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Designing Public Solutions for Disaster Insurance Market Failures

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Designing Public Solutions for Disaster Insurance Market Failures*

Jay M. Feinman+

IMPORTANCE: Insurance for disasters is failing. The problems of correlated risk, enormous losses, climate change, and the unpredictability of risk have undermined the private market for property insurance. In response, federal and state governments have developed public programs to fill the gaps created by private market failures. Insurance industry groups, public interest organizations, academics, and legislators have proposed even broader programs. In this context, an organized method of evaluating programs and proposals is needed.

OBJECTIVES: Arriving at sound answers for public solutions requires asking the right questions. This article frames those questions. In designing public solutions to catastrophe insurance failures, what precisely is the problem to be solved? Which risks should be included? How should prices be set? To what extent should policyholders be indemnified? And so on. However, addressing the right questions does not lead to a single "right" answer. Responding to the questions in this paper in a particular setting involves choices among values and goals that are economic, social, political, and even moral.

SUMMARY: The first step in solving a problem is to recognize that a problem exists and to understand the nature of the problem. This process involves three related questions: What is the problem? What's causing the problem? What kind of problem is it?

Once the problem is accurately described, the answers to a series of questions are required to evaluate potential insurance solutions:

1. What are the goals of the insurance?
2. What are the risks the insurance protects against?
3. What is the pool?
4. How are insureds classified?
5. What does the insurance cover?
6. How are the premiums set?
7. What does the insurance pay?
8. What type of structure will operate the insurance?
9. What are the secondary effects of the insurance?

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ABSTRACT

Insurance for disasters—floods, wildfires, windstorms, and more—is failing. The problems of correlated risk, enormous losses, climate change, and the unpredictability of risk have undermined the private market for property insurance. When insurance against disasters is unavailable, the consequences for individual property owners, communities, and the national economy are dramatic. In response, federal and state governments have developed public programs to fill the gaps created by private market failures. This article offers no solutions to the failures of private insurance against catastrophes. Nor does it evaluate any current or proposed solutions. Instead, it frames questions. In designing public solutions to catastrophe insurance failures, what precisely is the problem to be solved? Which risks should be included? How should prices be set? To what extent should policyholders be indemnified? Only by asking the right questions can we arrive at sound answers.

1. Introduction

Insurance for disasters—floods, wildfires, windstorms, and more—is failing. The problems of correlated risk, enormous losses, climate change, and the unpredictability of risk have undermined the private market for property insurance. In California, seven of the largest homeowners insurance companies, representing 35% of the market, stopped writing new homeowners insurance policies in 2023 and 2024 (Arnold et al., 2025). The Pacific Palisades fire in January 2025 damaged or destroyed 8,000 homes, where the previous year State Farm had nonrenewed thousands of homeowners policies, including 69% of its policies in one Palisades ZIP code (Kaufman, 2025; Picchi, 2025). Major insurers also have stopped writing new homeowners policies in Florida, Louisiana, and elsewhere. Many property owners have been forced into state insurers of last resort; Florida's Citizens Property Insurance Corporation became the largest insurer in the state. Where insurance is available, its price has soared; homeowners insurance premiums increased nationally by almost a third between 2019 and 2023, with some states higher, such as Texas by 23% in 2023 (Eaglesham, 2023; Flitter, 2024). As a result, the proportion of homeowners who lack coverage increased from 5% to 12% over the same period (Schulz and Guynn, 2024). The phenomenon is not new. Private insurance companies withdrew flood and earthquake coverage decades ago (California Earthquake Authority, 2024; Knowles & Kunreuther, 2014). What is new is the extent of the crisis because of climate change and the expansion of the built environment.

When insurance against disasters is unavailable, the consequences for individual property owners, communities, and the national economy are dramatic. In response, federal and state governments have developed public programs to fill the gaps created by private market failures.[1] For example, the National Flood Insurance Program was established when almost all private insurers excluded flood coverage under homeowners policies, creating a huge protection gap for coastal communities and other flood-prone properties (Knowles & Kunreuther, 2014; Scales, 2007). Following the Northridge, California, earthquake in 1994, insurance companies representing 93% of the homeowners insurance market limited policies or withdrew altogether, so the state created the California Earthquake Authority to offer policies through private insurers (California Earthquake Authority, 2024). Many states have taken a variety of regulatory steps and created insurers of last resort in property insurance that offer limited coverage to policyholders for whom coverage is unavailable in the private market, with the form of the programs differing widely among the states (Nevitt & Pappas, 2024). Some such programs are a substitute for homeowners insurance, though typically with inferior coverage terms, and others only cover particular risks, especially wind damage (Smart Home America, n.d.).[2]

The failure of private insurance markets in the face of catastrophic loss is the most prominent example of a broader problem: insurance market failures that lead to calls for public intervention. The other most common example is the residual market mechanism for the provision of automobile insurance. Auto insurance is so important that nearly every state requires that vehicle owners have liability insurance. A large number of drivers, however, cannot easily pay the premiums demanded by private insurers, especially drivers with a high-risk profile. States have responded by creating programs that provide some coverage at lower rates. Other public solutions include insurance or reinsurance schemes to cover nuclear accidents, terrorism, vaccine-related illnesses, and others. The issues in the design of public solutions to insurance market failures are similar in the different settings in which the failures occur. Many of the extant solutions are similar, too. The California FAIR Plan for homeowners insurance and the California Low Cost Auto Insurance plan both require insurance companies to participate in a state-organized program to offer basic coverage for potential insureds priced out of the private market.

This article offers no solutions to the failures of private insurance against catastrophes. Nor does it evaluate any current or proposed solutions. Instead, it frames questions. In designing public solutions to catastrophe insurance failures, what precisely is the problem to be solved? Which risks should be included? How should prices be set? To what extent should policyholders be indemnified? And so on. Only by asking the right questions can we arrive at sound answers.

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[1] For surveys of public programs worldwide, see AXA XL (2018); Jarzabkowski et al. (2018).

[2] For a broad review of the problem of catastrophe insurance failures and possible responses, refer to Kousky (2022).

When addressing any particular insurance failure, however, addressing the right questions does not lead to a single "right" answer. One of the most important questions is, "What are the goals of insurance?" Insurance is a financial transaction of risk transfer and risk pooling, but it is not solely a financial transaction. Every form of insurance embodies social values and serves public policy goals. Until the nineteenth century, life insurance was frowned upon as a type of gambling, as a disincentive to work for those who benefited from it, and as an interference with God's plan for his people (Hempstead, 2024; Zelizer, 2017). Today, Ethos Life warns against irresponsibility toward one's family: "Don't be the dad without life insurance." Mandatory auto liability insurance expresses drivers' social obligation to financially compensate victims to whom they cause harm. In less than a hundred years of existence, health insurance has become a dominant feature of the economy, whose social significance changes over time. Upon signing the bill creating Medicare in 1965, President Lyndon Johnson expressed its public value: "There is another tradition that we share today… It directs us never to ignore or to spurn those who suffer untended in a land that is bursting with abundance" (Johnson, 1965). Responding to the questions in this article in a particular context involves choices among values and goals that are economic, social, political, and even moral.

Two main illustrations of public solutions are used throughout the article: the National Flood Insurance Program (NFIP) and the California FAIR Plan for homeowners insurance. The NFIP is a public insurance system that responds to the lack of a private market, administered by the Federal Emergency Management Agency (FEMA) and implemented through private insurance channels. As it adapts to economic and political realities, the program has gone through continual changes in its key elements, such as premium structure. The California FAIR Plan is a state-mandated pool of all property insurers that aims to supplement the private market by providing limited coverage for homeowners who cannot otherwise secure insurance. The plan is representative of programs in many states (Kousky, 2011), but because of the increase in climate-driven wildfires, the FAIR plan's policies in force more than doubled, and its total exposure more than tripled between 2021 and 2025 (California FAIR Plan, n.d.).

The two programs illustrate different approaches to many of the questions raised in this article, but the universe of actual and potential public solutions is much broader. Public officials, scholars, and industry experts have proposed a number of solutions for failures in the property insurance market. Experts at The Wharton Center for Leadership and Change Management proposed that public reinsurance backstop the private market, a principle embodied in the INSURE Act proposed by Senator Adam Schiff, while a member of the House of Representatives (INSURE Act; Kousky & Kunreuther, 2018). The Ceres Accelerator commissioned a study that proposed "inclusive" disaster insurance that would make appropriate and affordable insurance available to those unserved or underserved by the market (Ceres Accelerator, 2023). The Climate and Community Institute recommends that states form "housing resilience agencies" to both "provide public disaster insurance that offers fair and equitable protection and

to coordinate and oversee comprehensive disaster risk reduction activities in the state" (Birss et al., 2024). These and other programs are also discussed throughout the article to illustrate different approaches to the questions raised.

Following this Introduction, Part 2 discusses how to define a market failure problem that potentially calls for public solutions. Defining the problem entails describing the problem accurately, identifying its causes, and defining its scope and duration. Part 3 puts market failure problems in context, describing two polar approaches to problems other than insurance solutions, either letting the losses lie where they fall or assuming broad public responsibility for them. Part 4 lists and analyzes the key questions to be addressed in designing a public solution for a disaster insurance market failure.

2. Defining the Problem

The first step in solving a problem is to recognize that it exists and understand its nature. This process involves three related questions: What is the problem? What's causing the problem? What kind of problem is it?

2.1 What Is the Problem?

The general class of problems addressed here involves losses potentially suffered by a large group of property owners from natural disasters. Either similar losses are incurred at the same time from the same cause, such as a flood or wildfire, or similar losses are incurred frequently in a certain geographic area, as occurs with convective storms. Because losses from these events are large and correlated, they are effectively uninsurable. The usual policies can be offered, if at all, at very high prices; the potential losses may require excessively large amounts of capital reserves by the insurers, and sometimes the occurrence of the losses is so unpredictable that the risk cannot practically be assessed at all (Kousky, 2022, Chapter 3). Therefore, either insurers refuse to offer coverage altogether or do so only at prices that most potential insureds are unable or unwilling to bear.

Within the class of problems of catastrophic risk, the particular problem at issue needs to be defined carefully so that the problem definition does not prejudge potential solutions. "Homeowners need insurance coverage for flooding (or wildfires) that they cannot afford in the private market," for example, assumes that existing homeowners should have access to coverage comparable to homeowners insurance at affordable prices. It precludes the possibilities that homes have been built in risk-prone areas that are not economically sustainable, that homeowners are not homogeneous economically and therefore not equally deserving of assistance in securing coverage, or that mitigation and resilience efforts should be emphasized along with indemnification.

As conditions change, the problems spurring public solutions can change as well. Today, the focus of public debate about the California FAIR Plan is wildfire risk, but two principal concerns drove the development of FAIR plans in California and elsewhere, and the national legislation that supported and regulated them. One concern was the spread of brush fires in California, precursors to today's wildfires. More important, however, was the lack of insurance available to property owners in urban core areas, a problem that became more prominent following urban riots in 1967 (Dwyer, 1978).

Defining the problem helps to clarify the values involved in considering potential solutions. For example, one value lies in protecting the existing investments of current homeowners, such as long-time, elderly residents, but another value is in not sustaining unwise, high-risk development. Put more broadly, one value is recognizing society's collective responsibility for community members who suffer financial distress, but another is promoting efficient use of social resources.

2.2 What Is Causing the Problem?

Defining the problem leads directly to the importance of identifying the causes of the problem, and defining the causes ultimately leads to designing cures. Catastrophic loss problems never have a single cause or even a single type of cause. The definition of the problem is adequately filled out only by examination of its causes, and its causes have multiple dimensions. Causes of property insurance disaster problems typically include the increasing risk of disasters, the failure of the private market to provide insurance, the extent of property development in an area at risk, the recognition of the substantial investment of homeowners in their existing houses, and lower-income homeowners who may need assistance more than higher-income homeowners.

The private insurance market is the baseline for insurance coverage, so problems arise only when the private market fails to meet a perceived need for insurance. Market failure can arise for a variety of reasons, and the reasons are relevant to defining the problem and its solution. True market failures arise because insurance cannot be offered at a price that is profitable to insurers and accessible to consumers. The National Flood Insurance Program (NFIP) was created in 1968 after private insurers largely ceased offering flood coverage following Hurricane Betsy in 1965, the nation's first billion-dollar hurricane (Knowles & Kunreuther, 2018). Market failures also arise from the unpredictability of loss. The Northridge, California, earthquake in 1994 was the most powerful since the 1906 San Francisco earthquake, and it revealed that insurance industry assumptions about the occurrence of earthquakes, the resistance of buildings to shaking, and the exposure to loss were wildly off target. Insured losses were much greater than predicted, so companies representing 93% of the homeowners insurance market limited policies or withdrew altogether (RMS, 2004). The economics of earthquake coverage represented a market failure, so the state created the California Earthquake Authority (CEA) to offer policies through private insurers. Some private insurers offer earthquake policies today, but two-thirds of all earthquake policies in California are provided by CEA (California Earthquake Authority, n.d).

For property insurance, geography and the existing investment in homes and other improvements are major causes of the problem. A storm of certain parameters will have a different impact in flood zones with different degrees of inherent risk. A wildfire that is far from developed areas poses little threat of insured damage. The built environment is what is at risk—buildings, their contents, and infrastructure that may be the subjects of insurance. From the 1950s onward, population growth in areas particularly vulnerable to hurricanes far exceeded the national average, putting many more people and properties at risk, increasing the need to adopt a national flood program (Knowles & Kunreuther, 2018). The vulnerability of properties to damage from a risk also matters greatly. Wildfire-resistant structures are much less susceptible to harm than are structures that lack recommended mitigation elements such as roof improvements (NAIC, 2020).

Market failures can also occur because insurers are unwilling to operate under current regulatory conditions. The predicted frequency and severity of weather events and other sources of damage are obviously important to insurers as a basis of underwriting risk. California traditionally required insurers to project catastrophe losses using a long-term, multi-year average of catastrophic claims (Cal. Code Regs. tit. 10 §§ 2644.1–2644.28 [2021]). This requirement assumes that even for low-frequency events causing catastrophic losses, a long-term view of the past (20 years or more) provides an adequate basis for predicting future losses. As the wildfires of the past few years demonstrated, however, climate change upsets that assumption (Frazier, 2021). Therefore, as part of a comprehensive reform in 2024 in response to insurers' departure from the market, the California Department of Insurance permitted private entities to submit forward-looking catastrophe models for approval, which insurers then could use, and supported the development of a public catastrophe model (Cal. Code Regs. tit. 10 §§ 2644.4, 2644.5, 2644.8, 2644.27, 2648.5, 2644.27 [2024]).

Factors other than imbalances in the ordinary economics of insurance can cause apparent market failures. According to the insurance industry and its allies, a large part of Florida's crisis in homeowners insurance in recent years was due to excessive litigation against insurance companies and contractor fraud (Ma, 2022). In response, the legislature enacted a series of changes to address the issue, including restricting attorney fees for claimants while allowing attorney fees for insurers and other measures to reduce insurers' costs (James Madison Institute, n.d.).

One lesson that could be learned from these events is that changes in regulation can obviate broader public solutions. Another lesson, however, is that in defining a problem, it is important to analyze the claimed elements and to develop data to support them. In support of the industry's argument, the Florida Office of Insurance Regulation used National Association of Insurance Commissioners (NAIC) data to assert that in 2019, Florida accounted for three-fourths of all litigation nationally by homeowners against their insurance companies, even though the state had only 8% of the nation's insurance claims (Florida Politics, 2021). The state's ratio of suits filed to claims closed without payment also far exceeded national norms, at a rate of 27%, eight

times higher than the next highest state. On the other hand, a report commissioned by the American Policyholder Association concluded that while Florida had a high insurance litigation rate, the reason was insurance company intransigence, not the actions of lawyers and contractors. Also using data from Florida and the NAIC, the report demonstrated that despite Florida's eight percent national market share, Florida homeowners were the subject of most of the confirmed consumer complaints in the country—56% in 2022 and 61% in 2023—with homeowners insurers the subject of 95% of the confirmed consumer complaints (American Policyholder Association, 2023). A report commissioned by the Florida Office of Insurance Regulation in 2022, but only revealed in 2025, concluded that the financial picture of Florida insurers was very different than portrayed; although the companies studied showed an aggregate net loss of $432 million, their affiliated companies received $14 billion in net income from the insurers (Florida Office of Insurance Regulation, 2022). Because the money paid to affiliates was effectively paid to the insurance companies themselves and available to their executives, the claimed net loss was deceptive. Whether greedy lawyers and contractors or profit-seeking insurance companies were a cause of Florida's market failure was much contested, and an accurate definition of the problem depends on accurate data.

In defining the problem, relevant economic factors about policyholders and their context include the wealth and income of the policyholders and the economic relations between the class of policyholders and the broader community. Less wealthy policyholders, especially those who hold less wealth relative to the value of insured property, are less able to absorb financial losses. Much of the debate about catastrophe risk focuses on homeowners, but renters suffer as well, and disadvantaged populations are more numerous among renters. Disaster losses have more negative long-term financial impacts on low-income households than higher-income households, in part because while they would most benefit from insurance, they have the least access to it because of its expense (Howell & Elliott, 2019). Race can matter, too; Black or Hispanic adults are more likely to be affected by natural disasters than White or Asian adults, even considering income (Ceres Accelerator, 2023). Groups of policyholders also may have more or less significance in local or regional economies; owners of rental properties in a shore community are key to the economy on which restaurants, retail outlets, and others depend. These situations exacerbate the potential problem of uninsured losses.

2.3 What Kind of Problem Is It?

Problems can be defined along two dimensions: their scope and their duration. Even when limiting the inquiry to catastrophe-related losses, problems can be so small that they do not deserve public solutions. Homeowners insurance typically excludes coverage for animals, so many pet owners will suffer financial and emotional loss as pets are lost during catastrophes. This lack of insurance, however, does not rise to such a level that it demands a national pet insurance program. The general unavailability of private flood insurance is at the other end of the spectrum because potential losses from floods are enormous; eight of the 10 largest catastrophe losses in the United States were caused by floods, all since 2008, and in 2024, direct physical damage and business interruption losses due to flooding totaled $10 billion, of which only half was insured (Insurance Information Institute, n.d.). The lack of private insurance for losses of that magnitude and frequency creates a need for a public solution. In between are causes of loss or limitations on coverage that create intermediate kinds of losses.

For property insurance, the primary measure of loss is financial, mostly the funds needed to repair or replace buildings and their contents, and associated costs such as additional living expenses. Property losses cause other types of losses, of course, but those losses are generally regarded as uninsurable; a homeowner whose property is destroyed must spend time negotiating with their insurance company and hiring contractors, and that time is unavailable for other productive or socially beneficial activity (working or coaching youth sports, for example), but the loss of that time is not compensated by insurance.

A key measure of duration is whether the risk is continual or transitional. The risk of property damage from flooding in a shore community is permanent. The NFIP responds by offering insurance and requiring enhanced protection of buildings. The response is part of the permanent public solution, but it presents a transitional problem. Homeowners in flood zones have purchased their houses with rough assumptions about maintenance costs and insurance premiums. If either or both of those costs increase dramatically in a short period of time, arguably, there is unfairness to the homeowners who have their assumptions undermined. The transitional problem is how to phase in the new rules. The NFIP traditionally has recognized the problem through its grandfathering rules. When flood maps are updated—often increasing the rated risk and, therefore, the premiums—policyholders may be allowed to use the earlier flood zone to calculate their premium if they either had a policy in place before the new maps took effect or built their property in compliance with the flood map that was current at the time of construction. Similarly, Risk Rating 2.0, the NFIP's new pricing methodology, is raising premiums to phase out subsidies, but statutory limits address the transition problem by limiting increases to 18% annually for primary residences (Congressional Research Service, 2024).

3. Public Solutions Other Than Insurance

Although this article focuses on public solutions that employ insurance or insurance-like systems, there are alternatives. At two ends of the spectrum of government involvement, the state could let losses lie where they fall or make the problems of private parties a public responsibility.

3.1 Letting Losses Lie

In his classic lectures on The Common Law, Justice Oliver Wendell Holmes, Jr., laid out the extremes of private versus public:

> The state might conceivably make itself a mutual insurance company against accidents and distribute the burden of its citizens' mishaps among all its members. There might be a pension for paralytics, and state aid for those who suffered in person or estate from tempest or wild beasts. (Holmes, 1881).

Holmes's own position was clear: "The state does none of these things," and it should not. A variety of libertarian, conservative, and individualistic philosophies agree. The losses from catastrophes and other sources, by and large, are the problems of the individuals who suffer them, they assert. As a matter of fairness and sound public policy, the government should not make some people bear the burdens of others.

Holmesian individualism remains a strong strain in political discourse. The New Deal, the Great Society, and modern progressive politics have been confronted by Reaganism, its conservative successors, and the second Trump administration's efforts to slash government spending. Ronald Reagan proclaimed the core belief in his first inaugural address: "Government is not the solution to our problems; government is the problem" (Reagan, 1981). Individual liberty, personal responsibility, and economic opportunity are the foundations of American life, so each person should win or lose on their own, and the devil take the hindmost.

Under this approach, the private insurance market bases its risk pooling, risk classification, and pricing mostly on actuarial risk. Doing so is morally sound as well as economically efficient, making each policyholder bear the cost of their own risks, leaving a limited purpose for public insurance programs. Where the private market fails, such as in flood insurance, the government may step in, but it still should embody individualist pricing. In that spirit, the Biggert-Waters Flood Insurance Reform Act of 2012 (Public Law 112–141, 112th Congress) aimed to restore solvency to the NFIP and shift to risk-based pricing by eliminating subsidies for some properties and removing grandfathering of premiums. The consequences of Biggert-Waters were increased premiums that were politically unpalatable to many, so in 2014, the Homeowner Flood Insurance Affordability Act (Public Law 113–89, 113th Congress) and the Consolidated Appropriations Act (Public Law No: 113-76, 113th Congress) restored grandfathered

rates and limited annual premium increases to 18%. Risk Rating 2.0, begun in 2021, has restored the momentum to have the NFIP mimic private-market insurers by having premiums reflect the flood risk of individual properties (Congressional Research Service, 2024).

3.2 Public Responsibility for Private Losses

Today, Holmes's statement could not be more wrong as an empirical matter. The state does, in fact, make itself "a mutual insurance company against accidents" and provide a "pension for paralytics" through Medicaid, Social Security Disability Insurance, and other programs. On the present issue, the state does provide aid for those who "suffered in estate…from tempest," through FEMA and other entities. (Wild beasts are not a great concern at the moment.)

Since at least the New Deal, there has been broad recognition that some level of collective responsibility is essential; the only questions are where and how much. Whether individuals should bear their own benefits and losses or whether society, through federal and state governments, should share in their benefits and assume some of the burden of their losses recurs in legal and political issues. In the health insurance realm, for example, the Affordable Care Act provides subsidized health insurance for many Americans, and changing Medicare has been regarded as the third rail of politics.

Insurance solutions are not the only type in use. The public already assumes substantial responsibility for private disaster losses through various programs of FEMA and other government entities. Among others, Hazard Mitigation Assistance grants use federal funds to reduce or eliminate risks from future disasters, and the Individuals and Households Program grants provide aid to individuals to repair or rebuild disaster-damaged homes when adequate insurance is not available. At the other end of the spectrum from letting losses lie, the state could play an even larger role in dealing with catastrophes.

4. Designing Public Insurance Solutions

Public policy on disaster losses lies between letting losses lie and having the state assume all of the burdens of those losses. This article addresses insurance or insurance-like solutions to the problem, whether the particular solution is fully provided by a public entity or involves a mixed public-private program.

Insurance contains three essential elements: (1) A definition of risk, risk transfer to an entity, and risk pooling and distribution; (2) the principle of indemnity or compensation for a loss; and (3) an insurer-insured relationship between the entity and the policyholder.

Risk is defined as uncertainty concerning the occurrence of a loss. Uncertainty can be about whether something will happen or when it will happen. What counts as a risk is defined in the insurance policy, which, of course, represents society's ideas about what uncertain events might occur and which should be insurable. The risk is transferred from the policyholder to the insurance entity, which pools similar risks together. In that way, the risk is distributed among the members of the pool instead of being borne by the individual policyholder alone.

The indemnity principle states that the purpose of insurance is to compensate the insured in case of a loss. If an insured loss comes to pass, the insured can recover to the extent of its loss but no more. There's a catch, too: Insurance almost never provides for complete indemnity through reimbursement for the entire amount of the loss. Deductibles, policy limits, and coverage limitations reduce the amount paid to the policyholder.

Insurance establishes a relationship between a policyholder and an insurance entity that pools the risk of all policyholders. The entity can be a private company or a public entity, such as the NFIP.

These three elements suggest a series of questions that are required to evaluate potential insurance solutions to catastrophe losses:

1. What are the goals of the insurance?
2. What are the risks the insurance protects against?
3. What is the pool?
4. How are insureds classified?
5. What does the insurance cover?
6. How are the premiums set?
7. What does the insurance pay?
8. What type of structure will operate the insurance?
9. What are the secondary effects of the insurance?

The questions are described more fully in the following sections. As the introduction noted, asking the right questions is the key to getting the right answers.

4.1 What are the goals of the insurance?

In the most general sense, the goals of insurance include allocating responsibility for risks and losses among individual communities, levels of government, and the insuring entity. In addition to operationalizing actions such as mitigation, the goals may include building a consciousness of the risk and a sense of responsibility for it among those different groups (Baker, 2001). For a particular problem, the ultimate goal of a public insurance solution is to solve the problem, which is why careful definition of the problem and its causes is so important.

The adoption of an insurance solution rather than some other form of intervention (direct government aid to victims of loss, for example) dictates that a primary goal is to indemnify the policyholder for a loss through a system of risk transfer and risk distribution. What indemnity means and how to distribute the losses are discussed in subsequent sections. Insurance often has goals in addition to indemnification; the goals of a form of insurance can be in conflict, and choices need to be made among them. Balancing conflicting goals needs to be a conscious choice in the design of the program.

For many disasters, full indemnity conflicts with the goal of tying premiums to risk in order to fairly price the insurance and to influence the behavior of policyholders; the need for a public solution arises precisely because actuarial risk is too great to bear for many policyholders. Full or at least substantial reimbursement for a loss would raise the price of the insurance to such an extent that it would undermine the goal of widespread availability of insurance. Therefore, the NFIP limits homeowners insurance building coverage to $250,000 and contents coverage to $100,000.

Disaster insurance programs often include as a goal an incentive to reduce the likelihood of a loss or to minimize its extent. Different programs have as their objectives mitigating wildfire risk before events occur or being more resilient if losses due occur in addition to indemnifying property owners (Kousky, 2022, Chapter 4). California requires insurers to provide premium discounts for specified efforts at wildfire risk mitigation (California Code of Regulations, 10 CA ADC § 2644.9 [2022]). The NFIP has twin goals: to provide flood insurance that is generally unavailable in the private market and reduce the physical and economic impact of flooding "to bring a measure of sanity to coastal development, only allowing policies to be written where risks could be rationally assessed through floodplain mapping and managed by land-use regulations and building codes in flood-prone areas" (Congressional Research Service, 2025). The goal of reduction and mitigation of loss is often included in a broad program of which insurance is only a part; as noted above, FEMA offers Hazard Mitigation Assistance grants for communities and Individuals and Households Program grants for individuals in addition to operating the NFIP.

4.2 What Risks Does the Insurance Protect Against?

Risk is defined as uncertainty concerning the occurrence of a loss. In catastrophe situations, the uncertainty is about whether something will happen—whether property will be damaged in a flood, for example. Although catastrophes arise from events in nature, risks are not naturally occurring phenomena. Risks are socially constructed for the purpose of being transferred and distributed in service of the goals of the insurance (Ewald, 1991).

For a public solution, defining the risk occurrence that triggers indemnity raises two questions. The first question is what risks are covered. Standard homeowners policies offer "open-peril" coverage, also known as "all-risk" policies. Focused disaster

insurance policies typically focus on particular risks; the NFIP policies only cover flooding, of course. Residual market policies as substitutes for private market policies offer broader coverage, though not necessarily as broad as private market policies. California FAIR plan policies, for example, are named-perils policies, covering only loss from fire, lightning, smoke, and internal explosions, although endorsements are available to cover other risks such as vandalism and windstorms. Some reinsurance proposals cover a wide range of risks; the INSURE Act would cover flood, wind, convective storm, wildfire, and earthquake.

The second question is how broadly or narrowly the covered risks are defined. Because it defines the risk to be transferred, the choice among these and the precise content of the language follows directly from the goals of the insurance and is not merely a technical drafting issue.

In a typical homeowners insurance policy, risks are defined quite generally ("direct physical loss to property," for example) with detailed exclusions that substantially narrow the definition of the risk that triggers a compensable loss. In disaster insurance, risks are typically defined in more detail. The NFIP policy defines its risk of flood covered more narrowly, by an effect ("Overflow of inland or tidal waters; Unusual and rapid accumulation or runoff of surface waters from any source; or Mudflow") and a triggering event ("general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties"). Parametric products use independent, objectively measured triggers. Jumpstart, for example, offers parametric earthquake insurance in California and other states; if the U.S. Geological Survey reports "severe" ground shaking in a policyholder's area, the company pays the policyholder $10,000 without even the need to file a claim. A similar concept is shown in reverse by the inclusion of named storm deductibles. The Insurance Services Office's (ISO's) Named Storm Percentage Deductible limits coverage for tropical storms or hurricanes assigned a name by the National Hurricane Center (ISO 03 25 10 06).

The definition of the risk is related to but not identical to the questions of risk classification and insurance payment. Once the risk is defined, classification of insureds may be used to limit coverage or set premiums, and payment terms will define how much of the risk will be covered in the event of a loss.

4.3 What Is the Pool?

Insurance involves risk transfer and risk distribution—the transfer of a defined risk from an individual to a pool that will bear the risk. The goals of the insurance should guide the construction of the risk pool.

Every risk pool contains members who are alike in some respect relevant to the risk. Members in the pool may be substantially similarly situated with respect to the risk or can have hugely different profiles. Where the risk covered is flood, for example, all properties potentially at risk of flooding are in the pool if the property owners

participate. Under the proposed INSURE Act, all homeowners subject to a range of natural disasters would constitute a much broader pool. Some proposals, such as the Climate and Community Institute's housing resilience program, broaden the pool to include all property owners and residents, including homeowners, owners of multifamily homes, and renters (Birss et al., 2024).

In public solutions to catastrophe problems, pool definitions that are broad are typical because they are especially useful in solving uninsurability problems. The NFIP includes all flood risk in a single pool. State FAIR programs often require all insurers to participate as reinsurers, and the INSURE Act would effectively put the entire nation in a pool to cover a variety of catastrophic risks. Other nations take a "solidarity" approach to disaster insurance, including all households in a broad risk pool (Kousky, 2022, Chapter 4; McAneny et al., 2016; Paleari, 2019).

Both the formal definition of the pool and the actual participation matter. The NFIP still has a low participation rate; estimates vary, but the percentage of property owners who purchase insurance is a minority in high-risk zones, even though purchase is required for those with federally-insured mortgages, and in the single digits for other properties (Williams et al., 2023). The program has aimed to broaden the effective pool. When the NFIP was enacted, fewer communities than expected joined the program, a requirement for making residents eligible for discounted insurance, and in those communities that did join, few homeowners purchased policies. One consequence was the adoption of the Flood Protection Act of 1973, which required all properties with federally backed mortgages located in certain flood zones to participate in the program and broadened the effective pool.

Mandatory coverage obviously increases the size of the pool, and it also avoids an adverse selection problem. Adverse selection is always a concern with insurance. Adverse selection is the tendency for higher risks to purchase insurance; sicker people buying health insurance is the traditional example. Adverse selection is especially caused when insurance applicants have better relevant information than the insurer, so the insurer is unable to effectively decide whether to cover and price the risk. Adverse selection increases the costs to the pool and may even do so to such an extent that lower risks drop out of the pool, creating a "death spiral" as costs increase.

The extent of adverse insurance selection in disaster insurance is unclear. For example, better educated and wealthier households are more likely to purchase flood insurance (Bradt et al., 2021), but it has not been established if this due to the use of better information about flood risk by the insured, a classic indicator of adverse selection, or to the tendency of many better educated and wealthier people to be risk averse and willing and able to spend on insurance premiums, sometimes associated with propitious selection.

Once the pool is defined, members of the pool may still be treated unequally, either with respect to how much coverage is provided or how much they are charged for it. That is the next issue: How are insureds classified?

4.4 How Are Insureds Classified?

Once insureds subject to a certain cause of loss are included in the pool, the insureds are classified for a variety of reasons, the most important of which are the extent of coverage and the premiums charged. Based on a large volume of information about past losses, current conditions, and future predictions, the insurer assesses the risks posed by each member of the pool and acts accordingly. This process is the work of actuaries who assess the risks and underwriters who evaluate the individual insureds, but it is not merely a statistical process. The classification of insureds follows from the goals of the insurance, which typically include considering and balancing widespread availability, broad coverage, affordable pricing, and secondary effects. Classification also uses recognizable social groups, which may have an effect on the implementation of goals (Krippner, 2024).

Under both the NFIP and California FAIR plan, insureds are rated according to traditional actuarial risk principles, including locational risk and characteristics of the individual property. The NFIP creates flood maps so that homeowners in flood zones with the same designation are subject to similar risks of flooding, while homeowners in different flood zones are subject to different levels of risk. Under Risk Rating 2.0, properties are further classified by their characteristics, such as number of stories and first-floor height. Because this is property insurance, characteristics of the risk of loss or damage to the property are key. This is not inevitable. Some proposals deemphasize particular risks in favor of an inclusive approach or include factors such as wealth and income. Solidarity approaches charge all risks a flat rate (Kousky, 2022, Chapter 4; McAneny et al., 2016; Paleari, 2019), and inclusive insurance advocates claim that "a policy consensus has emerged around a federal means-tested assistance program for flood coverage" and that similar approaches could be used for state programs (Ceres Accelerator, 2023, 19

In addition to advancing the particular goals of the insurance, a broad issue underlies risk classification, namely, the compromise between precision and other factors. Calculating the risk posed by one insured compared to another could involve many factors. As the insurer accumulates more information about more factors, it can produce finer risk classification and pricing.

One view of this process is that finer risk classification and pricing are good. Because insurance involves risk transfer, the better that risks can be calculated and priced, the better the process works. From a certain normative approach, that process is morally justified as well as economically efficient. Each insured is entitled to be judged on their own worth, even in the process of defining and pricing their insurance. That is the logic of the private insurance market; within the limits imposed by state regulation, insurers attempt to price their products in a way that reflects the risk they take (Wortham, 1986).

Even if fine risk classification is desirable, though, its implementation still presents problems. One problem is that detailed information may be available only from the insured, from the insurer, from public or proprietary sources, or not at all. Acquiring and processing that information is not costless. If detailed information is available, at some point it costs the insurer more to obtain and process information than it saves by more accurately classifying and pricing the risks. Therefore, every classification, policy, and premium puts insureds who are different in significant respects in the same risk pool at the same price.

There is a deeper problem. Favoring finer risk calculation is a normative choice (Avraham et al., 2014; Hellman, 1997; Swedloff, 2014). Social values may conflict with accuracy in underwriting, and when they do, precision may yield to values. An actuary may discover that men and women or Black people and White people have different risk profiles in some relevant respect, but society abhors discrimination based on gender or race. Some types of discrimination are expressly prohibited in insurance classification, but indirect discrimination can be harder to identify and regulate (Ceres Accelerator, 2023). In catastrophes in particular, broad coverage may be a principal goal. Even more generally, living in society carries benefits and burdens. Some benefits and burdens should be shared, perhaps including sharing the burdens of insured risk under solidarity or inclusive approaches to insurance.

4.5 What Does the Insurance Cover?

The risk covered determines the event that triggers coverage. Once coverage is triggered, there are separate issues about what losses the insurance covers, discussed in this section, and how much it pays for those losses, discussed in a later section.

Property insurance always covers only determinate financial losses associated with the damage or destruction of property. These are not all of the losses that occur following a disaster; buying a generator or bottled water or the higher cost of private transportation to commute to work when public transit is down, do not fit within typical property insurance and may not be profitable for private insurers. However, for reasons of administrability and cost, those and other types of losses are excluded. Within that limitation, several types of loss may be covered, and the ISO HO-3 common homeowners policy provides a useful template of the choices available for public solutions (ISO HO 00 03 03 22 [2022]). Property covered in case of loss or damage includes dwellings, other structures, and personal property. Additional living expenses while an uninhabitable property is under repair or fair rental value compensate for loss of use, just like business interruption coverage does under a commercial policy. Debris removal, temporary repairs, fees for fire service or other entities, and other collateral but determinable losses may be included as additional coverages. Both the NFIP Dwelling Policy and the California FAIR Plan include such additional coverages.

As with private homeowners insurance policies, typically, grants of coverage for public solutions are broad, such as "personal property usual to the occupancy as a dwelling and owned or used by you or members of your family residing with you while it is on the Described Location." Detailed exclusions then narrow the coverage, such as nine listed types of personal property in the FAIR plan policy, including motor vehicles, animals, and lawns and landscaping. (Because of its limited nature, the FAIR plan has a narrower grant of coverage and broader exclusions than typical homeowners policies.)

Each of these issues sets out choices in the design of a public solution that involve issues of coverage, efficiency, and cost. Determining some types of losses may be more costly than they are worth, at least in the aggregate. More important, limiting coverage limits cost. In each case, the values to be furthered by the insurance are the basis for the decision.

4.6 How Are the Premiums Set?

The price of private insurance, like other market prices, is generally set to match potential policyholders' demand for the insurance and the price at which the insurer can supply it profitably. (Unlike most other market prices, of course, insurance premiums are subject to state regulation.) An insurer's costs are its loss expenses, loss adjustment expenses, and other expenses, and its income includes premiums received and investment income earned on premiums held until they must be paid out.

The situation is different with public solutions. The determination of the premiums for a public insurance solution to a catastrophe problem is more complex because it immediately involves the goals of the insurance other than profitability; if the insurance could be sold to enough members of the pool of potential insureds profitably, the market would supply the insurance and no public solution would be needed. The premiums need to be set in a way that best advances the goals of the insurance, including balancing conflicting goals.

As discussed in a previous section, classification of insureds can be accomplished at different degrees of detail at different costs. The goals, such as broad coverage discussed there, are relevant here, too. With respect to the premiums, those goals are implemented in large part through subsidies of two kinds.

Intrinsic subsidies occur because risk classification is never perfectly individualized, and sometimes far from individualized by design. Therefore, lower-risk policyholders subsidize the premiums of higher-risk policyholders. When risk-relevant factors are excluded from consideration in premiums, some policyholders who exhibit prohibited, high-risk factors subsidize other policyholders. The subsidy is intrinsic in the sense that it is built into the policy and pricing. The NFIP, for example, has aimed at attracting large numbers of policyholders and recognizing the transition problem of established homeowners. Both values resulted in newer policyholders subsidizing grandfathered policyholders.

Extrinsic subsidies are provided outside the pool of insureds. Because the need for a solution arises from a private market failure, there is likely to be a need for an external subsidy. That may be done by effectively taxing other insurance pools. If the California FAIR Plan is considered as a distinct pool, subsidies come from the pool of other homeowners. In February 2025, California Insurance Commissioner Ricardo Lara approved the FAIR Plan's request for a $1 billion assessment on its member insurers as a result of the magnitude of the losses from the Palisades and Eaton fires the previous month. Private insurers who are assessed can then apply to impose temporary assessments on their policyholders to recoup 50% of their own assessments (Bulletin 2025-4).

Subsidies from other homeowners insurance policyholders can be thought of as intrinsic if all homeowners are viewed as in a single pool. However, public solutions can obtain extrinsic subsidies from broader sources. The Florida Hurricane Catastrophe Fund has the authority to levy assessments on all property and casualty lines of business, except for medical malpractice and workers' compensation (Florida Statutes 215.555 [6][b]). A different form of extrinsic subsidy is by direct public expenditures, as the federal government has done to make up shortfalls in the NFIP. The program is financed through premiums[3] and pays claims through accumulated premiums and reinsurance. As a formal matter, the NFIP borrows when necessary from the U.S. Treasury, so the program, through its policyholders, is obligated to repay the principal of its debt and interest. After the 2017 hurricane season, however, the program had reached its statutory borrowing limit as a result of claims from Hurricanes Harvey, Irma, and Maria (and its existing debt, substantially incurred by claims from Hurricanes Katrina, Rita, and Wilma), so Congress simply canceled $16 billion of the NFIP's debt (Congressional Research Service, 2025). The debt currently (March 2025) is about $20 billion, and the program runs a deficit of about $1.4 billion per year, which makes repayment impossible in the absence of massive increases in premiums, which are inconceivable.

Subsidies can also arise if policyholders' financial position is considered in setting premiums. Premiums can be means-tested, either by considering the income of the insureds or by charging a higher rate for higher coverage levels. The reduced rates could be compensated within the risk pool or by public subsidies, making them intrinsic or extrinsic, respectively. Following Hurricanes Matthew and Florence in 2019, North Carolina adopted a program that directly subsidized flood insurance costs for low- and moderate-income victims (General Assembly of North Carolina, House Bill 200, 2019). Several proposals for means-testing NFIP premiums have been developed, alternatively focusing on limiting premiums to a percentage of the policy limits, using income or housing costs as a basis for limiting the amount of the premium, or providing premium vouchers along with loans for hazard mitigation (Congressional Research Service, 2021; Kousky & Kunreuther, 2014).

[3]NFIP receives direct appropriations for flood mapping.

4.7 What Does the Insurance Pay?

Insurance operates under the indemnity principle; the purpose of insurance is to compensate the insured in the event of a covered loss. Indemnity has various meanings, however. Tautologically, indemnity requires the insurer to pay what is owed under the policy. In insurance law, indemnity is most often used as a limitation on payment; the insured can recover to the extent of its loss, no less but no more, with nearly all judicial opinions emphasizing the "no more" rather than the "no less." Because of deductibles, policy limits, and coverage limitations, full compensation is rarely, if ever, accomplished in property insurance.

In designing a public solution, the relevant meaning of indemnity is to pay according to the loss incurred, relative to the risk transferred and the goals of the insurance. The principal goal, of course, is compensation for the financial losses of the insured. As noted in section 4.5, the typical homeowners policy provides a template for the types of losses for which the policyholder could be indemnified. Homeowners policies also address other issues in payment, such as law and ordinance coverage to pay for improvements required by more modern building codes. Disaster insurance sometimes includes provisions such as these to mitigate future risk; NFIP Increased Cost of Compliance coverage provides policyholders whose structures are substantially damaged with funds for elevation of the building, floodproofing, relocation, or even demolition, and insurance under the California Earthquake Authority includes coverage to bring buildings into compliance with seismic codes.

As with payment for private insurance, payment under a public solution is unlikely to fully indemnify the insured. Limiting payment makes the insurance more affordable, which likely increases participation, reduces the need for subsidy, and serves other ends such as encouraging mitigation efforts. Depending on the solution and its context, other benefits may include the prevention of moral hazard, the reduction of administrative costs, or the prevention of small claims.

Most public programs recognize these realities and offer less indemnity than private policies. The NFIP limits building coverage to $250,000 and contents to $100,000; many covered dwellings, especially in pricey shore communities, exceed those amounts. The California FAIR Plan also caps coverage, although at a much more generous maximum of $3 million. Its default coverage level is actual cash value, which is much less than the replacement cost for dwellings routinely offered in private policies and included in the NFIP policy; replacement cost is available as an option at a higher price. The FAIR Plan also reduces indemnity by paying for the rental of a substitute home while the dwelling is uninhabitable, which is less generous than the typical additional living expense (ALE), which pays so that "your household can maintain its normal standard of living." The NFIP policy does not cover ALE at all.

As with setting the premium, payment can be based on degrees of individual assessment of the loss. Individualized losses, as in homeowners insurance, can approach full indemnity and reduce intrinsic subsidies. However, they require a more detailed claim process, which is not costless and may lead to more disputes. On the other hand, payment under parametric insurance streamlines the process of determining if a loss has occurred and the extent of the loss. As with life insurance, however, parametric insurance still requires a front-end calculation of whether the insured is at risk and what amount of coverage is appropriate (Sengupta & Kousky, 2020). Intermediate measures can reduce the burden of loss determination; legislation proposed in California would require insurers to pay contents coverage without requiring detailed inventories, for example.[4]

4.8 What Type of Structure Will Operate the Insurance?

Insurance, private or public, requires myriad tasks to operate: defining and underwriting risks, promoting and distributing the insurance, setting and collecting premiums, investigating and paying claims, and generally operating the enterprise. Existing public solutions use a variety of structures to perform these tasks.

Most public solutions rely on private entities for much of their infrastructure. The California FAIR Plan, for example, is a property insurance pool in which all property insurers in the state are mandated to participate. Policies are sold through private brokers and issued by the plan on behalf of its members. The plan has a claims staff and contracts out many of the claims investigation functions to third parties. The NFIP is a purely public entity, but it also contracts out sales and claim investigations to private direct service agencies and write-your-own companies.

A number of public solutions operate purely as public reinsurance for private insurance. Following the 9/11 attacks, Congress enacted the Terrorism Risk Insurance Act, which provides insurance companies with reinsurance for terrorism losses. Because the proposed INSURE Act is a reinsurance program, it also would rely exclusively on private insurers for distribution and claims.

Some public insurance schemes rely exclusively or predominantly on public systems. Medicare is operated predominantly by the federal government, although private options such as Medicare Advantage have played an increasing role. Social Security premiums are collected by the government through employer and employee taxes, and claims are paid by the Social Security Administration itself.

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[4] *California Senate Bill 495, Session 2025-2026*. Similar legislation in Oregon and Colorado following catastrophic fires in those states requires insurers to pay 70% and 65% of the coverage limit. Also, refer to this consumer alert, "*Insurance Commissioner Lara reports more insurance companies paying wildfire survivors without requiring 'the list*.'"

Finally, some insurance plans had their origins in fraternal, work-based, or community organizations. Sixty percent of the non-senior population receives health insurance through plans offered by employers. Many insurance companies had their origins in community or industrial associations, including City of Waukesha Mutual and Menomonee Mutual in Wisconsin, and New Jersey Manufacturers Insurance (now NJM), and. Some contemporary public solutions suggest similar community-based insurance—"aggregator insurance," "meso-insurance," or "community-based catastrophe insurance"—operated through a nonprofit or public entity rather than individual policies sold through private companies (Birss et al., 2024; Kousky, 2022).

Each structure must address the same set of issues. How is the infrastructure provided? What is the cost? What values are communicated through the structure?

Adopting some or all of the existing private insurance infrastructure has obvious advantages in efficiency and cost. It would be enormously expensive to construct a statewide or national system to sell and service policies that duplicate the existing private system, particularly if the policy base is relatively small, as is the case for some residual market insurers. Of course, less costly is not free. Insurance companies, brokers, and adjusters are paid according to fee schedules established by the programs.

Infrastructure is usually thought of as involving issues of cost and efficiency. There is a values dimension, too. As with the creation of the risk pool and the setting of premiums, the institutional structure communicates something important about the program. The FAIR plan's use of private insurers and its occasional assessment on insurers for extreme losses reinforces the idea that protection against risk is mostly a concern of the individual, the key to insurance is the individual transaction between the insurer and insured, and only in extreme circumstances is a public interest involved. The FAIR Plan's website emphasizes that "the FAIR Plan is not a state agency, nor is it a public entity. There is no public or taxpayer funding" and that it only provides "a temporary safety net – here to support [homeowners] until coverage offered by a traditional carrier becomes available." The NFIP, by contrast, "provides insurance to help reduce the socio-economic impact of floods," and "Medicare is federal health insurance for anyone age 65 and older." As noted, some nations base their disaster insurance programs on "solidarity," establishing public insurance that uses mandatory participation and non-actuarial pricing to cover all disaster risks. Institutional structure and economics aside, even the name suggests a nonmarket, communitarian view of insurance.

4.9 What Are the Secondary Effects of the Insurance?

The primary benefit of insurance is indemnifying policyholders who suffer losses. However, insurance has many other consequences for individual policyholders and for society as a whole. The provision of insurance by public entities produces those consequences when the private market fails.

When a policyholder buys an insurance policy, they buy a relationship with the insurance company. Part of the benefit of that relationship is economic, in that they will be made whole financially if a loss occurs. Another benefit is mental and emotional; the policyholder experiences less concern about the future, expecting that they will be protected.[5] This peace of mind is important even if it is immeasurable. People who feel more secure are better able to participate in socially beneficial activities.

In many situations, the presence of insurance actually makes policyholders less likely to suffer a loss. Insurers have many ways to shape behavior, such as charging lower premiums for a homeowner who takes specified efforts at flood or wildfire risk mitigation or for a driver who has a clean safety record. Because many of these behaviors affect other people as well—control of wildfires—they may generate a social benefit, too. How much measures like these affect people's behavior is not clear. The greatest deterrent for risk-preferred behavior is the risk of one's own personal injury or damage to one's property, but premium rating, experience rating, and coverage limitations may have an impact.

Indemnity itself provides a social benefit. Because the policyholder is compensated for a loss, the community is spared economic disruption. The victim of a loss who has insurance does not need to rely on others for financial support, whether they are friends and family members or assistance programs of nonprofit groups or the government. FEMA provides a variety of grants and assistance after a disaster, particularly for needs often not met by insurance, but the presence of insurance reduces the need for aid. Because insurance covers losses, the economy and community can continue to function somewhat as before.

To the extent that actions of the insurer reduce the likelihood that an individual will suffer a loss, there is a corresponding social benefit. More broadly, insurers engage in knowledge production and loss prevention that benefit the public at large. Public solutions to insurance market failures often are accompanied by broader programs to reduce losses before they occur. Flood mapping by NFIP is essential to the provision of insurance, and it also provides a basis for the development of plans to mitigate potential flood losses.

[5]Insurance provides "the policyholder with a sense of security, a feeling of confidence about the future, a freedom from anxiety about parts of the unknown." (Kimball, 1961, 478).

The social benefits of insurance are not costless. The costs of operating an insurance program are significant; employees must be paid, buildings must be maintained, and other costs incurred, and that money could be spent elsewhere. The benefits should outweigh the costs, looking at financial benefits and social benefits, some measurable and some not, that add to the plus side of the ledger.

Because insurance has social benefits, how those benefits are distributed also is important. People benefit if they have insurance, although they need to pay premiums to get the benefits. Members of society benefit from insurance purchased by other people and from insurance institutions at large. As in many other settings, race, gender, ethnicity, class, and similar factors have an impact. Although formal redlining no longer occurs, discrimination still reigns in property insurance. About 7% of homeowners overall—more than six million homeowners—are uninsured, but 15% of homeowners earning under $50,000 a year, 11% of Black homeowners, 14% of Latino homeowners, and 22% of Native American homeowners are uninsured. When they have insurance, members of minority groups pay more for it; residents of minority neighborhoods pay more for insurance—sometimes as much as a third more—for coverage than residents of White neighborhoods with similar risk profiles (Ceres Accelerator, 2023; Consumer Federation of America, 2024). In designing public solutions, thinking about who gets insurance, what kinds of insurance they get, how much they pay, and who benefits from other people having insurance is crucial.

Conclusion

As floods, storms, wildfires, and other catastrophes become increasingly common, the unavailability and unaffordability of property insurance have become high-visibility issues. In response, federal and state governments have developed public programs to fill the gaps created by private market failures. The NFIP and state FAIR plans as insurers of last resort were early models for public programs. Public officials, scholars, and industry experts have proposed a variety of solutions, drawing on these and other models.

The design of public solutions for disaster insurance market failures is a political question involving choices among economic interests, social values, and moral principles. Sound choices are only possible if the problem is defined carefully, and the issues involved in potential solutions are well understood. The aim of this article has been to frame questions that will assist politicians and others in making better choices.

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