
20%	2026	GDP (thousands)	-$7,103	-$10,289	-$17,158	-$34,550
40%	2026	GDP (thousands)	-$14,107	-$20,743	-$34,675	-$69,525
60%	2026	GDP (thousands)	-$21,209	-$31,033	-$51,833	-$104,075
80%	2026	GDP (thousands)	-$28,213	-$41,322	-$68,993	-$138,529
100%	2026	GDP (thousands)	-$35,285	-$51,711	-$86,540	-$173,535
20%	2026	Personal Income (thsds)	-$2,614	-$3,793	-$6,338	-$12,745
40%	2026	Personal Income (thsds)	-$5,184	-$7,662	-$12,846	-$25,692
60%	2026	Personal Income (thsds)	-$7,798	-$11,454	-$19,184	-$38,436
80%	2026	Personal Income (thsds)	-$10,368	-$15,247	-$25,518	-$51,133
100%	2026	Personal Income (thsds)	-$12,966	-$19,083	-$32,043	-$64,093

Source: REMI; CSI analysis

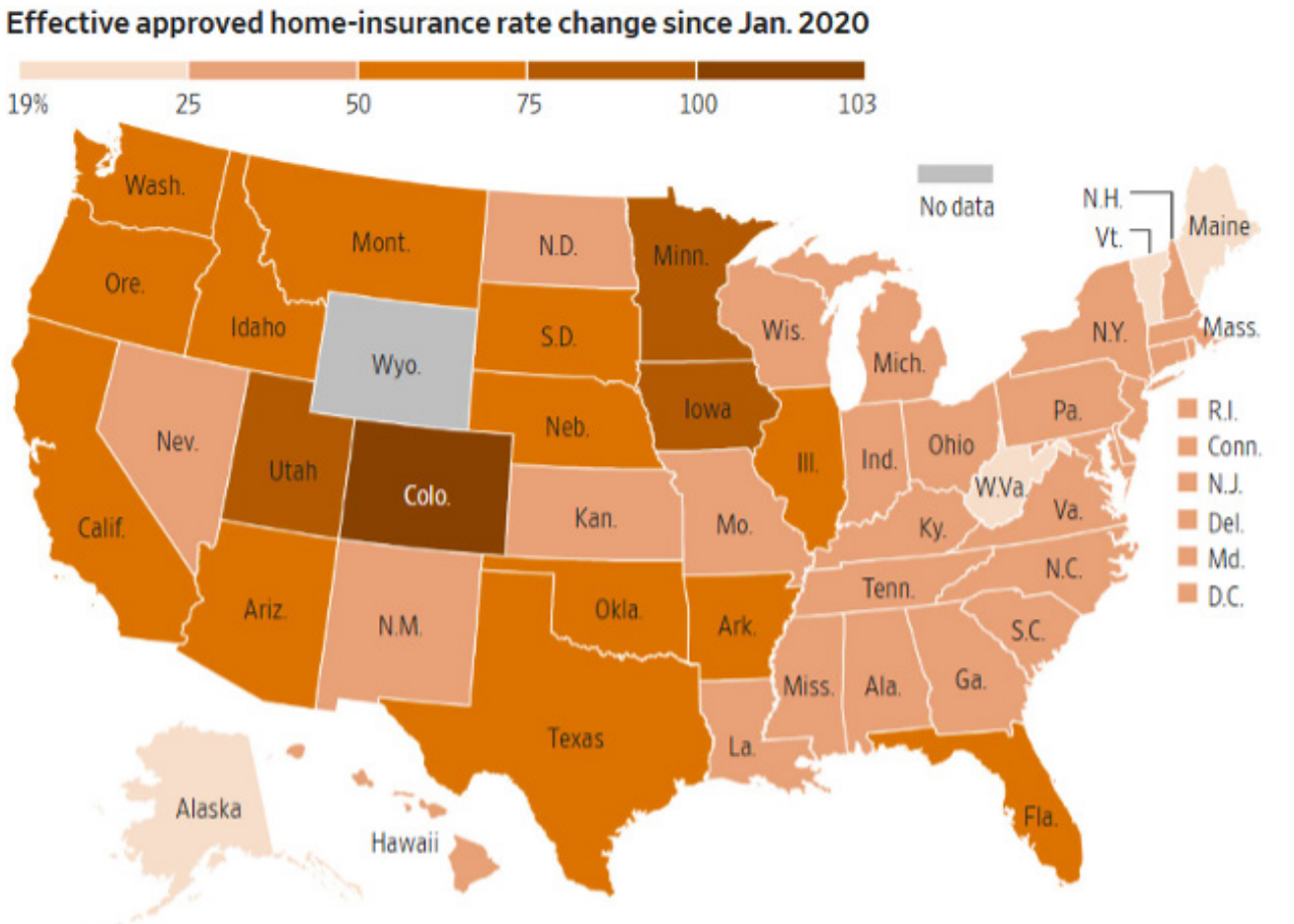
BOTTOM LINE

The insurance industry plays an outsized role in Iowa's economy, both because of its direct contribution to state emplyoment and GDP and because of the positive knock-on effects the industry has throughout the state's economy. A series of severe natural disasters over the last couple of decades and rising replacement costs of structures present pressing challenges for the industry. As increased risks push up the price of insurance, the odds of the insurance market breaking down increases. Some insurers have already dropped covereage in Iowa, and many have been forced to raise deductibles and increase coverage limits so they can continue offering coverage at a price accessible to property owners. In some cases, the rising cost of transfering risk to an insurer leads property owners to forego coverage. In each of these cases, the challenging environment for disaster insurance in Iowa leads to a growing protection gap where more property goes uninsured or under-insured.

In this dynamic marketplace, insurers must do their best to price risk properly, but the insured and lawmakers must also understand how the market operates. Higher prices for insurance result from rising risk. Rather than property owners going uninsured or lawmakers implementing top-down policies that drive insurers out of the state's marketplace, property owners, government, private industry, and research instutions should come together to come up with innovative solutions. Improving disaster resilence through effots like Iowa State University's forthcoming CyInsurance Research Initiative can help to mitigate losses with a positive ROI for insurers and the insured. Failing to mitigate losses will lead to mounting costs to insurers, property owners, and Iowa's economy.

APPENDIX

FIGURE 15.

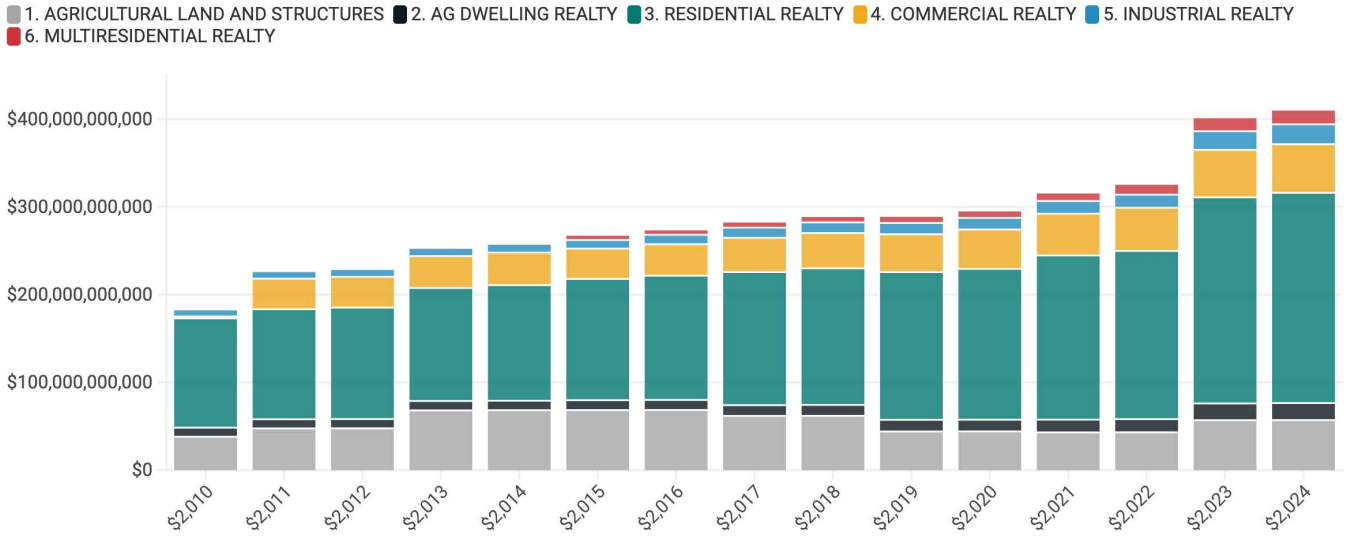


Source: Wall Street Journal

FIGURE 16.

Property Values by Sector

The value of property in the state has increasingly shifted towards residential owners,



Source: Iowa Department of Revenue

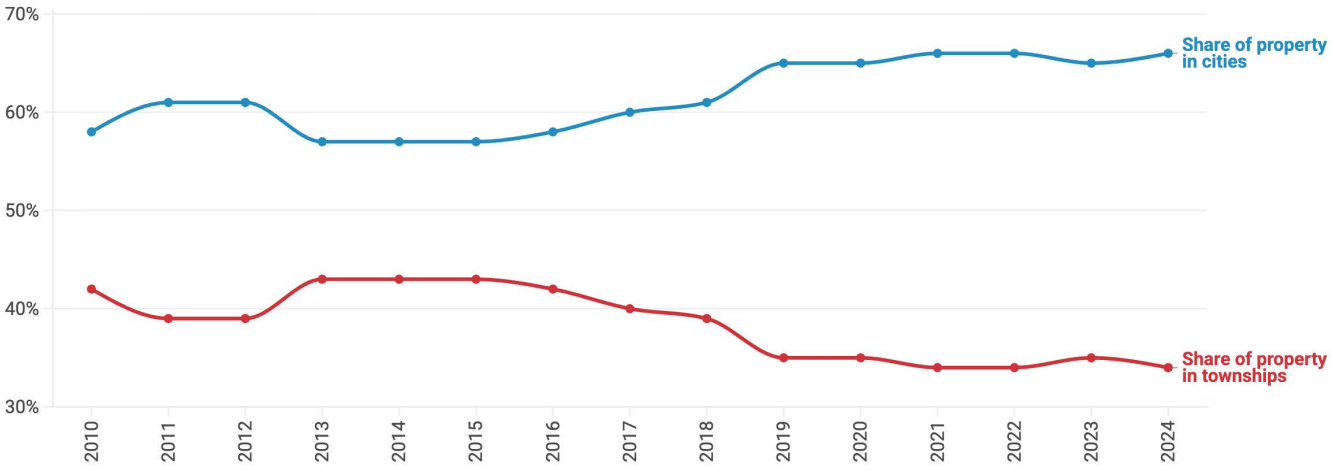
Source: Iowa Department of Revenue

FIGURE 17.

Share of Assessed Property Value in Cities vs. Townships

The share of property value in cities compared to townships continues to shift towards cities, from 58% in 2010 to 66% in 2024.

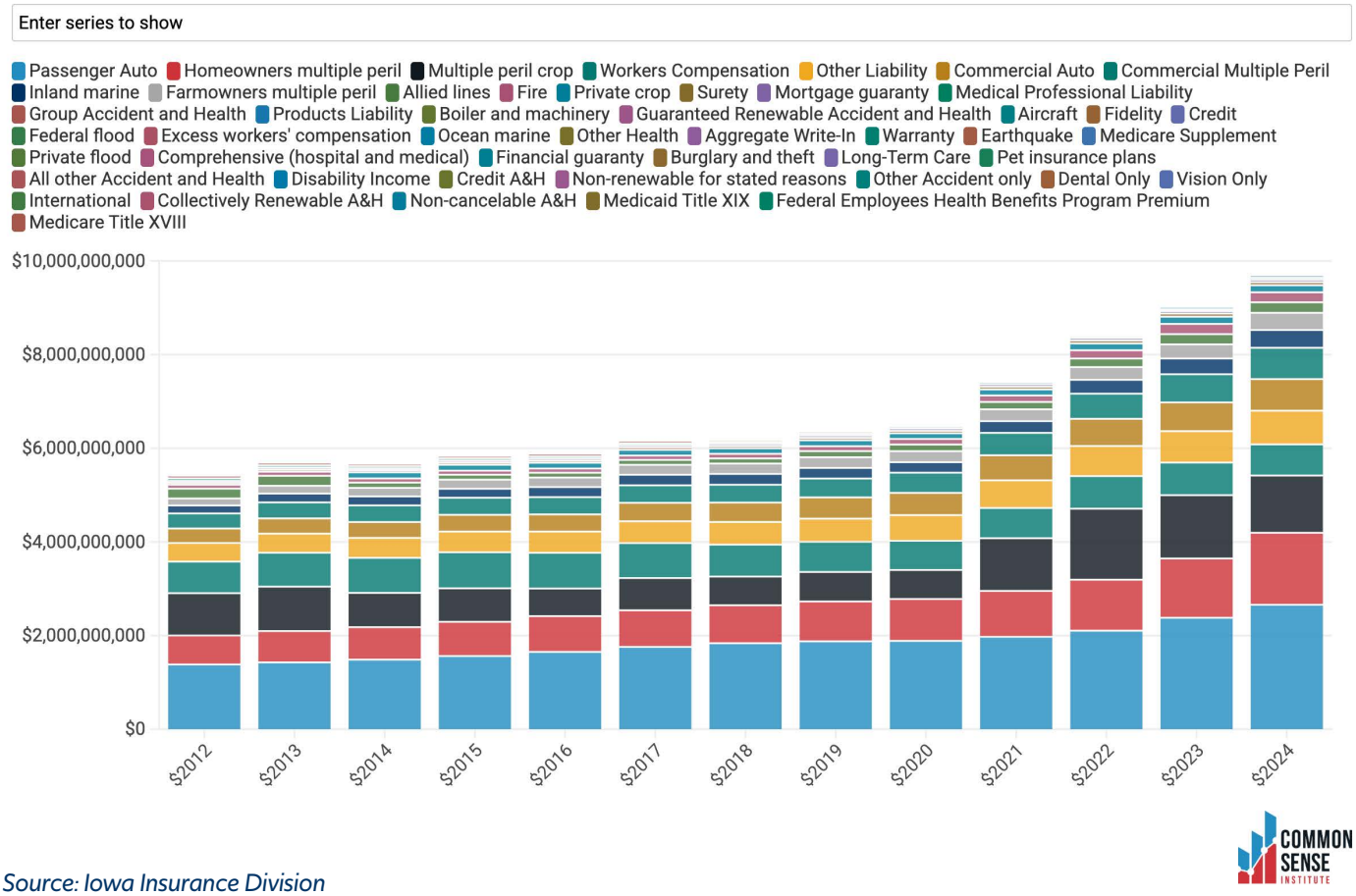
This is relevant for natural disasters and insurance because more densely populated cities can see higher damage when measured in terms of the value of the improvements.



Source: Iowa Department of Revenue

Source: Iowa Department of Revenue

FIGURE 18. SUM OF IOWA P&C INSURANCE REVENUE BY TYPE OF INSURANCE



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