# "Safer from Wildfires"? – Viewing California's Novel Insurance Regulation Through a Law and Economics Lens

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*Wildfire risks in California have reached catastrophic proportions. Consequently, for many California families, insuring their homes against wildfire has become prohibitively expensive or outright impossible. The California state government, in an effort to address this crisis, enacted an experimental insurance regulation in late 2022, dubbed "Safer From Wildfires" ("SFW"). This Note uses law and economic theory to examine the policy, concluding that it is likely to distort the insurance market and make the problem worse, not better. SFW requires insurers, if they practice risk-based discounts at all, to provide homeowners and communities with insurance discounts for a variety of behaviors, such as fire-resistant construction and clearing flammable materials from their property. Yet this requirement creates a perverse incentive for insurers to not practice risk-pricing at all and instead to pull out completely from high-risk areas (or the state as a whole). This is in fact what has happened with several major insurance companies. As for community discounting, we are likely to observe free-rider problems, since multiple insurers operate in the same communities. SFW also requires insurers to publicly disclose their risk data and the factors on which they rely to make their coverage decisions. This requirement is less problematic: forcing insurers to publicize their superior risk data is likely to aid government and private citizens in their risk reduction efforts. SFW could be improved via the implementation of a bilateral mandate, in which insurers are required to provide wildfire insurance in high-risk areas, and homeowners are obligated to purchase it–this would mitigate the worst perverse incentive and adverse selection problems with the current policy scheme.*

## I. INTRODUCTION

In the summer of 2020, just as California residents were getting used to life under COVID-19 lockdown orders, the state burst into flames. Exceptional drought, heat, and wind conditions coincided to produce truly cataclysmic wildfires, including the state's first-ever "gigafire" (a fire that burns over one million acres).[1] In September, Bay Area residents saw the sky turn a deep, unsettling shade of red, as ash rained down like a poisonous snow.[2] Such apocalyptic scenes are often dubbed "record-setting"[3] or "unprecedented"[4]—and they are. But severe wildfires and other natural disasters are becoming increasingly commonplace as climate change disrupts natural weather patterns and worsens droughts.[5] Difficult conversations about disaster risk, who should bear it, and how to mitigate it have never been more pressing.[6]

For its part, California has responded to unprecedented disasters with unprecedented policy measures. One of those measures is an insurance regulation implemented in late 2022 called "Safer from Wildfires" (SFW).[7] This regulation requires wildfire insurance companies to offer discounted rates to policyholders who undertake certain mitigation measures.[8] It also mandates that wildfire

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1. *2020 Incident Archive*, CAL. DEP'T OF FORESTRY & FIRE PROT., https://www.fire.ca.gov/incidents/2020/ (last visited Nov. 3, 2024).

2. *2020 in Review: The Day the Sky Turned Blood Orange; Historic Wildfires Ravage Northern California*, CBS NEWS (Jan. 1, 2021, 5:00 AM PST), https://www.cbsnews.com/sanfrancisco/news/2020-historic-wildfires-wine-country-shaver-lake-rescue-orange-sky-san-francisco-deaths/.

3. *E.g.*, *2020 Incident Archive*, *supra* note 1.

4. *E.g.*, *August/September 2020 Wildfire Incidents*, CAL. GOVERNOR'S OFF. OF EMERGENCY SERVS., https://wildfirerecovery.caloes.ca.gov/past-incidents/august-september-2020-fires/ (last visited Nov. 3, 2024).

5. A.L. Westerling et al., *Climate Change and Growth Scenarios for California Wildfire*, 109 CLIMATIC CHANGE 445, 459 (2011) (wildfires); Sebastian Acevedo & Natalija Novta, *Climate Change Will Bring More Frequent Natural Disasters & Weigh on Economic Growth*, IMF BLOG (Nov. 16, 2017), https://www.imf.org/en/Blogs/Articles/2017/11/16/climate-change-will-bring-more-frequent-natural-disasters-weigh-on-economic-growth (disasters more generally).

6. *See generally* Saptarishi Bandopadhyay & Joshua R. Coene, *Disaster Risk in the Carceral State*, 42 STAN. ENV'T L.J. 171, 200-215 (2023) (historically analyzing cultural conceptions of disaster risk and vulnerability in American law and politics).

7. Press Release, Cal. Dep't of Ins., *Commissioner Lara Submits First-in-Nation Wildfire Safety Regulation to Drive Down Cost of Insurance* (Sept. 7, 2022), https://www.insurance.ca.gov/0400-news/0100-press-releases/2022/release064-2022.cfm, [hereinafter CDI Press Release]. *See generally* CAL. CODE REGS. tit. 10, § 2644.9 (2023) (text of SFW regulation).

8. CDI Press Release, *supra* note 7.

insurers disclose extensive wildfire risk data to their policyholders, the government, and the public.[9] The California Department of Insurance has ambitious goals for this rule: "protecting consumers by reducing wildfire risk in their communities and making insurance available and affordable for all Californians."[10] Yet thus far there has been no serious scholarly examination of this policy.

This Note aims to provide the first in-depth analysis of Safer From Wildfires, using the tools of law and economic theory. This analysis gives reason to worry. First, a key loophole in the structure of SFW could cause it to backfire. The policy makes it more costly for insurers to use risk pricing, yet it does not require them to do so. This additional cost could incentivize insurers to stop using risk pricing and to abandon high-risk areas entirely. Indeed, in the two years since SFW was adopted, several major property insurance companies, including State Farm and Allstate, have pulled out of California completely.[11] Correlation is not causation, of course, but Stanford wildfire policy expert Michael Wara suspects that market distortion due to California's regulation of the insurance market is to blame.[12] Second, free-rider problems will prevent SFW from adequately incentivizing community-level mitigation efforts. Third, SFW's disclosure requirements may be less effective than the state hopes, as insurers attempt to free-ride on each other's information gathering efforts. But still, the disclosure requirements are likely to have at least some beneficial effect on wildfire losses.[13]

The argument proceeds in four parts. Part I provides factual background on the California wildfire insurance market, and the specific provisions of SFW. Part II reviews the existing literature on risk, insurance, and regulation, establishing a theoretical framework through which to assess SFW. Part III contains the meat of the discussion, applying economic theory to SFW to predict its effects. Finally, Part IV discusses how SFW could be amended or supplemented to achieve its intended objectives; one radical but effective

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9. *Id.*; § 2644.6(f).

10. *Wildfires*, CNTY. OF SANTA BARBARA, https://www.countyofsb.org/620/Wildfires?contentId=6690a018-5c0f-4051-bfc5-039ea58da508 (last visited Dec. 12, 2024).

11. Dani Anguiano, *'Left with Nothing': Inside California's Wildfire Home Insurance Crisis*, GUARDIAN (Aug. 10, 2024, 7:00 AM EDT), https://www.theguardian.com/us-news/article/2024/aug/10/home-insurance-park-wildfire-california-butte-county.

12. *Id.*

13. Omri Ben-Shahar & Kyle D. Logue, *Outsourcing Regulation: How Insurance Reduces Moral Hazard*, 111 MICH. L. REV. 197, 210–11 (2012) (Explaining how, through disclosure, insurers can help policyholders reduce losses).

option is a bilateral mandate, which would require insurers to cover high-risk areas and require property owners in those areas to buy insurance.

## II. FACTUAL BACKGROUND

### A. *Wildfires in California*

Wildfires in the western United States have been increasingly frequent and severe in recent years due to climate change and poor forest management.[14] In 2020 alone, more than 4.3 million acres burned—the most ever recorded—with direct losses exceeding $19 billion, of which $5–9 billion was covered by insurance.[15] The indirect costs, such as downstream economic impacts and health effects from smoke inhalation, were likely several times higher.[16] More recently, in January 2025 a devastating series of fires in and around Los Angeles caused a mind-bending $250–275 billion in damage and economic losses—likely the most costly wildfire in U.S. history.[17]

Climate models predict that fires will only worsen in coming decades, as California faces severe droughts and fuel continues to accumulate.[18] And because of the rapidly changing climate, wildfires are not just getting worse, but also more unpredictable.[19]

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14. Daoping Wang et al., *Economic Footprint of California Wildfires in 2018*, 4 NATURE SUSTAINABILITY 252, 252 (2021); Matthew Robert Auer & Benjamin Evan Hexamer, *Income and Insurability as Factors in Wildfire Risk*, 13 FORESTS, no. 7, 2022, at 1130, 1, https://doi.org/10.3390/f13071130.

15. Kat Kerlin, *California's 2020 Wildfire Season: Report Summarizes Record-Breaking Fire Year and Calls for Shift in Strategy*, UC DAVIS: SCIENCE & CLIMATE ARTICLES (May 4, 2022), https://www.ucdavis.edu/climate/news/californias-2020-wildfire-season-numbers; Ryan Smith, *Billions in Insured Losses for 2020 Wildfires – RMS*, INSURANCE BUS. (Dec. 16, 2020), https://www.insurancebusinessmag.com/us/news/catastrophe/billions-in-insured-losses-for-2020-wildfires—rms-242108.aspx.

16. *See* Jeff Masters, *Reviewing the Horrid Global 2020 Wildfire Season*, YALE CLIMATE CONNECTIONS (Jan. 4, 2021), https://yaleclimateconnections.org/2021/01/reviewing-the-horrid-global-2020-wildfire-season/; *cf.* Wang et al., *supra* note 14, at 252, 257 (estimating that "direct capital losses related to the 2018 California wildfires represent only 27.0% of the statewide total").

17. Abené Clayton, *LA Fires Forecast to Be Costliest Blaze in US History with Estimate of Over $200bn in Losses*, GUARDIAN (Jan. 13, 2025, 7:58 PM EST), https://www.theguardian.com/us-news/2025/jan/13/la-fires-wildfire-economic-losses.

18. Westerling et al., *supra* note 5, at 459.

19. Jason Scott Johnston & Jonathon Klick, *Fire Suppression Policy, Weather, and Western Wildland Fire Trends: An Empirical Analysis*, *in* WILDFIRE POLICY, at 158, 165–66 (Karen M.

Compounding the problem, demographic pressures are pushing more Californians to the wildland-urban interface (WUI): the rural, wooded areas where wildfire risk is at its highest.[20] This trend too is likely to continue in coming years.[21] Increased development in the WUI dramatically increases the potential for property damage from wildfires, as more property is constructed in harm's way.[22]

In response to these dramatic increases in wildfire losses and the uncertainty wrought by a shifting climate, many insurers in California are refusing to cover against wildfires in high-risk areas, and often cancelling or declining to renew existing policies.[23] This trend will likely accelerate due to the unmanageable losses of the 2025 LA fires.[24] For the property owners lucky enough to obtain private insurance at all, the premiums are exorbitant.[25] Some insurers have quoted rates over $20,000 per year.[26] Many California communities face both high fire risk and high poverty rates, making such extreme premiums unsustainable.[27] The availability and

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Bradshaw & Dean Lueck eds., 2012); Gireesh Shrimali, *Policy for Provision of Universal Wildlife Insurance at Least Cost in California*, STAN. SUSTAINABLE PRECOURT INST. FOR ENERGY, 2 (2019), https://sfi.stanford.edu/sites/sfi/files/media/file/policy_for_provision_of_universal_wildfire_insurance_at_least_cost_in_california_shrimali_0_0_0.pdf.

20. Shrimali, *supra* note 19, at 1; Westerling et al., *supra* note 5, at 446.

21. Benjamin Reilly, Note, *Free Riders on the Firestorm: How Shifting the Costs of Wildfire Management to Residents of the Wildland-Urban Interface Will Benefit Our Public Forests*, 42 B.C. ENV'T. AFFAIRS L. REV. 541, 554 (2015).

22. Sarah E. Anderson & Terry L. Anderson, *Political Economy of Wildfire Management: Saving Forests, Saving Houses, or Burning Money*, *in* WILDFIRE POLICY, *supra* note 19, at 111, 113-14; Reilly, *supra* note 21 at 552-53; *see also* Patrick Baylis & Judson Boomhower, *The Economic Incidence of Wildfire Suppression in the United States*, 15 AM. ECON. J. 442, 466-69 (2023) (explaining that creating new developments in the WUI imposes substantial external costs, although increasing density in already developed areas does not).

23. Auer & Hexamer, *supra* note 14, at 2; TONY CIGNARALE, JOEL LAUCHER, KENNETH ALLEN & LISBETH LANDSMAN-SMITH, CAL. DEP'T OF INS., THE AVAILABILITY AND AFFORDABILITY OF COVERAGE FOR WILDFIRE LOSS IN RESIDENTIAL PROPERTY INSURANCE IN THE WILDLAND-URBAN INTERFACE AND OTHER HIGH-RISK AREAS OF CALIFORNIA: CDI SUMMARY AND PROPOSED SOLUTIONS 1-2 (2018), https://www.insurance.ca.gov/0400-news/0100-press-releases/2018/upload/nr002-2018AvailabilityandAffordabilityofWildfireCoverage.pdf [hereinafter CDI, AVAILABILITY].

24. Christopher Flavelle, *California Wildfires Threaten Insurers Already Teetering from Climate Shocks*, N.Y. TIMES (updated Jan. 16, 2025), https://www.nytimes.com/2025/01/08/climate/california-homeowners-insurance-fires.html.

25. CDI, AVAILABILITY, *supra* note 23, at 2.

26. Hayley Smith, *California to Require Insurance Discounts for Property Owners who Reduce Wildfire Risk*, L.A. TIMES (Oct. 17, 2022, 3:26 PM), https://www.latimes.com/california/story/2022-10-17/state-to-mandate-insurance-discounts-for-wildfire-mitigation (citing Cal. Dep't of Ins., *Virtual Homeowners' Investigatory Hearing - October 19,2020*, YOUTUBE (Oct. 20, 2020), https://youtu.be/vYtFqWo_qek).

27. Auer & Hexamer, *supra* note 14, at 4, 6.

affordability crisis is forcing many property owners to depend on Fair Access to Insurance Requirements ("FAIR"),[28] California's state-managed wildfire insurance program of "last resort."[29] But FAIR is even more expensive than private insurance,[30] and not equipped to handle such overreliance.[31]

### B. *The Safer from Wildfires Rule*

With the affordability and availability crisis in mind, the California Department of Insurance (CDI) prepared a report in 2018 on the "Availability and Affordability of Coverage for Wildfire Loss," summarizing the problem and proposing a range of policy solutions.[32] These solutions include requiring wildfire insurers to offer discounts for mitigation efforts,[33] requiring insurers to cover high-risk areas,[34] and requiring government approval for wildfire risk models.[35] Then in 2021, CDI announced a partnership with the Governor's Office, the Department of Forestry and Fire Protection (CAL FIRE), and the Public Utilities Commission, hoping to promote "retrofits for older existing homes in order to help them reduce their individual risk and potentially seek and maintain affordable insurance."[36] The subsidies and fire-prevention measures that have emerged from this partnership, considered as a whole, comprise the "most well-resourced program for wildfire prevention and protection of any state."[37] For its part, CDI has developed the 2022 Safer from Wildfires rule (SFW), an unprecedented new insurance regulation that ambitiously aims to solve the insurance crisis and improve wildfire resilience in one fell swoop.[38]

SFW is the first regulation in the country that requires insurance companies to provide premium discounts to policyholders

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28. *Id.* at 2; CDI, AVAILABILITY, *supra* note 23, at 2.

29. *About FAIR Plan*, CAL. FAIR PLAN ASS'N (2023) https://www.cfpnet.com/about-fair-plan/ (last visited Nov. 3, 2024).

30. Auer & Hexamer, *supra* note 14, at 2.

31. *See* Shrimali, *supra* note 19, at 2.

32. CDI, AVAILABILITY, *supra* note 23.

33. *Id.* at 8.

34. *Id.* at 6-7.

35. *Id.* at 8-10.

36. CAL. DEP'T OF INS., SAFER FROM WILDFIRES: INTERAGENCY WILDFIRE MITIGATION PARTNERSHIP SUMMARY DOCUMENT 1 (2022), https://www.insurance.ca.gov/01-consumers/200-wrr/upload/Wildfire-Mitigation-Partnership-Summary-02142022.pdf[hereinafter CDI, PARTNERSHIP SUMMARY].

37. Auer & Hexamer, *supra* note 14, at 9.

38. CDI Press Release, *supra* note 7. *See generally* § 2644.9.

who take wildfire mitigation measures.[39] This approach aligns with CDI's 2018 report, which recommended that insurers be required to "offer a mitigation premium credit for those property owners that conduct proper mitigation."[40] SFW enumerates a series of "mandatory" measures for which insurers *must* offer discounts, such as "[c]learing of . . . combustible objects" from the area, "Fire-Resistant Vents," and "[a]t least six (6) inches of noncombustible vertical clearance at the bottom of . . . the building."[41] Insurers also may (but are not required to) offer discounts for "other factors that the insurer demonstrates are substantially related to risk of wildfire loss."[42]

But SFW does not just require discounts for property-level mitigation; insurers also must provide discounts to policyholders whose properties are located in fire-resistant communities.[43] Specifically, insurers must offer lower rates to customers who live in a community designated as a "Fire Risk Reduction Community" by the California Board of Forestry, or as a "Site in Good Standing" by Firewise USA.[44] To receive one of these designations, communities must prepare and implement wildfire risk assessments and mitigation efforts.[45] These efforts may include, for example, stricter local regulations for "safe zones or areas of refuge, structure density, ornamental vegetation, subdivision design, structure design features, or other fire safety features."[46] Notably, both this community-level discount requirement and the property-level discount requirement discussed above apply *only* to insurers who practice risk pricing. Insurers who do not base their rates on wildfire risk are exempt.[47]

SFW's third main requirement is disclosure: "[A]ny Wildfire

39. CDI Press Release, *supra* note 7; Smith, *supra* note 26.

40. CDI, AVAILABILITY, *supra* note 23, at 3.

41. § 2644.9(d)(1)(B).

42. § 2644.9(e).

43. § 2644.9(d)(1)(A).

44. *Id.*

45. *See How to Become a Firewise USA Site*, Nat'l Fire Prot. Ass'n, https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA/Become-a-Firewise-USA-site (last visited Nov. 18, 2024); CAL. CODE REGS. tit. 14, § 1268.01 (2022).

46. § 1268.01(8).

47. § 2644.9(a)(1); *see also* § 2644.9(a)(2) ("Nothing in this section shall be construed to require the use of a Wildfire Risk Model."). For a definition and discussion of risk pricing, see *infra* Part II.C.

Risk Model . . . that is used, in whole or in part, in an insurer's rating plan shall be provided to [CDI]" for approval,[48] and disclosed to the public.[49] The approval requirement is likely a reaction to CDI's 2018 finding that "wildfire-risk models are not accurate."[50] SFW also requires insurers to disclose their "own California wildfire loss data to the extent that it is credible," which CDI may aggregate into a statewide "fire and wildfire exposure risk manual."[51] CDI believes that providing insurers with access to these aggregate data will enable them to improve their risk models.[52] Finally, insurers must inform policyholders and applicants of their individual "wildfire risk score" relative to other policyholders, how that score affects their premium,[53] what factors were considered in calculating it, and how it could be improved.[54]

This Part has reviewed the acute crisis in California's wildfire insurance market, and CDI's bold new plan to solve it. Wildfires are becoming ever-more frequent and devastating, and more people live in harm's way. Consequently, insurance has become unaffordable and difficult to obtain. CDI believes that this outcome occurred because insurers used faulty wildfire risk models and did not offer appropriate discounts for mitigation.[55] In response, CDI passed Safer from Wildfires, which requires wildfire insurers who practice risk pricing to disclose their risk models to policyholders and the public and to offer mitigation discounts at both the property and community level. The next Part will discuss the law and economic theories that will be used to evaluate this radical new rule.

48. § 2644.9(c).

49. § 2644.9(f).

50. CDI, AVAILABILITY, *supra* note 23, at 8.

51. § 2644.9(g).

52. CDI, AVAILABILITY, *supra* note 23, at 11 ("Each individual insurer's premium and loss-experience data within WUI areas is minimal . . . .").

53. § 2644.9(h).

54. § 2644.9(k). The policyholder/applicant may appeal their risk score if desired. § 2644.9(i).

55. CDI, AVAILABILITY, *supra* note 23, at 2-3.

## III. INSURANCE AND RISK: THEORETICAL FOUNDATIONS

### A. *Risk and Market Failure: Why We Need Insurance and Regulation*

All of us face risk, to some extent, every single day.[56] Most of us would prefer not to.[57] Thus, the modern economy has a swath of mechanisms for redistributing risk away from individuals. However, it is well established in law and economics that the free market cannot always efficiently allocate risk.[58] There are two primary reasons for this failure: first, the existence of risk aversion; and second, information asymmetry and market failures, which prevent risk from being freely and efficiently traded on the open market. Insurance and regulation can both be understood as answers to the risk problem.

A "risk-averse" person is one who is willing to pay to avoid a risk.[59] More formally, risk aversion is defined as a preference for a "sure thing" over a risky proposition with the same expected value: For example, a risk-averse person would rather receive $1,000 for certain than have a 20 percent chance of receiving $5,000, although the expected payout in either case is $1,000.[60] A "risk-neutral" person, by contrast, would value both of those options equally.[61] Risk aversion results from the diminishing marginal utility of money—the more money one has, the less one values an additional dollar.[62] Consequently, people tend to prefer small, certain amounts to large, uncertain windfalls. And conversely, people tend to prefer small, certain payments to the risk of large, uncertain expenses.[63]

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56. "Risk" in this Note is defined in its economic sense as incomplete information about the state of the world, future events, and the outcomes of one's choices—this definition encompasses uncertain gains as well as uncertain losses. *See* KENNETH J. ARROW, ESSAYS IN THE THEORY OF RISK BEARING 1-4, 44-45 (1971); *What is 'Risk'?*, INDIA TIMES: ECON. TIMES, https://economictimes.indiatimes.com/definition/risk (last visited Nov. 22, 2024). Some scholars differentiate "risk," in which the outcome is unknown but the probability distribution can be measured (e.g., rolling dice), from "uncertainty," in which both outcome and probabilities are unknown. *E.g.*, FRANK H. KNIGHT, RISK, UNCERTAINTY, AND PROFIT 19-20 (1921), https://archive.org/details/riskuncertaintyp00knig/.

57. *Infra* notes 59–66 and accompanying text.

58. *See* ARROW, *supra* note 56, at 134-35.

59. STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW 258 (2004).

60. SHAVELL, *supra* note 59, at 258; ARROW, *supra* note 56, at 90-91 ("A risk averter is defined as one who, starting from a position of certainty, is unwilling to take a bet which is actuarily fair . . . .").

61. SHAVELL, *supra* note 59, at 178.

62. *Id.*

63. This, at least, is the classical view propounded by expected utility theory. Daniel

Since most people experience diminishing marginal utility from money, most people are risk-averse.[64] This has been proven in a variety of ways, and with some small exceptions (such as gambling) risk aversion seems to accurately describe how people actually behave.[65] People are especially likely to be risk-averse when they stand to lose a large share of their assets, since the diminishing marginal utility of money is more pronounced at larger scales.[66]

Since most people are risk-averse to some extent, it is socially beneficial to somehow reduce risk or reallocate it to risk-neutral parties.[67] Moreover, risk reallocation is socially desirable because it enables productive endeavors that, because of risk aversion, might not otherwise occur.[68] This is the classic explanation for the existence of insurance: In exchange for a premium (a small, certain cost), insurers will take risk upon themselves.[69] Risk-averse individuals, by definition, are willing to pay more in premiums than the expected value of the risk. And since the insurance company has a broad, diverse "pool" of risks, it can afford to be risk-neutral with regard to any particular loss—by reallocating risk from a risk-averse party to a risk-neutral one, insurance contracts create mutual benefit.[70] Such private risk reallocation has been an integral part of the

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Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263, 264 (1979) ("In expected utility theory, risk aversion is equivalent to the concavity of the utility function. The prevalence of risk aversion is perhaps the best known generalization regarding risky choices."). However, prospect theory, a modern branch of behavioral economics founded on experimental evidence, theorizes that people may be risk-averse toward gains, yet risk-*seeking* toward tolerable losses. *See id.* at 278-79 ("[T]he difference between a loss of 100 and a loss of 200 appears greater than the difference between a loss of 1,100 and a loss of 1,200, unless the larger loss is intolerable. . . . [T]he marginal value of both gains and losses generally decreases with their magnitude . . . ."). But this result probably does not apply in the wildfire insurance context, where the potential losses are intolerable for the typical homeowner.

64. ARROW, *supra* note 56, at 90-93.

65. *Id. But see* Tomasz Zaleskiewicz, *Beyond Risk Seeking and Risk Aversion: Personality and the Dual Nature of Economic Risk Taking*, 15 EUR. J. PERSONALITY S105, S106-108 (2001), https://doi.org/10.1002/per.426 (explaining that individuals differ in their willingness to take risks, and that some people seek risk as an intrinsic good).

66. SHAVELL, *supra* note 59, at 258.

67. *Id.* at 259; Donatella Porrini, *Insurance Regulation*, *in* 9 ENCYC. OF L. & ECON. 529, 529 (Gerrit de Geest ed., 2d ed. 2012).

68. ARROW, *supra* note 56, at 137-38. For example, if a person wanted to open a bakery, but was unwilling to bear the risk of the building burning down, it would be socially beneficial to reallocate that risk to a less risk-averse party so the bakery could exist.

69. *Id.* at 91; Porrini, *supra* note 67, at 529; Göran Skogh, *Mandatory Insurance: Transaction Costs Analysis of Insurance*, *in* 2 ENCYC. OF L. & ECON. 521, 524-26 (Boudewijn Bouckaert & Gerrit de Geest eds., 2000).

70. Porrini, *supra* note 67, at 529; Skogh, *supra* note 69, at 521; ARROW, *supra* note 56,

economy for centuries—fire insurance, for instance, likely dates back to the 17th century.[71] But risk reallocation can also be accomplished by government regulation.[72] Since the mid-20th century, the U.S. federal and state governments have been highly concerned with reducing and reallocating risk.[73] A third option is to use the court system to allocate risk via liability rules, although this method is by far the most costly.[74]

However, at least in theory, risk reallocation does not require an insurance company, government, or court—risk could also be reallocated directly between individuals or groups by contract.[75] Seminal risk theorist Kenneth Arrow observes that, in a world of costless transactions and perfect information, one could imagine a market for buying, selling, and pooling risk of all varieties.[76] Such markets do exist. For example, when a company publicly trades its stock, it is effectively reallocating the risks of its future profits/losses among many traders without the need for an intermediary.[77] But such risk markets are infeasible in most contexts because, in reality, information is not perfect. Göran Skogh argues that the real reason insurance companies exist is that, in addition to having the capacity to absorb risk, they also have superior *information* about the nature and degree of risk, and how it can be mitigated.[78] Similarly, government regulation is desirable in part because governments tend to have better risk information than citizens.[79]

Unfortunately for insurers, information asymmetry cuts both ways. Although insurance companies tend to have excellent information about *aggregate* risk, they cannot observe the specific characteristics and behavior of each individual policyholder.[80] This creates the problem of "adverse selection": Because insurance companies cannot perfectly tailor their prices to individual policyholders' risk levels, insurance policies tend to disproportionately

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at 137.

71. Robert Evans, *The Early History of Fire Insurance*, 8 J. LEGAL HIST. 88, 88-90 (1987).

72. *See* ARROW, *supra* note 56, at 139.

73. W. Kip Viscusi, *Regulation of Health, Safety, and Environmental Risks*, *in* 1 HANDBOOK OF L. & ECON. 591, 593-94 (A.M. Polinsky & S. Shavell eds., 2007).

74. Skogh, *supra* note 69, at 531; SHAVELL, *supra* note 59, at 281-82.

75. *See* Skogh, *supra* note 69, at 521.

76. ARROW, *supra* note 56, at 138.

77. ARROW, *supra* note 56, at 138-39.

78. Skogh, *supra* note 69, at 521-24; *see also* Ben-Shahar & Logue, *supra* note 13, at 223-25.

79. *See* Viscusi, *supra* note 73, at 598-604.

80. *See* Porrini, *supra* note 67, at 533-34.

attract high-risk customers.[81] As their risk pools become saturated with risky policyholders, the insurers must raise their premiums to cover the increased losses, which drives low-risk customers away in a vicious cycle.[82]

Adverse selection is one of several "market failures" that justify intervention.[83] Another notable market failure is "externalities": harms or benefits associated with an activity that accrue not to the actor, but a third party.[84] Externalities provide a justification, wholly independent from risk, for market intervention. Many socially beneficial, loss-reducing measures would not be taken absent regulation because their benefits are externalized.[85]

It is important to distinguish between loss reduction and risk reallocation. Loss reduction decreases the *magnitude* of expected future harm[86]: For example, wearing a seatbelt while driving reduces the expected losses of an accident. But it does not reallocate the risk, which is still borne by the driver. Risk reallocation changes *who bears* future harm, if it occurs. For example, a flood insurance policy reallocates the risk of a house being flooded from homeowner to insurer. But it does not make floods any less likely or less harmful, so it does not reduce losses. This distinction is crucial because, as the next subpart will explain, efforts to reallocate risk often tend to *increase* net losses.

### B. *The Risk Reallocation/Loss Reduction Tradeoff*

For both insurers and governments, efforts to reduce or reallocate risk often have the vexing effect of increasing losses.[87] This is because when risk is transferred from one party to another, it often creates externalities—if a party no longer bears any risk, they have no incentive to mitigate losses. In insurance, this phenomenon is referred to as "moral hazard," whereas government regulation often results in what is called "cross-subsidization" of risky behaviors.

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81. Skogh, *supra* note 69, at 525.

82. Porrini, *supra* note 67, at 534; Skogh, *supra* note 69, at 525.

83. Viscusi, *supra* note 73, at 598.

84. *Id.* at 605-06.

85. *Id.*

86. In other words, decreases the probability and/or the magnitude of a possible negative outcome.

87. *See* Ben-Shahar & Logue, *supra* note 13, at 199 ("In much of the economic literature, insurance is seen as antithetical to risk reduction.")

Moral hazard, insurers' perpetual bugbear, describes the problem of insurance policies themselves "chang[ing] incentives and therefore the probabilities upon which the insurance company has relied."[88] In other words, the existence of insurance may reduce the insured party's incentive to mitigate losses, increasing expected harm.[89] For example, a person who is fully insured against fire has no monetary incentive to fireproof their home, even if the expected benefits outweigh the cost. Moral hazard creates a severe challenge for insurers, who must gather extensive information about their policyholders' activities to counteract it.[90]

Similar to moral hazard, the problem of cross-subsidization emerges when government loss-reduction efforts effectively incentivize risky behavior by redistributing resources from low- to high-risk parties.[91] For example, the U.S. federal government spends tens of billions of dollars each year preventing and fighting wildfires.[92] The majority of that expenditure is devoted to protecting private homes in the WUI.[93] This creates a significant market distortion: Because the costs of fire prevention and suppression are shifted onto taxpayers, real estate developers and homeowners do not bear the full costs of WUI development, so they develop those areas much more than is economically efficient.[94]

This sort of cross-subsidization can also create a sort of moral

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88. ARROW, *supra* note 56, at 142.

89. Porrini, *supra* note 67, at 533-34.

90. *Id.* at 142-43. *See generally* Kenneth S. Abraham & Daniel Schwarcz, *The Limits of Regulation by Insurance*, 98 IND. L.J. 215, 215-274 (2022).

91. *See generally* John Brooks, Brian Galle & Brendan Maher, *Cross-Subsidies: Government's Hidden Pocketbook*, 106 Geo. L.J. 1229 (2018) (exploring the concept and examples of cross-subsidization).

92. Baylis & Boomhower, *supra* note 22, at 442–43; Dean Lueck, *Economics and the Organization of Wildfire Suppression*, *in* WILDFIRE POLICY, *supra* note 19, at 71, 80-82, 86 n.1 ("In 1908, the so-called blank check policy of fire suppression funding emerged. . . . and remains more or less intact today.").

93. Baylis & Boomhower, *supra* note 22, at 444; Reilly, *supra* note 21, at 550.

94. Reilly, *supra* note 21 at 542-44, 554-55; Carolyn Kousky, Roger Sedjo & Sheila M. Olmstead, *In Harm's Way: Homeowner Behavior and Wildland Fire Policy*, *in* WILDFIRE POLICY, *supra* note 19, at 178, 180-81. On the other hand, government fire suppression is itself a form of loss reduction. It therefore might be efficient, despite the cross-subsidization problem, if the government could reduce losses more cheaply than landowners could. But this does not seem to be the case. Government firefighting is often extremely inefficient, spending more to rescue properties than the properties themselves are worth. Reilly, *supra* note 21 at 555. Moreover, government fire suppression efforts disrupt natural cycles and cause the forest to become overgrown, increasing wildfire risk in the long run. *Id.* at 547-49; STEPHEN J. PYNE, TENDING FIRE: COPING WITH AMERICA'S WILDLAND FIRES 97-98 (2004).

hazard, because just like insurance, it reduces the incentive for homeowners and communities to take adequate precautions.[95] Unlike traditional moral hazard, however, this sort of cross-subsidization is ex-ante: It attempts to reduce the probability of a negative outcome, rather than compensate victims after the negative outcome occurs. There are ex-post forms of cross-subsidization as well, such as disaster relief. These create the same moral hazard problem as private insurance—perhaps worse, since the government is less able to differentiate by risk than are private insurers.[96] But the upshot is the same. When another party bears the risk, there is less reason to take adequate care, and losses will therefore be greater.

### C. *Insurance as Regulation: How to Reduce Losses and Reallocate Risk Simultaneously*

Insurers are incentivized to reduce losses for their policyholders. Not just because those losses directly impact their bottom line, but also because many policyholders specifically seek insurers who can help them prevent harms.[97] Insurers have therefore devised an array of ingenious methods to circumvent the risk reallocation/loss reduction tradeoff. Some of these methods are designed to directly combat moral hazard and/or adverse selection, while others are designed to reduce losses in spite of them.[98] Some scholars argue that through these methods insurers can act as regulators, using their superior information, incentive-setting abilities, and political clout to drive policyholders' behavior, reducing net losses and reallocating risk at the same time.[99] Insurers might even be better suited for this role than government, since they are directly in-

95. *See* Baylis & Boomhower, *supra* note 22, at 443.

96. *See* Michael G. Faure, *Financial Compensation for Victims of Catastrophes: A Law and Economics Perspective*, 29 LAW & POL'Y 339, 353-55 (2007); *see also* Ben-Shahar & Logue, *supra* note 13, at 198-99, 224-25, 233-34 (noting that insurers tend to be better situated and incentivized to gather risk information than the government). *But see* Steven Shavell, *A General Rationale for a Governmental Role in the Relief of Large Risks*, 49 J. RISK & UNCERTAINTY 213, 233 (2014) (arguing that even under a system of frictionless private insurance, there is still an economic rationale for public disaster relief).

97. Ben-Shahar & Logue, *supra* note 13, at 202-05. *But see* Ronen Avraham & Ariel Porat, *The Dark Side of Insurance*, 19 REV. LAW & ECON. 13 (2023) (arguing that since insurers depend on the existence of risk to drive demand, they may actually be incentivized to increase net losses in the long run).

98. *See* Abraham & Schwarcz, *supra* note 90, at 267.

99. *See generally* Ben-Shahar & Logue, *supra* note 13.

centivized to minimize losses and insulated from political considerations.[100] Other scholars rebut that insurers are poorly suited to act as regulators, either because they lack the capabilities[101] or the incentives[102] to reduce losses in the long run. This subpart will discuss these arguments and explore the various loss-reduction tools in the insurer's arsenal.

One method of insurer loss reduction is "coinsurance" or "partial insurance," in which the insurer only partly covers losses (e.g., through a deductible or copay).[103] Coinsurance tends to reduce moral hazard and adverse selection, since the policyholder still bears some risk and therefore still has some incentive to prevent losses.[104] Yet the incentive is only partial—since the policyholder only bears part of the risk, they will still be insufficiently cautious.[105] Not only that, but coinsurance also dilutes the risk-reallocation benefit of insurance, since the insured party (who is presumably risk-averse) must bear part of the risk.[106] Indeed, coinsurance in no way avoids the risk reallocation/loss reduction tradeoff; it merely trades a bit of risk reallocation for a bit of loss reduction.[107] On the other hand, coinsurance is useful in that it reduces losses and administrative costs without requiring insurers to gather any individualized risk information about their policyholders.[108]

However, if an insurer can gather individualized risk information, this enables an even more powerful tool: risk pricing, where insurers set premiums according to particular policyholders' risk levels.[109] One method of risk pricing is for insurers to observe policyholders' activities and offer discounts for taking precautions, which is known as "feature rating."[110] If insurers were able

100. *Id.* at 202-03, 233-36; Viscusi, *supra* note 73, at 612-19.

101. *See generally* Abraham & Schwarcz, *supra* note 90.

102. *See generally* Avraham & Porat, *supra* note 97.

103. Steven Shavell, *On Moral Hazard and Insurance*, 93 Q. J. ECON. 541, 546-47 (1979); SHAVELL, *supra* note 59, at 263.

104. Shavell, *On Moral Hazard and Insurance*, *supra* note 103, at 546; Ben-Shahar & Logue, *supra* note 13, at 208-09.

105. Ben-Shahar & Logue, *supra* note 13, at 208-09.

106. Abraham & Schwarcz, *supra* note 90, at 247-248. *See generally* Melissa B. Jacoby & Mirya . Holman, *Managing Medical Bills on the Brink of Bankruptcy*, 10 YALE J. HEALTH POL'Y, L., & ETHICS 239 (2010) (discussing the ruinous impact of large deductibles and copays in the health insurance context).

107. *See* Abraham & Schwarcz, *supra* note 90, at 247 ("[P]artial insurance does not 'combat' moral hazard at all, but simply limits its creation in the first place.").

108. *See id.* at 257-258.

109. Porrini, *supra* note 67, at 534-35.

110. KENNETH S. ABRAHAM, DISTRIBUTING RISK: INSURANCE, LEGAL THEORY, AND

to perfectly observe policyholders' individualized risk levels, they could entirely prevent moral hazard and adverse selection through feature rating: It would be a simple matter of setting each policyholder's premium equal to their expected losses.[111] But unfortunately, insurers never actually have access to perfect risk information.[112] So, although risk pricing can reduce losses relative to a non-risk-priced insurance regime, losses will still be greater than if there had been no insurance at all.[113]

Another way that insurers can reduce losses is by sharing their superior information about risks. "Whereas an uninsured individual or company may know little about which precautions are likely to meaningfully reduce their risk, insurers may have quite good information on this front given their access to reams of data about policyholder characteristics and losses."[114] Insurers may directly educate policyholders about how to reduce their expected losses,[115] or transfer that information implicitly via feature rating.[116] If such information transfer encourages policyholders to behave more safely, it could (unlike coinsurance or risk pricing) actually reduce expected losses below what would occur without insurance.[117] These benefits could be magnified if insurers shared their risk information with the government and the public, and lobbied for cost-effective, community-level mitigation measures.[118] Such efforts are especially useful in the natural disaster context because, left to their own devices, most homeowners in disaster-prone areas would take inadequate precautions.[119] However, insurers may not be incentivized to publicly share their risk information or lobby for change, since their competitors would benefit equally.[120] Some

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PUBLIC POLICY 71-72 (1986).

111. Abraham & Schwarcz, *supra* note 90, at 272-273; *see* Porrini, *supra* note 67, at 535.

112. Skogh, *supra* note 69, at 525 ("Of course, some information will always be concealed by the policyholders. . .").

113. *See* Abraham & Schwarcz, *supra* note 90, at 220-21 ("Creating less danger than insurance might otherwise have created, by employing risk-based pricing or loss-sharing, for example, is not 'regulation' or 'loss prevention' . . . . it is damage control . . . .").

114. Abraham & Schwarcz, *supra* note 90, at 237.

115. Ben-Shahar & Logue, *supra* note 13, at 210-12.

116. Abraham & Schwarcz, *supra* note 90, at 237-238.

117. *Id.* at 59-60.

118. Ben-Shahar & Logue, *supra* note 13, at 212-13, 237-38.

119. Howard Kunreuther, *Mitigating Disaster Losses Through Insurance*, 12 J. RISK & UNCERTAINTY 171, 171-72 (1996).

120. Avraham & Porat, *supra* note 97, at 21 ("[I]f insurers' regulation is effective, it creates . . . positive externalities . . . for other insurers who now know how to improve their

scholars even argue that insurers deliberately lobby *against* loss-reducing measures, to maintain long-term demand for their services.[121]

This Part has demonstrated that, although risk aversion and market failures create a powerful economic justification for the existence of insurance and regulation, there are important downsides. The problems of moral hazard and cross-subsidization make it difficult to simultaneously reduce net losses and allocate risk away from risk-averse parties. Insurers have devised a variety of solutions to these problems, such as coinsurance and risk pricing, but though these may reduce the tradeoff's potency, they do not solve it. By sharing their superior information about risk, insurers could potentially overcome the tradeoff—yet they are disincentivized from doing so, since publicizing their data would benefit competitors.

## IV. ANALYZING THE SAFER FROM WILDFIRES REGULATION

With the factual and theoretical background in hand, we are now ready to evaluate SFW through a law and economic lens. SFW has two primary requirements, which we discuss in turn: the discounting requirements codified in Cal. Code Regs. tit. 10, § 2644.9(d) and (e), and the disclosure requirements of § 2644.9(c) and (f)-(k). The discounting requirements can be further subdivided into the community-level discounts required by § 2644.9(d)(1)(A) and the property-level discounts required by (d)(1)(B).

Each of these requirements has intuitive benefits. Yet upon closer examination, the SFW rule has structural flaws that could severely frustrate its purpose. This Part will argue that SFW's discounting requirements in particular create a perverse incentive for insurers to *not* offer insurance in high-risk areas, making the requirements counterproductive. On the other hand, the disclosure requirements will likely have a positive effect overall, despite creating similar incentive problems.

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insureds' risks . . . . And, as is well known, whenever positive externalities are involved, under-provisions of safety regulation are likely unavoidable."); Abraham & Schwarcz, *supra* note 90, at 260-66, 272-73; *see also* Skogh, *supra* note 69, at 522-24 (observing that for insurers "[t]o glean most of the value from information, it is helpful . . . to keep information secret"). For further discussion of this free-rider problem, see Part III.B below.

121. Avraham & Porat, *supra* note 97, at 20-23

### A. *The Discounting Requirements*

§ 2644.9(d)(1) requires that wildfire insurance rates "take into account and reflect" certain "mandatory factors," including both community-level and property-level wildfire mitigation measures.[122] In effect, this requires that insurers offer a discount for policyholders who undertake or live in communities that adopt these measures.[123] CDI hoped that such mitigation discounts, also known as feature rating, would make insurance more affordable.[124] But as this subpart explains, SFW may have the opposite effect. The discussion will proceed in three parts: (1) an analysis of how the discounting requirements distort insurer incentives in general; (2) an evaluation of the particular benefits and drawbacks of the community-level discount requirement; and (3) a criticism of the enumerated "mandatory factors" in § 2644.9(d)(1)(B).

#### 1. *Perverse Incentives*

At first glance, the SFW discounting requirement may not seem to place a terrible burden on insurers. After all, insurance companies often practice feature rating even when they are not required to do so.[125] Feature rating incentivizes policyholders to take appropriate care by internalizing expected losses, which benefits the insurer's bottom line.[126] As discussed in Part III.C above, although feature rating does not completely eliminate moral hazard and adverse selection, it does reduce losses relative to non-risk-priced insurance.[127] Moreover, reducing losses enables insurers to offer lower premiums than their competitors.[128]

But despite these clear incentives to do so, many California wildfire insurers did not offer mitigation discounts prior to the

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122. For more detailed discussion of these provisions, see Part I.B above.

123. CDI Press Release, *supra* note 7.

124. CDI, AVAILABILITY, *supra* note 23, at 3, 8. For further discussion of feature rating, and risk pricing more generally, see notes 109–113 and accompanying text above.

125. Ben-Shahar & Logue, *supra* note 13, at 205-06; *see also Insurers Currently Offering Discounts*, CAL. DEP'T OF INS., https://web.archive.org/web/20221123123714/http://www.insurance.ca.gov/01-consumers/105-type/95-guides/03-res/Insurers-Currently-Offering-Discounts.cfm, (last visited Nov. 14, 2022) (listing eighteen California wildfire insurance providers who already offer mitigation discounts).

126. Ben-Shahar & Logue, *supra* note 13, at 207-08.

127. *Supra* notes 109–113 and accompanying text.

128. Ben-Shahar & Logue, *supra* note 13, at 201-02.

SFW rule.[129] There are several possible causes for this reluctance to embrace feature rating. First, wildfire risk and mitigation are very context-dependent—mitigation measures that are cost-effective in one location may not be cost-effective elsewhere.[130] Second, perhaps insurers do not believe the discounts would be enough to incentivize proper care.[131] Third, wildfire mitigation measures create positive externalities: Since fire spreads from house to house, one homeowner making their house more fire-resistant also helps to protect their neighbors. But if those neighbors are uninsured, or insured by a different company, then neither the policyholder nor the insurance company accounts for these benefits.[132] Therefore, socially desirable mitigation efforts may not be cost-effective from the perspective of individual policyholders or insurers. Whatever the reason, many California wildfire insurers apparently did not view feature rating as a good business decision before SFW was implemented in 2022.

SFW does nothing to make feature rating more attractive to insurers, but simply commands them to do it.[133] Insurance consultant Tom Larsen says that SFW "certainly does not make it easier to work in the state of California . . . it's very difficult to say these regulations are a step forward."[134] In economic terms, the regulation creates additional costs for insurers without creating any additional benefits. First, the mitigation discounts themselves impose net costs on insurers—or at least insurers believe they do. After all, if insurers believed they would benefit from offering discounts, it would not be necessary to compel them to do so. They would already offer discounts of their own volition. Second, complying with the regulation is costly in itself, since insurers must rework their

129. CDI, AVAILABILITY, *supra* note 23, at 2-3, 8.

130. *See* JEFFREY CZAJKOWSKI ET AL., APPLICATION OF WILDFIRE MITIGATION TO INSURED PROPERTY EXPOSURE 4, 71-75 (2020), https://content.naic.org/sites/default/files/cipr_report_wildfire_mitigation.pdf.

131. *See* Bethan Moorcraft, *California's New Wildfire Safety Regulation "a Big Burden for Insurers"*, INS. BUS. (Dec. 12, 2022), https://www.insurancebusinessmag.com/us/news/catastrophe/californias-new-wildfire-safety-regulation-a-big-burden-for-insurers-430336.aspx ("'It's a bit naive to expect that just the offer of an insurance credit would cause people to significantly reduce the risk to homes.'" (quoting Tom Larsen, senior director of insurance solutions at CoreLogic)); Kunreuther, *supra* note 119, at 180.

132. Kousky, Sedjo & Olmstead, *supra* note 94, at 186-87.

133. *See* § 2644.9 (offering no incentives or benefits to insurers for complying with the new rules).

134. Moorcraft, *supra* note 131.

risk models and rate applications on an accelerated timetable.[135] Third, since insurers prefer not to publicize their risk information, SFW's disclosure requirements are also costly.[136]

However, there is a way for insurers to avoid all the new costs created by SFW: do not practice risk pricing. Since SFW applies *only if* insurers practice risk pricing,[137] they can circumvent the requirement entirely if they do not factor wildfire risk into their premiums. By creating additional costs for insurers who risk price, without any corresponding benefits, SFW effectively disincentivizes risk pricing in general. Yet risk pricing is one of the most powerful tools insurers have to combat moral hazard and adverse selection.[138] To avoid having their risk pool swamped by high-risk policyholders with no incentive to mitigate, insurers who choose to stop risk pricing must avoid selling insurance in high-risk areas at all. Carmen Balber, executive director of Consumer Watchdog, notes that nothing in SFW prevents insurers from simply refusing to cover high-risk properties: "It is a loophole that can swallow the rule."[139]

CDI is well-aware of this problem: The first recommendation in their original 2018 report was to *require* insurers to cover high-risk properties if the owner took adequate mitigation measures, a proposal designed to "resolve the availability problem."[140] Yet the final SFW rule includes no such mandate.[141] Stanford wildfire policy expert Michael Wara speculates that CDI omitted this provision from the final rule to avoid litigation.[142] Indeed, CDI's 2018 wildfire insurance report carefully notes that "CDI does not possess the requisite legislative authority" to enact all of the proposed solutions.[143] But the report also observes that "some of the proposed solutions will work effectively only if other parts of the proposal are also included."[144] The loophole in the final rule is a poignant example.

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135. *Id.*

136. *See infra* Part III.B.

137. § 2644.9(a)(1)-(2).

138. *See supra* notes 109-113 and accompanying text.

139. Grace Gedye, *California Wants to Force Insurers to Reward Homeowners for Fireproofing Homes*, CALMATTERS (May 26, 2022), https://calmatters.org/economy/2022/05/fire-insurance-rules/.

140. CDI, AVAILABILITY, *supra* note 23, at 7 (emphasis omitted).

141. *See* § 2644.9.

142. Gedye, *supra* note 139.

143. CDI, AVAILABILITY, *supra* note 23, at 13.

144. *Id.* at 6.

SFW makes it more costly to insure high-risk properties without requiring insurers to do so. In this way, although it was designed to "attract insurers back to wildfire-prone areas,"[145] SFW will probably have the opposite effect.

2. *Community Rating and Free Riders*

The perverse incentive issue discussed in the previous subpart applies with equal force to the property-level and community-level discounting requirements. However, there are additional drawbacks to the community discounting requirements specifically, to which we now turn. Because CDI believes that insurers do not consider community mitigation efforts in their risk models,[146] SFW requires discounts for "reduced wildfire risk associated with . . . community-level mitigation designation[s]" issued by the California Board of Forestry or Firewise USA.[147] Although well-intentioned, this requirement is likely to be stymied by free-rider problems, both for policyholders and insurers.

It is unusual, but not unreasonable, to provide discounts to individual policyholders because of efforts taken by their community. At least in theory, it could help fight moral hazard by incentivizing homeowners to lobby for mitigation efforts in their community. Moreover, empirical studies suggest that community fire mitigation efforts have a network effect, creating public awareness and social pressure to mitigate.[148] Factoring in community-level hardening efforts also helps to internalize the positive externalities associated with wildfire mitigation.[149] If their premiums reflect the community's resilience, homeowners have a concrete incentive to ensure their neighbors are adequately protected.

The National Flood Insurance Program (NFIP) includes a "Community Rating System" (CRS), which operates similarly to the SFW rule.[150] Introduced in 1994, the CRS has been generally effective at reducing loss, according to an empirical study by Gourevitch

145. Auer & Hexamer, *supra* note 14, at 2.

146. CDI, AVAILABILITY, *supra* note 23, at 9.

147. § 2644.9(d)(1)(A) (2023); *see supra* notes 43–47 and accompanying text.

148. *See* CZAJKOWSKI ET AL., *supra* note 130, at 80-81.

149. *See supra* text accompanying note 132.

150. *Community Rating System*, FED. EMERGENCY MGMT. AGENCY (Feb. 22, 2023), https://www.fema.gov/floodplain-management/community-rating-system.

& Pinter.[151] However, CRS discounts are effectively cross-subsidized by other policyholders in non-participating communities, whose rates are about 15% higher due to the CRS.[152] There is also a significant difference between NFIP's CRS and SFW's community-rating requirement: NFIP is administered by the federal government,[153] whereas SFW governs the behavior of private insurers.

This distinction turns out to be critically important, as it creates a significant free-rider problem for insurers under the SFW rule that is not present under NFIP. Through NFIP, the federal government offers flood insurance for *all* properties in a participating community,[154] and thus internalizes all the costs and benefits (i.e., reduced losses) associated with community discounts. The federal government is therefore incentivized to set community discounts at an efficient level. By contrast, private insurers often do not cover all properties in a given community. Yet community mitigation is a public good: All properties within a community (and by extension, their insurers) receive similar loss-reduction benefits, regardless of whether they contributed to the hardening effort. And public goods tend to create free-rider problems.[155] In this case, each private insurer is incentivized to offer a negligibly small discount, hoping that the community mitigation will occur regardless (perhaps because other insurers offer greater discounts). Nothing in the text of SFW precludes this sort of strategic behavior: The rule merely requires discounts, not that the discounts be substantial enough to affect community members' behavior.[156]

Property owners, too, face a free-rider problem. Even if insurers do offer discounts large enough to spur action, each individual policyholder will be inclined to sit back and wait for somebody *else* to lobby for community mitigation. After all, they get the same discount either way. Because of these free-rider problems, community

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151. JESSE GOUREVITCH & NICHOLAS PINTER, FEMA'S COMMUNITY RATING SYSTEM: WORTH THE EFFORT? 4 (2022), https://riskcenter.wharton.upenn.edu/wp-content/uploads/2022/04/FEMAs-Community-Rating-System-Issue-Brief-April-2022.pdf.

152. *Id.* at 2-3; *see also supra* notes 91–94 and accompanying text (defining and discussing cross-subsidization).

153. *Flood Insurance*, FED. EMERGENCY MGMT. AGENCY, https://www.fema.gov/flood-insurance (last visited Mar. 9, 2022).

154. *See Flood Insurance Resources*, CAL. DEP'T OF INS., http://www.insurance.ca.gov/01-consumers/140-catastrophes/FloodFacts.cfm (last visited Apr. 9, 2023).

155. *See generally* Russel Hardin & Garrett Cullity, *The Free Rider Problem*, STAN. ENCYC. OF PHIL. (updated Oct. 13, 2020), https://plato.stanford.edu/entries/free-rider/ (explaining the economic theory of public goods and why they create free rider problems).

156. *See* § 2644.9(d)(1)(A).

hardening will—like any public good[157]—be underprovided. It may be possible to design a community-rating system that avoids this problem, such as by having the community collectively acquire insurance on behalf of its members.[158] But SFW does not include such a radical provision.

3. *"One-Size-Fits-All"*

A brief, final point concerns the enumerated list of property-level "mandatory factors" that must be discounted per 2466.9(d)(1)(B). CDI believes that before SFW, insurers were using inaccurate risk models that were based on inappropriate factors.[159] Therefore, CDI developed a list of mandatory factors for which discounts must be offered. The list is based on extensive research by the California government and insurance groups.[160] Even so, it is ill-advised. One of the most useful features of private insurance is its superior ability, relative to government, to monitor and assess risk at the individual level.[161] SFW weakens that advantage by forcing insurers to calculate risk using a predetermined, universal list of features.

Such a "one-size-fits-all" approach is especially inapt in the wildfire context. An extensive study of property-level wildfire mitigation concludes that the cost-effectiveness of mitigation measures is highly dependent on the particular location and characteristics of the property.[162] The authors explain, "what makes wildfire different from other natural catastrophe perils is the hyper-local nature of the hazard gradient."[163]

Once again NFIP's CRS, which also enumerates a list of measures to discount,[164] provides an instructive analogy. Gourevitch and Pinter calculate that some of the measures that CRS subsidizes have "no discernable effect on flood losses."[165] SFW

157. *See* Hardin & Cullity, *supra* note 155 ("[P]ublic goods . . . face the problem of free riding that undercuts supply of the goods.").

158. Carolyn Kousky & Andy Read, *Why We Need Community-Based Catastrophe Insurance*, UNIV. OF PA. WHARTON SCHOOL (Aug. 17, 2020), https://riskcenter.wharton.upenn.edu/lab-notes/why-we-need-community-based-catastrophe-insurance/.

159. CDI, AVAILABILITY, *supra* note 23, at 8-10.

160. CDI, PARTNERSHIP SUMMARY, *supra* note 36, at 2.

161. *See* Ben-Shahar & Logue, *supra* note 13, at 198-99, 224-25, 233-34.

162. CZAJKOWSKI ET AL., *supra* note 130, at 4, 71-75, 82-83.

163. *Id.* at 82.

164. GOUREVITCH & PINTER, *supra* note 151, at 2, 6.

165. *Id.* at 6.

is likely to create similar inefficiencies, forcing insurers to subsidize certain mitigation measures for all policyholders, even if they are only cost effective for some.

### B. *The Disclosure Requirements*

In addition to its discounting requirements, SFW also mandates a variety of disclosures.[166] First, because CDI worries that insurers use faulty wildfire risk models (WRMs) based on inadequate data,[167] SFW requires insurers to publicly disclose their WRMs and the underlying data.[168] The government plans to aggregate the wildfire risk data it receives and make it available to insurers, so that they may refine their models using a broader dataset.[169] Second, because homeowners complained about their inability to appeal insurers' renewal or rate-setting decisions,[170] SFW directs insurers to provide policyholders with specific information about their risk score and how to appeal it.[171] These requirements, unlike the discounting provisions, are likely to achieve their intended purpose and reduce losses without major side effects.

Insurance companies tend to have excellent information about risk, relative to policyholders or the government.[172] For policyholders to respond appropriately to incentives like risk pricing, they must first know their risk level, and what mitigation efforts they can take to reduce it.[173] By disclosing such information, insurers can help policyholders reduce losses, benefitting both parties.[174] Yet insurers are strongly incentivized not to disclose their risk calculations, since it would benefit their competitors.[175] Only about one fifth of homeowners report receiving wildfire risk information from their insurance company.[176]

Requiring insurers to communicate with their policyholders about risk and mitigation could help close the information gap,

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166. *See supra* notes 48-54 and accompanying text.

167. CDI, AVAILABILITY, *supra* note 23, at 8-11.

168. § 2644.9(c), (f)-(g) (2023).

169. § 2644.9(g); CDI, AVAILABILITY, *supra* note 23, at 11.

170. CDI, AVAILABILITY, *supra* note 23, at 10-11.

171. § 2644.9(h), (i), (k).

172. *See supra* notes 78, 114–119 and accompanying text.

173. Abraham & Schwarcz, *supra* note 90, at 273.

174. *See* Ben-Shahar & Logue, *supra* note 13, at 210-11.

175. Abraham & Schwarcz, *supra* note 90, at 273; *see also* Avraham & Porat, *supra* note 97, at 9.

176. CZAJKOWSKI ET AL., *supra* note 130, at 81.

empowering homeowners to make more rational mitigation decisions. As Ben-Shahar and Logue explain, "Most homeowners cannot ascertain the quality of the structure they are purchasing . . . especially risks under high-wind, fire, or earthquake conditions."[177] Empirical research suggests that homeowners systematically underestimate their property's wildfire risk.[178] Of course, merely providing information does not guarantee policyholders will act on it: One survey of homeowners determined that awareness of wildfire risk is not the primary factor in the decision to undertake mitigation measures.[179] On the other hand, homeowners do not completely ignore risk information: Empirical research has found that awareness of wildfire risk does affect housing prices, development rates, and mitigation action to an extent.[180] And given the incentives provided by SFW's property-level discounts, many policyholders will likely use the risk information provided by their insurers to take mitigation action.

Requiring insurance companies to disclose their wildfire risk models and data to the government is also likely to be socially beneficial. Porrini observes that, because each insurer has gaps in their risk data, they could collectively benefit by pooling information.[181] But if insurance companies were to collaborate directly, they could run afoul of antitrust law.[182] And as discussed above, insurers are disincentivized from unilaterally disclosing their risk information without some assurance that their competitors will do the same. SFW provides that assurance, and avoids any hint of collusion, via the creation of a centralized "fire and wildfire exposure risk manual."[183] Access to a wider base of information will help insurers more accurately calibrate their risk pricing, promoting efficiency.[184]

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177. Ben-Shahar & Logue, *supra* note 13, at 223.

178. *See* CZAJKOWSKI ET AL., *supra* note 130, at 80.

179. Stacey Schulte & Kathleen A. Miller, *Wildfire Risk and Climate Change: The Influence on Homeowner Mitigation Behavior in the Wildland-Urban Interface*, 23 SOC'Y & NAT. RES. 417, 428, 432 (2010).

180. Kousky, Sedjo & Olmstead, *supra* note 94, at 182-84, 187; Michael McKee et al., *Using Experimental Economics to Examine Wildfire Insurance and Averting Decisions in the Wildland-Urban Interface*, 17 SOC'Y & NAT. RES. 491, 501-02 (2004) ("Providing more risk exposure information does increase the share of expenditure on some forms of averting . . . ." (citation omitted))

181. Porrini, *supra* note 67, at 536-38.

182. *Id.* at 537-38.

183. § 2644.9(g) (2023).

184. *See* CZAJKOWSKI ET AL., *supra* note 130, at 4 ("[I]dentification of locations where

There are two potential drawbacks to the disclosure requirement, but both prove less troublesome than they might first appear. First, since information is most valuable to insurers when it is kept secret,[185] it is possible that the disclosure requirements would disincentivize insurers from acquiring it to begin with. This phenomenon has been observed in other contexts. Polinsky and Shavell observe that when firms are legally required to disclose information about the risks of their products, they are disincentivized to gather such information in the first place.[186] However, insurance is different. Product manufacturers could in theory still operate without knowing anything about the risks of their products. But insurance companies could not function without detailed information concerning risks their policyholders face.[187] It seems unlikely, therefore, that being required to disclose information will completely discourage insurers from gathering it.

Second, the aggregate risk manual that CDI plans to create and publicize also gives reason to worry. The purpose of this project is to ensure that each insurer can benefit from the risk data gathered by every other[188]—an admirable goal. But like the community-rating requirement,[189] this provision could create free-rider problems. If insurers are forced to share their risk data with each other, with the government as intermediary, then what is to stop some insurers from simply relying on the aggregate data without contributing any new data themselves? Running hazard simulations and producing novel risk models are expensive enterprises.[190] Every insurer would rather repurpose others' data than gather their own. But this problem is unlikely to have dramatic effects on the market,

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viable economic incentives are effective is complex, and will require insurance companies to invest in location specific data . . . .").

185. *See* Skogh, *supra* note 69, at 522-23 (holding that certain types of transaction-specific information may only be fully monetized if kept secret); Abraham & Schwarcz, *supra* note 90, at 273..

186. A. Mitchell Polinsky & Steven Shavell, *Mandatory Versus Voluntary Disclosure of Product Risks*, 28 J. L. ECON. & ORG. 360, 360-62, 370-72 (2012).

187. Skogh, *supra* note 69, at 521-24; *see also* Ben-Shahar & Logue, *supra* note 13, at 223-25 (noting that insurers use information regarding underlying risk and safety factors to price their coverage in the homeowners' insurance context); Abraham & Schwarcz, *supra* note 90, at 235-236.

188. CDI, AVAILABILITY, *supra* note 23, at 11.

189. *See supra* Part III.A.2.

190. *See* Ben-Shahar & Logue, *supra* note 13, at 224-25 ("The [property insurance industry funds a massive research facility for simulating hurricanes and other perils, and studying how different construction techniques withstand wind, fire, water, and hailstorm damage.").

because many California wildfire insurers already extensively rely on third-party risk data.[191] Moreover, because fire risk is so location-specific,[192] insurers cannot entirely depend on aggregate data, but will always be incentivized to gather more specific information about the locations they serve.

Overall, the disclosure requirements seem well-based in law and economic theory. Economic scholars have long noted that insurers have exceptionally good aggregate risk information, which if made public could help policyholders, governments, and other insurers reduce losses.[193] Yet each insurer is privately disincentivized to share their proprietary risk information and models, creating a sort of multilateral prisoner's dilemma.[194] The disclosure requirement, by forcing insurers to reveal their risk information to policyholders and the public, helps overcome this collective action problem to the benefit of all parties.

## V. DISCUSSION: COMPLEMENTING SFW WITH A BILATERAL INSURANCE MANDATE

The foregoing analysis has considered Safer from Wildfires on its own terms. We have found that the rule's disclosure requirements are likely to help reduce wildfire losses, without major side effects. However, the discounting requirements are more suspect. California Insurance Commissioner Lara claims that this "groundbreaking regulation will help more Californians find insurance they can afford."[195] But we have determined that it may in fact do the opposite, since it incentivizes insurers to stop engaging in risk pricing and withdraw coverage from high-risk areas. Now we turn to the question: What could be done to close this loophole, and ensure that Safer from Wildfires actually makes Californians safer from wildfires? What can other states learn from California's example?

The most obvious solution is the one that CDI already proposed

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191. CDI, AVAILABILITY, *supra* note 23, at 11.

192. CZAJKOWSKI ET AL., *supra* note 130, at 82.

193. *See, e.g.*, Abraham & Schwarcz, *supra* note 90, at 237.

194. *See generally* Miklos N. Szilagyi, *An Investigation of N-person Prisoners' Dilemmas*, 14 COMPLEX SYS. 155, 156-160 (2003), https://www.complex-systems.com/abstracts/v14_i02_a03/ ("The *N*-person Prisoners' Dilemma considers a situation when each of *N* participants has a choice between two actions: cooperating with each other for the "common good" or defecting (following their selfish short-term interests).").

195. CDI Press Release, *supra* note 7.

in 2018: require insurers to cover high-risk properties so long as the property owners take certain mitigation measures.[196] CDI designed this requirement to avoid the precise problem that we now see in the final rule, but eventually discarded it for the sake of political expediency.[197] Not only would such a requirement prevent insurers from pulling out of high-risk areas, but it would also incentivize insurers to practice risk pricing, rather than disincentivizing it. If insurers *had to* cover high-risk areas, then risk pricing would be the only way to avoid catastrophic adverse selection. With insurers required to cover high-risk areas and appropriately incentivized to practice risk pricing, the discount requirements could achieve their intended purpose.

But a unilateral mandate requiring insurers to cover high-risk areas, even in tandem with SFW, is not enough to solve all the problems in the California wildfire insurance market. Even with risk pricing, requiring insurers to cover all high-risk areas is likely to create substantial adverse selection problems.[198] This outcome would occur because property-owners in *low*-risk areas could still choose not to obtain wildfire insurance; insurers' risk pools would thus be dominated by the high-risk areas they would be forced to cover, raising the costs of insurance dramatically.

The unilateral mandate also does not resolve another problem in the wildfire insurance market: irrationally low demand by high-risk homeowners. Demand for disaster insurance is often much lower than economic theory predicts.[199] Perhaps this is because homes are irreplaceable commodities, which (counterintuitively) people tend not to fully insure.[200] Whatever the reason, there are many property owners who would not fully insure against wildfires even if insurance was affordable and available. But when wildfires do occur, these uninsured victims will almost surely be bailed out by the government.[201] Such ad hoc compensation is significantly less efficient than a comprehensive ex ante insurance scheme.[202]

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196. CDI, AVAILABILITY, *supra* note 23, at 7.

197. *See supra* notes 140-145 and accompanying text.

198. *See supra* notes 80-82 and accompanying text.

199. Kunreuther, *supra* note 119, at 176-78; Faure, *supra* note 96, at 345–47.

200. *See* Philip J. Cook & Daniel A. Graham, *The Demand for Insurance and Protection: The Case of Irreplaceable Commodities*, 91 Q. J. ECON. 143, 143-44, 148-50 (1977).

201. Faure, *supra* note 96, at 352 ("[P]oliticians will (given the high number of voters involved) always have the tendency to provide some form of compensation where a large number of victims are affected by a disaster.").

202. *See id.* at 359-60 ("The insurance model clearly has advantages over the simple

Government bailouts are a form of cross-subsidization[203] and "have been insufficiently able to provide the same level of incentives for prevention that risk differentiation under insurance does."[204]

These adverse selection and demand problems could be addressed, however, by making the mandate *bilateral*: As well as requiring insurers to cover high-risk areas, California could also require property owners to buy fire insurance up to a certain minimum level of coverage, as the federal Affordable Care Act does for health insurance.[205] The bilateral mandate would solve the adverse selection problem by ensuring a diverse risk pool, which would in turn lower insurance companies' expected losses per customer and make premiums more affordable.[206] Indeed, even if the mandate applied only to moderate- and high-risk properties, it would still stabilize the risk pool and prevent adverse selection from spiraling out of control.[207]

Compulsory wildfire insurance would also help resolve the demand problem.[208] Faure explains that many risk-averse individuals neglect to buy disaster insurance, even though it would be optimal for them to do so, because they underestimate their exposure to risk.[209] SFW's disclosure requirements will help to resolve these information asymmetries,[210] but an insurance mandate would go much further.

Finally, the homeowner mandate could help address the substantial cross-subsidization problem associated with government

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application of fund-solutions, which only invite potential accident victims to free ride on the public purse." (citation omitted)). *But see* Shavell, *supra* note 96, at 233 (arguing that even if private insurance is widely available, public disaster relief may still be desirable).

203. *See supra* notes 91-96 and accompanying text.

204. Faure, *supra* note 96, at 352 (citations omitted).

205. *See* 26 U.S.C.A. § 5000A(a), (f) (West 2024) (mandating and defining "minimum essential coverage" for Affordable Care Act); 42 U.S.C.A. § 300gg–91(c) (West 2024) (listing types of coverage that are *not* sufficient as minimum essential coverage).

206. Shrimali, *supra* note 19, at 2; Faure, *supra* note 96, at 349-50.

207. Faure, *supra* note 96, at 350. Limiting the consumer mandate to apply only to medium- and high-risk properties would help avoid the inefficiency and perceived unfairness of requiring property owners with near-zero wildfire risk to buy wildfire insurance. *See id.* Another question policymakers would need to consider is whether to apply the bilateral mandate only to residential property, or to all development. The former option has the advantage of disincentivizing building homes in high-risk areas (thus minimizing loss of life, displacement of families, and other tragic outcomes of wildfires) while still making use of the relatively affordable space in the WUI.

208. Shrimali, *supra* note 19, at 2.

209. Faure, *supra* note 96, at 348-39.

210. *See supra* Part III.B.

wildfire suppression. Currently, via government fire suppression, taxpayers effectively subsidize development in the wildland urban interface (WUI).[211] An insurance mandate, by forcing homeowners in high-risk areas to pay premiums proportionate to their risk exposure, would help internalize these costs and discourage high-risk development, reducing overall losses.[212]

A bilateral mandate would complement SFW well. SFW's discounting requirements would help reduce moral hazard and keep premiums in check, while the bilateral mandate would prevent adverse selection and ensure a healthy supply and demand in the wildfire insurance market.[213] Additionally, Benjamin Reilly convincingly argues that such a mandate would be constitutional in light of the Supreme Court's decision in *Sebelius*,[214] which upheld the Affordable Care Act's individual mandate for health insurance as a valid exercise of congressional taxing power.[215] Since U.S. states unquestionably have taxing and spending power,[216] a wildfire insurance mandate implemented by California would also probably survive constitutional scrutiny.[217] Indeed, California already has a state-level mandate for health insurance.[218]

However, more research is needed to determine how best to structure and implement a bilateral wildfire insurance mandate. Such a profound reshaping of a multi-billion-dollar insurance market should not be taken lightly. Even if a bilateral mandate would reduce losses and promote economic efficiency in the California wildfire insurance market, that does not necessarily mean it is a good idea overall. By internalizing the costs of wildfires in the WUI, a bilateral mandate would effectively drive up the cost of living in those areas. Yet the unsustainable cost of living in California is one

211. Reilly, *supra* note 21 at 542-44, 552-54.

212. Reilly, *supra* note 21 at 575-76.

213. *See id.* at 561-64 (proposing a "National Wildfire Insurance Program" that would include both a "homeowner mandate" and mitigation discount requirements); Shrimali, *supra* note 19, at 2-3 (arguing that mandatory risk pricing should be combined with a universal mandate to buy wildfire insurance).

214. *See* Reilly, *supra* note 21 at 568-75.

215. Nat'l Fed'n of Indep. Bus. v. Sebelius, 567 U.S. 519, 570 (2012).

216. New York *ex rel.* Cohn v. Graves, 300 U.S. 308, 313 (1937) ("Enjoyment of the privileges of residence in the state and the attendant right to invoke the protection of its laws are inseparable from responsibility for sharing the costs of government.").

217. *Cf.* Reilly, *supra* note 21 at 574-75, 574 n.315-16 (discussing constitutional challenges to the National Flood Insurance Program, and how it was ultimately upheld).

218. *Why Are Californians Required by Law to Have Health Insurance?*, COVERED CAL. (Feb. 16, 2023), https://www.coveredca.com/marketing-blog/why-are-californians-required-by-law-to-have-health-insurance/

of the factors driving development in the WUI in the firstplace, and the cost of wildfire insurance in rural areas was one of the primary motivators for the SFW regulation.[219] In theory, the bilateral mandate could do much to alleviate the shortfalls and magnify the benefits of the SFW regulation. But the policy would need to be carefully calibrated and paired with other, complementary cost-of-living interventions to avoid worsening the very problems that SFW was designed to solve.[220]

## VI. CONCLUSION

California and other western states face an immense challenge in managing wildfire risk. Due to climate change, wildfires are becoming bigger, more devastating, more frequent, and more unpredictable. Many insurers in California have responded by hiking rates to unsustainable levels or by refusing coverage entirely. In an effort to address this availability and affordability crisis, California's Department of Insurance created Safer from Wildfires, an unprecedented insurance regulation that imposes a range of discounting and disclosure requirements on wildfire insurers.

Upon close examination, there is ample reason to doubt SFW's effectiveness as written. First, SFW contains a major loophole in its discounting requirements: Since the regulation does not require insurers to practice risk pricing in the first place, it may tend to disincentivize the practice. If insurers engage in less risk pricing, they will be even more incentivized to withdraw coverage from high-risk areas. Second, at the community level, the discounting rules may

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219. *See supra* Part I.A.

220. A comprehensive solution to California's wildfire and cost-of-living woes is far beyond the scope of this Note. But a logical first step would be to pair the bilateral mandate with extensive zoning reform and investment in infill development in urban areas, so as to promote better use of already developed space and reduce the incentives for sprawling development into the WUI. *See* Baylis & Boomhower, *supra* note 22, at 466-69 (explaining that, while creating new developments in the WUI imposes substantial external costs, infill development does not); Edward L. Glaeser & Joseph Gyourko, *The Impact of Zoning on Housing Affordability* 21 (Nat'l Bureau of Econ. Rsch., Working Paper No. 8835, 2002) ("[I]n . . .California . . . housing prices diverge substantially from the costs of new construction . . . . Measures of zoning strictness are highly correlated with high prices. While all of our evidence is suggestive, not definitive, it seems to suggest that this form of government regulation is responsible for high housing costs where they exist."); Lauren Trambley, Note, *The Affordable Housing Crisis: Tiny Homes & Single-Family Zoning*, 72 HASTINGS L.J. 919, 958 (2021) ("California must alter its zoning practices—specifically, single-family zoning—to allow for smaller and, most importantly, affordable housing development.").

be hamstrung by free-rider problems among both insurers and policyholders. Third, the disclosure requirements are also impacted by free-rider problems, and so might not be as effective as CDI anticipates. Nevertheless, the disclosure requirements are likely to reduce wildfire losses overall by closing the information gap between insurer and insured—this should be celebrated.

Some of these shortfalls could be addressed by reincorporating a crucial provision of SFW that CDI cut out in the drafting stage: a requirement that insurers cover high-risk areas if homeowners act to mitigate risk. A more comprehensive proposal that could go even further in addressing the availability and affordability crisis is a bilateral mandate, which would also require homeowners in moderate- or high-risk areas to buy wildfire insurance. Yet much more research is needed to determine how best to structure and implement such a mandate; the loopholes in SFW demonstrate the dangers of implementing new, untested policies without thorough economic investigation and careful drafting. Despite the urgency of reforming the wildfire insurance market, other vulnerable states should act cautiously rather than rushing to follow in California's footsteps.