

ASHES TO ASHES: A WAY HOME FOR CLIMATE CHANGE SURVIVORS

Kenneth S. Klein*

“Wow! Yet another big storm heading to Puerto Rico. Will it ever end?”

-Twitter post of President Donald Trump, August 27, 2019¹

In 2020, the United States suffered a record number of named storms, a record number of storms causing \$1 billion or more in damage, a derecho that destroyed much of Iowa’s corn crop, and previously unheard-of levels of wildfire frequency and damage in California, Oregon, and Washington. The effects of climate change are causing a crisis of affordable, available homeowner insurance. As more and more homes in the United States are in high-risk areas for natural catastrophes, insurers increasingly choose not to offer insurance at all in some communities, exclude disaster risks from coverage in others, and dramatically raise prices in still others. For ever-growing numbers of homeowners, the only option is an inadequate and unattractive public insurance product of last resort. As a result, growing numbers of climate change survivors are finding there is no way home.

Building on three recent proposals from regulators and prominent academics to solve the problem of affordability and availability, this Article provides a novel

* Louis and Hermione Brown Professor of Law, California Western School of Law. No paper is a solo effort. Thanks to my friend and colleague, Professor Peter Kochenburger at the University of Connecticut School of Law, who generously shared his time and knowledge. Thanks to Professor Catherine Hardee at California Western School of Law, whose counsel made this Article infinitely better. Thanks as well to Professor Lisa Black at California Western School of Law, who served as a sounding board for this Article every step of the way. Thanks to the Author’s writing circle at California Western School of Law—CWSL Professors Bob Bohrer, Paul Gudel, Susan Bisom-Rapp and Tim Casey; CWSL Dean Sean Scott; and Professor India Thusi, Mauer School of Law, Indiana University Bloomington. Thanks to excellent student research assistant Caden Shophammer. Finally, thanks to the gifted editors at the *Arizona Law Review* for their grace, knowledge, and professionalism, which is especially notable during the COVID-19 pandemic; their efforts made this Article better.

1. Donald Trump (@realDonaldTrump), TWITTER (Aug. 27, 2019, 12:09 PM), <https://twitter.com/realDonaldTrump/status/1166382203808440320> [<https://www.thetrumparchive.com/?searchbox=%22Wow%21+Yet+another+big+storm+heading+to+Puerto+Rico.+Will+it+ever+end%22>].

solution: first, establish a requirement that an insurer who offers homeowner hazard insurance anywhere in a state must offer it everywhere, with no exception—full stop. Second, adopt state rules providing that rate filings or form filings for homeowner hazard insurance will not be approved if the insurance would exclude any natural disaster peril. Third, adopt state rules providing that rate filings for homeowner hazard insurance will not be approved if the insurance discriminates against homes based on the location of the home.

By building a set of market incentives to sell affordable, comprehensive insurance everywhere and protecting insurers from price-cutting by competitors, insurance will be affordable everywhere and will be available everywhere. Insurers will want to sell it, and homeowners will be able to buy it. And virtually all homes in the United States will have access to affordable insurance for the next peril, regardless of what it may be.

TABLE OF CONTENTS

INTRODUCTION	681
I. THE NECESSARY PREDICATES THAT MUST BE CONSIDERED IN ANY PROPOSED SOLUTION TO AFFORDABILITY/ACCOUNTABILITY	688
II. THE CURRENT LANDSCAPE OF PRIVATELY INSURING U.S. HOMES FOR CATASTROPHE	690
A. What Perils Are Insured	690
B. Theories of Variable Voluntary Take-Up Rates of Insured Perils	694
III. HINTS OF A SOLUTION	697
IV. EXTANT PROPOSALS TO MAKE HOMEOWNER INSURANCE FOR NATURAL CATASTROPHES AFFORDABLE AND AVAILABLE	700
A. California's Proposal for Legislative Reform of Homeowner Insurers and Ratemaking	700
B. Professor Kunreuther's Proposal for Private, All-Perils Homeowner Insurance	703
C. Professor French's Proposal for Public, All-Perils Homeowner Insurance	703
V. CONCERNS WITH THE EXTANT PROPOSALS	704
A. CDI's Approach	704
B. Kunreuther's Approach	708
C. French's Approach	708
VI. AN ALTERNATIVE APPROACH	711
VII. ANTICIPATED CRITICISMS	714
A. Natural Disaster is Not Actually Insurable	714
B. Insurers Will Pull Out of the Market	717
C. It Will Be Unaffordable	718
D. Homeowners Will Not Want It	724
E. It is Politically Untenable	725
1. Rich v. poor	725

2. Racial injustice 726
 3. Industry opposition..... 727
 4. Public insurers 728
 5. Each state is different 728
 6. Maybe some homes should not be rebuilt..... 728
 7. The cost of inaction 729
 CONCLUSION 730

INTRODUCTION

As natural disasters grow in frequency and impact, there is a crisis of available and affordable homeowner insurance in the United States. Reports abound of insurers refusing to sell insurance at any price in some communities and exploding the price of insurance in other communities.² No solution has yet emerged. As a result, the victims and survivors of climate change lack the resources to rebuild and re-insure the homes they lost. This Article proposes an architecture for restructuring insurance markets so that even as natural catastrophes multiply, there is a viable avenue to homeowner insurance that insurers can and will sell, and that homeowners can and will buy.

The problem is an insurance crisis, not an insurer crisis. Insurers are neither charities nor churches. Insurers do not exist to promote either social justice or morality. Rather, insurers are acting exactly as they need to act to be profitable businesses.³ Insurers will not intentionally sell actuarially unsound homeowner insurance. And so in the homeowner hazard insurance market, just as with any other

2. See, e.g., Susan Salisbury, *Storm Season on the Horizon, Insurance Market in Crisis as Homeowners Face Huge Increases*, PALM BEACH POST (May 7, 2021), <https://www.palmbeachpost.com/story/news/local/2021/05/07/insurance-market-crisis-homeowners-face-double-digit-increases/4977002001/> [<https://perma.cc/6747-CL69>] (“Florida homeowners are being hit with double-digit percentage insurance rate increases, and the insurance market has reached a crisis stage.”); Amy O’Connor, *Citizens’ CEO: Florida Property Insurance Market is Shutting Down*, INS. J. (March 19, 2021), <https://www.insurancejournal.com/news/southeast/2021/03/19/606052.htm> [<https://perma.cc/EY6E-AUT6>] (“Florida’s insurer of last resort . . . has become the insurer of first resort as . . . the private homeowners insurance market continues its downward spiral. . . . [F]our companies in Florida are now closed for new business; at least 12 companies have strict underwriting restrictions [C]arriers are offsetting their losses with rate increases.”); Dale Kasler, *‘Last Resort’ Insurance Plan Raising Rates for Rural California Homeowners—Again*, SACRAMENTO BEE (Dec. 8, 2020, 11:58 AM), <https://www.sacbee.com/news/california/fires/article247680725.html> (“Thousands of rural Californians have lost homeowners’ insurance in recent years because of rising wildfire claims, forcing them to seek alternative coverage that’s two or three times more expensive. Now their rates are about to go even higher.”); Alicja Grzadkowska, *Insurance for Properties in High-risk Wildfires Zones has ‘Dried Up’*, INS. BUS. AM. (Jan. 22, 2020), <https://www.insurancebusinessmag.com/us/news/specialty-insurance/insurance-for-properties-in-highrisk-wildfires-zones-has-dried-up-211128.aspx> [<https://perma.cc/U5CP-VTRX>].

3. See generally Tom Baker, *Constructing the Insurance Relationship: Sales Stories, Claims Stories, and Insurance Contract Damages*, 72 TEX. L. REV. 1395, 1400–16 (1994).

insurance market with highly variable risk profiles of potential insureds (for example, auto, life, or health insurance), an insurer who does not isolate high-risk insureds will not last long in the marketplace.⁴ For homeowners in areas prone to fire, flood, or other catastrophe risk, this means insurance is increasingly too expensive, if it is offered at all.⁵ Mitigation of climate change itself will help, as will mitigation of the risk to communities and homes (fire-hardening land and structures)—but not comprehensively enough, and not at a pace that will avert the insurance crisis.⁶ Nor is poor public insurance of last resort an adequate answer.⁷

The necessity of ubiquitously and adequately insuring *all* natural disaster losses could not be more pressing (although it will probably be more pressing as soon as next year, no matter what year a reader is reading this). Aon, an international insurer, estimates that 2019 weather events (defined by Aon as flooding, tropical cyclone, severe weather, drought, wildfire, winter weather, earthquake, and EU windstorm) totaled \$232 billion in economic losses (with slightly over half of insured losses occurring in the United States), which is actually slightly down from the twenty-first century average.⁸ These losses included a 69% global protection gap, meaning the gap between total economic insurable losses and total insured losses.⁹ Forty-one events caused at least \$1 billion in losses, of which a dozen were billion-dollar insured loss events.¹⁰ In the United States, total economic losses were

4. See, e.g., Robert H. Jerry, II, *Managing Hurricane (and Other Natural Disaster) Risk*, 6 TEX. A&M L. REV. 391, 427, 447–52 (2019).

5. See *infra* note 17.

6. See generally Christopher C. French, *America on Fire: Climate Change, Wildfires & Insuring Natural Catastrophes*, 54 U.C. DAVIS L. REV. 817, 841–46 (2020).

7. See generally Arthur Charpentier & Benoit Le Maux, *Natural Catastrophe Insurance: How Should the Government Intervene?*, 115 J. PUB. ECON. 1 (2014); *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, U.S. DEP'T TREASURY (Sept. 2015), <https://home.treasury.gov/system/files/311/Natural%20Catastrophe%20Report.pdf> [<https://perma.cc/ZL8S-Y6QJ>]; Christopher Flavelle, *Can Insurance Protect Us from Climate Change*, N.Y. TIMES, Apr. 21, 2020, at D5 (“The obvious approach might be to let insurance work the way it’s meant to . . . But homeowners vote.”); Chris Lafakis, Laura Ratz, Emily Fazio & Maria Cosma, *The Economic Implications of Climate Change*, MOODY’S ANALYTICS 11 (June 2019), <https://www.moodyanalytics.com/-/media/article/2019/economic-implications-of-climate-change.pdf> [<https://perma.cc/KW66-FX4Y>] (“Every dollar that federal lawmakers appropriate for disaster relief is a dollar that could have otherwise been spent on Social Security, Medicare, national defense, or rebated as a tax cut. Natural disasters drain the federal government of resources and exacerbate the nation’s fiscal situation.”); see also Jim Saunders, *Florida Leaders Try to Tame Soaring Property-insurance Premiums with Reform Bill*, ORLANDO SENTINEL (Apr. 30, 2021, 4:59 PM), <https://www.orlandosentinel.com/business/real-estate/os-bz-property-insurance-changes-florida-20210430-ojpyun2b4jdujehxnzrfxuclq-story.html> [<https://perma.cc/Z8HA-GY6Z>].

8. *Weather, Climate & Catastrophe Insight*, AON 3 (2020), http://thoughtleadership.aon.com/Documents/20200122-if-natcat2020.pdf?utm_source=ceros&utm_medium=storypage&utm_campaign=natcat20 [<https://perma.cc/DKG4-TGR9>].

9. *Id.* at 7; *accord Facts + Statistics: Global Catastrophes*, INS. INFO. INST., <https://www.iii.org/fact-statistic/facts-statistics-global-catastrophes> [<https://perma.cc/5CNG-TMG2>] (last visited July 31, 2021).

10. *Weather, Climate & Catastrophe Insight*, *supra* note 8, at 1.

\$68 billion, of which \$36 billion were insured (again, with 2019 being a better than average year, down by 15% from twenty-first century averages).¹¹ In 2020, the losses in the United States returned to trending up: “Insured losses from major natural catastrophes totaled about \$78 billion . . . [,] the fourth-largest total since 2011 and about 17% higher than the 10-year average of \$66.5 billion”¹² California “fire season” in 2020 essentially was the entirety of the year.¹³ As reported internally within the insurance industry, “2020 set a record for the number of U.S. catastrophic events. The 2020 catastrophes included 19 events with at least \$1 billion in direct insured losses in the United States”¹⁴

Simply put, the frequency, intensity, and economic consequences of natural disasters is bad and getting worse, both globally and domestically.¹⁵ It is a national problem.¹⁶ Insurance is seen as one of a very few possible tools to ameliorate the

11. *Id.* at 37.

12. Matthew Lerner, *Insured Natural Catastrophe Losses Reached \$78B in 2020: Report*, BUS. INS. (Feb. 2, 2021), [https://www.businessinsurance.com/article/20210202/NEWS06/912339524/Insured-natural-catastrophe-losses-reached-\\$78B-in-2020-Report-Willis-Re](https://www.businessinsurance.com/article/20210202/NEWS06/912339524/Insured-natural-catastrophe-losses-reached-$78B-in-2020-Report-Willis-Re) [<https://perma.cc/FB96-G5U5>].

13. *Incidents, CAL. FIRE*, <https://www.fire.ca.gov/incidents/2020/> [<https://perma.cc/N8PH-8CW7>] (last visited July 31, 2021).

14. *P/C Insurers' Net Income for 9 Months Fell 27% on Effects of Catastrophes*, INS. J. (Feb. 9, 2021), <https://www.insurancejournal.com/news/national/2021/02/09/600598.htm> [<https://perma.cc/8967-J2ER>].

15. *See, e.g., Billion-Dollar Weather and Climate Disasters: Overview*, NOAA, <https://www.ncdc.noaa.gov/billions/> [<https://perma.cc/3SX2-EQNG>] (last visited July 31, 2021); Steve Jackson, *Actuaries Climate Risk Index*, AM. ACAD. ACTUARIES ii (Jan. 2020), <https://www.actuary.org/sites/default/files/2020-01/ACRI.pdf> [<https://perma.cc/C844-C86M>]; *Spring 2020 Data Update to the Actuaries Climate Index*, AM. ACAD. ACTUARIES 2, https://actuariesclimateindex.org/wp-content/uploads/2020/11/ACI-Press-Release-Dec-2020-FINAL_EN.pdf [<https://perma.cc/25W9-M3V3>] (last visited July 31, 2021). *See generally* W.J. Wouter Botzen et al., *The Economic Impacts of Natural Disasters: A Review of Models and Empirical Studies*, 13 REV. ENV'T ECON. & POL'Y 167 (2019); Stuart Fraser et al., *The Making of a Riskier Future: How Our Decisions Are Shaping Future Disaster Risk*, GLOB. FACILITY FOR DISASTER REDUCTION & RECOVERY, <https://www.gfdrr.org/sites/default/files/publication/Riskier%20Future.pdf> [<https://perma.cc/4CH2-LEPT>] (last visited Aug. 23, 2021).

16. *See, e.g., Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 57 (“Every region of the United States is vulnerable to natural catastrophes. In general, the number of natural catastrophe events per year and the associated economic losses are increasing and, as a result, attention to natural catastrophe insurance programs has increased as well.”); *2020 Insurance Fact Book*, INS. INFO. INST. 139–43 (2020), https://www.iii.org/sites/default/files/docs/pdf/insurance_factbook_2020.pdf [<https://perma.cc/FT5D-YRDS>]; *see also* Kristina Dahl et al., *Underwater: Rising Seas, Chronic Floods, and the Implications for Coastal Real Estate*, UNION CONCERNED SCIENTISTS 5 (2018), <https://www.ucsusa.org/sites/default/files/attach/2018/06/underwater-analysis-full-report.pdf> [<https://perma.cc/7TS8-69TD>] (“By 2045 . . . nearly 311,000 of today’s residential properties, currently home to more than half a million people, would be at risk of flooding chronically For about 30 communities, properties accounting for more than half of the local property tax base today would be at risk by 2045.”); French, *supra* note 6, at 823 (and sources cited therein).

economic impacts of natural disasters, but at present, in many communities insurance for catastrophe is unaffordable or unavailable.¹⁷

All human activity is subject to degradation by natural catastrophes.¹⁸ Some (not all) of these impacts are insurable, meaning there is a private insurance policy of some type that will cover the loss; the potential coverages are manifold: life, disability, business interruption, health, real property, personal property, automobile, commercial, residential, and workers compensation, among others.¹⁹ This Article confines its focus to insurance to reconstruct an owner-occupied home.

In the twentieth century, privately insuring one's home was not an issue. And for many, it still isn't. Over the past 30 years, homeowner insurance never has accounted for even 1% of average household consumer spending.²⁰ Take-up rates of homeowner insurance, meaning the percentage of possible insureds who actually purchase coverage, always has been above 90% of all homeowners.²¹ A steadily decreasing percentage of homeowners—by 2016, less than one-third—identify homeowner insurance as a financial burden.²²

Perhaps counter-intuitively, natural disasters have not yet overly stressed the profitability of private insurers. At the 2019 Spring National Meeting of the National Association of Insurance Commissioners ("NAIC"), at the same time that a representative of AIR Worldwide²³ presented to the Catastrophe Risk Subgroup that in 2017 and 2018 wildfire losses dwarfed any prior year, Matt Mosher (Chief Operating Officer of AM Best) in his *Comments on Wildfire Risk*, described a financially healthy industry despite the high cost of catastrophe-related, covered losses:

17. See French, *supra* note 6, at 831–38 (and sources cited therein); *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*, CAL. DEP'T INS. 1, 5 (2018), <http://www.insurance.ca.gov/0400-news/0100-press-releases/2018/upload/nr002-2018AvailabilityandAffordabilityofWildfireCoverage.pdf> [<https://perma.cc/NZS7-SYM5>]; *The Potential Impact of Climate Change on Insurance Regulation*, NAIC 4 (2008), https://content.naic.org/sites/default/files/inline-files/cipr_potential_impact_climate_change.pdf [<https://perma.cc/2W3C-CT6X>].

18. See, e.g., Lafakis et al., *supra* note 7, at 4; Carolyn Kousky, *Informing Climate Adaptation: A Review of the Economic Costs of Natural Disasters*, 46 ENERGY ECON. 576, 577–78 (2014).

19. Kousky, *supra* note 18.

20. *2020 Insurance Fact Book*, *supra* note 16, at 213.

21. See *infra* notes 71–72 and accompanying text.

22. *Homeowners Insurance: Understanding, Attitudes and Shopping Practices*, INS. INFO. INST. 3 (Feb. 2017), <https://www.iii.org/sites/default/files/docs/pdf/pulse-wp-020217-final.pdf> [<https://perma.cc/C5XJ-9JCL>].

23. AIR is a wholly owned subsidiary of Verisk, which also is the parent of the ISO. *Form 10-K, Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934*, 4–5 (2020), <http://d18m0p25nwr6d.cloudfront.net/CIK-0001442145/c43067a5-c931-4f62-ae7c-4eefe875abcc.pdf> [<https://perma.cc/MAT4-U8J2>]. The core competency of AIR is modeling catastrophe risk. *Our Story*, AIR, <https://www.air-worldwide.com/about-air/Our-Story/> [<https://perma.cc/L3TQ-RDVS>] (last visited July 31, 2021).

“Gross losses were below state-wide market share modeled estimates.”

“Reinsurance responded appropriately.”

The “vast majority of companies absorbed 2017 & 2018 losses without impact to ratings.”

The “micro-concentration of risks led to a few negative rating actions.”²⁴

Even in the very difficult insurance environment of 2020—a pandemic, civil unrest, near-constant wildfires in the West,²⁵ a derecho in the Midwest that destroyed much of Iowa’s corn crop,²⁶ and a record number of both named storms and over \$1 billion of damage in the East²⁷—Property and Casualty insurance did “surprisingly well,” was profitable, and projected continued profits in 2021.²⁸ That

24. Matt Mosher, *AM Best Comments on Wildfire Risk*, NAIC 8 (Mar. 8, 2019), https://naic-cms.org/sites/default/files/national_meeting/cmte_e_cat_risk_sg_2019_spring_nm_materials.pdf [<https://perma.cc/QBE7-XG44>].

25. *Incidences*, *supra* note 13.

26. *Iowa Derecho Claims Top \$1.6 Billion*, IOWA INS. DIV. (Nov. 9, 2020), <https://iid.iowa.gov/press-releases/iowa-derecho-claims-top-16-billion> [<https://perma.cc/R79J-TRRU>]; Andrea May Sahouri, *\$7.5 Billion and Counting: August Derecho That Slammed Iowa Was Most Costly Thunderstorm in US History, Data Shows*, DES MOINES REG. (Oct. 17, 2020, 5:08 PM), <https://www.desmoinesregister.com/story/news/2020/10/17/iowas-august-derecho-most-costly-thunderstorm-us-history-7-5-billion-damages/3695053001/> [<https://perma.cc/46N9-T4FY>]; Bob Henson, *Iowa Derecho in August Was Most Costly Thunderstorm Disaster in U.S. History*, WASH. POST (Oct. 17, 2020), https://www.washingtonpost.com/weather/2020/10/17/iowa-derecho-damage-cost/?utm_source=I.I.I.+Daily+Newsletter&utm_campaign=f6b9df9f0f-EMAIL_CAMPAIGN_2020_09_28_02_24_COPY_01&utm_medium=email [<https://perma.cc/96MP-J3ME>]; Rod Boshart, *Derecho 2020: Insurance Pays Over \$3 Billion in Derecho Claims to Iowans so Far*, QUAD-CITY TIMES (Aug. 10, 2021), https://qctimes.com/news/state-and-regional/iowal-derecho-2020-insurance-pays-over-3-billion-in-derecho-claims-to-iowans-so-far/article_9ffed592-6d2e-5773-9eb3-b65ae56c7518.html [<https://perma.cc/5DF6-GGAU>].

27. *Record Number of Billion-dollar Disasters Struck U.S. in 2020*, NOAA (Jan. 8, 2021), <https://www.noaa.gov/stories/record-number-of-billion-dollar-disasters-struck-us-in-2020> [<https://perma.cc/MW9Q-EFZY>].

28. Loretta Worters, *Triple-I/Milliman Groundhog Day Report Projects Insurer Growth, Profits in 2021*, INS. INFO. INST.: TRIPLE-I BLOG (Feb. 2, 2021), <https://www.iii.org/insuranceindustryblog/triple-i-milliman-groundhog-day-report-projects-insurer-growth-profits-in-2021/> [<https://perma.cc/N42Z-LALL>]. To put this in more perspective, reinsurance is an important component to the ability and willingness of insurers to insure catastrophe risk. See generally *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 4; Alejandro Drexler & Richard Rosen, *Exposure to Catastrophe Risk and Use of Reinsurance: An Empirical Evaluation for the U.S.*, SPRINGER LINK (Sept. 23, 2020), <https://link.springer.com/article/10.1057/s41288-020-00186-3> (posting by Geneva Ass’n on Risk & Insurance: Issues & Practice for open access). In 2021, Bermuda insurers and reinsurers asserted, “Bermuda is the largest supplier of catastrophe reinsurance to US insurers.” *Why Bermuda*, ASSOC. BERMUDA INSURERS & REINSURERS, <https://www.abir.bm/why-bermuda/> [<https://perma.cc/3UZB-PPHQ>] (last visited Mar. 12, 2021). In 2020,

said, while in the first three quarters of 2020 Property and Casualty insurance remained profitable, net underwriting income (as opposed to income from investment return) dropped 27%.²⁹ Nonetheless, industry observers projected Year 2021 to have continued underwriting profitability.³⁰

But maintaining industry profitability has come at a price to homeowners. In an August 20, 2019 press release entitled *FACT SHEET: Impact of Wildfires on Insurance Non-Renewals and Availability*, the California Department of Insurance (“CDI”) described how, in response to wildfires in 2017, California private fire insurance for homes was becoming unaffordable, if available at all.³¹ In the fall of 2020, the California Insurance Commissioner doubled down on these concerns, convening a “Virtual Investigatory Hearing on Homeowners’ Insurance Availability and Affordability.”³² The Washington Insurance Commissioner discussed catastrophe and its impact on insurance affordability and availability in his opening remarks in his Climate 2020 Summit in October.³³ The Louisiana Insurance Commissioner was quoted in November of 2020 saying he expected homeowner insurance rates to rise 5%–10% because of the year’s hurricane experience.³⁴ In 2021, Floridians faced double-digit insurance premium increases, even in the absence of major storms hitting Florida during the hurricane season of 2020.³⁵ This

“Bermuda’s reinsurance sector was hit by more catastrophe losses than costs from the COVID-19 pandemic” Steve Evans, *Catastrophes Outweigh Pandemic Losses for Bermuda Reinsurers in 2020*, ARTEMIS (Mar. 11, 2021), <https://www.artemis.bm/news/catastrophes-outweigh-pandemic-losses-for-bermuda-reinsurers-in-2020/> [https://perma.cc/Y9GX-U945].

29. *P/C Insurers’ Net Income for 9 Months Fell 27% on Effects of Catastrophes*, *supra* note 14.

30. *Déjà Vu: P/C Insurance Challenges for 2021 Look Much Like 2020’s*, *Says AM Best*, INS. J. (Feb. 25, 2021), <https://www.insurancejournal.com/news/national/2021/02/25/602819.htm> [https://perma.cc/8RHW-LRZ9].

31. *Fact Sheet: Impact of Wildfires on Insurance Non-Renewals and Availability*, CAL. DEP’T INS., http://www.insurance.ca.gov/0400-news/0100-press-releases/2019/upload/nr063_factsheetwildfire.pdf [https://perma.cc/B84E-UR8L] (last visited July 30, 2021).

32. *Invitation to Virtual Investigatory Hearing on Homeowners’ Insurance Availability and Affordability*, CAL. DEP’T INS. 1 (Sept. 16, 2020), <http://www.insurance.ca.gov/01-consumers/200-wrr/upload/Invitation-to-Virtual-Investigatory-Hearing-on-Homeowners-Insurance-Availability-and-Affordability.pdf> [https://perma.cc/6WSZ-NJ33].

33. Washington State Office of the Insurance Commissioner, *Climate Summit 2020 - Opening Remarks: Washington State Insurance Commissioner Mike Kreidler*, YOUTUBE (Oct. 13, 2020), https://www.youtube.com/watch?v=kJan_Nt3uSQ.

34. Thanh Truong, *Homeowners Insurance Rates Could Rise 10% After Disaster-heavy 2020*, 4WWL (Nov. 6, 2020, 11:48 AM) <https://www.wvltv.com/article/news/local/homeowners-insurance-rates-could-rise-10-next-year-after-disaster-heavy-2020/289-290b247b-7524-4b28-9077-8a91bce78d1a> [https://perma.cc/4RDC-BHK6].

35. Suzanne Barlyn, *Florida Consumers ‘Flabbergasted’ as Property Insurers Push for Double-digit Rate Hikes*, REUTERS (Feb. 12, 2021, 4:09 AM), <https://www.reuters.com/article/us-usa-insurance-florida/florida-consumers-flabbergasted-as-property-insurers-push-for-double-digit-rate-hikes-idUSKBN2AC111> [https://perma.cc/X3MJ-AZBD].

phenomenon is being felt in the Midwest as well.³⁶ More and more insurers are shedding entire communities of homes from their portfolios and dramatically raising premiums on others.³⁷ These insurers leave homeowners with no choice but to be uninsured or to purchase public insurance of last resort (which typically has less coverage and higher cost).³⁸ The Insurance Information Institute characterizes this reliance on government programs as an “unsustainable” response to natural disasters.³⁹

This Article describes three recent, smart proposals to resolve the homeowner insurance crisis. In 2018, the CDI published a proposed legislative package addressing affordability by essentially requiring homeowners to build fortified homes, and addressing availability by regulatory oversight to make sure insurers fairly “score” a wildfire risk.⁴⁰ Also in 2018, Professor Howard Kunreuther proposed that states refuse rate filings other than “All Perils” insurance,⁴¹ and that price inequity be resolved through state-funded vouchers.⁴² And in 2020, Professor Christopher French argued that the solution is a government-run, national, undistorted⁴³ All Perils insurance that essentially would be the spiritual homeowner-insurance equivalent of the United Kingdom’s National Health Service.⁴⁴

The challenge of these differing approaches is there is reason for concern about whether any actually can work. The CDI proposal does not address any peril other than fire, and does not offer any reason to believe that mitigation can solve

36. See Khalil Maycock, *What Is a Non-renewal Insurance Notice and Why Do Iowa Homeowners Get Them?*, WE ARE IOWA (Feb. 22, 2021, 10:57 AM), <https://www.weareiowa.com/article/money/iowa-insurance-division-explains-non-renewal-notice-claims-history-impact/524-ac25e8f1-26c6-4204-832f-b1dc87c75fb1> [<https://perma.cc/RUK4-JFQW>].

37. See, e.g., James Bikales, *Can ‘Fire Hardening’ Solve California’s Home Insurance Crisis?*, CAL MATTERS (Dec. 9, 2020), https://calmatters.org/environment/california-wildfires/2020/12/homeowners-insurers-fire-science/?utm_source=I.I.I.+Daily+Newsletter&utm_campaign=107474f209-EMAIL_CAMPAIGN_2020_12_07_02_12_COPY_01&utm_medium=email&utm_term=0_092139a76a-107474f209-122627950 [<https://perma.cc/ZV25-WQ5M>]; accord Howard Kunreuther, *All-Hazards Homeowners Insurance: Challenges and Opportunities*, 21 RISK MGMT. & INS. REV. 141, 145–46 (2018) (describing private insurers pulling out of Florida and California following hurricanes and earthquakes, respectively).

38. See generally *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 14–15, 18–26.

39. *Flood: Beyond Risk Transfer*, INS. INFO. INST. (Apr. 29, 2021), <https://www.iii.org/white-paper/flood-beyond-risk-transfer-042921/> [<https://perma.cc/5TAJ-W2YW>].

40. *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*, *supra* note 17, at 6–11.

41. All Perils insurance is insurance for any weather peril, without exclusion of coverage of, for example, flood or earthquake damage.

42. Kunreuther, *supra* note 37, at 141, 147–52.

43. Undistorted means that cost is averaged across high-risk and low-risk communities, rather than isolating homes for cost purposes into high-risk pools.

44. Cf. French, *supra* note 6, at 817–18.

affordability in high-risk communities. Kunreuther offers no structural mechanism to assure either affordability or availability in high-risk communities. French's proposal gives no guidance or real expectation that it could navigate the political headwinds of an industry that has no wish to be supplanted.

This Article offers a three-point proposal that addresses all these concerns: first, require that an insured who offers homeowner hazard insurance anywhere in a state must offer it everywhere, with no exception—full stop. Second, adopt state rules providing that rate filings⁴⁵ or form filings (proposed allowed insurance forms) for homeowner hazard insurance will not be approved if the insurance would exclude any natural disaster peril from its coverage. Third, adopt state rules providing that rate filings for homeowner hazard insurance will not be approved if the insurance discriminates against homes based on the location of the home.

This architecture is not a flight of fancy; it is politically realistic and recognizes the business necessities of insurance companies. And it structures a private market that protects insurers from price-cutting competitors who either exclude risks or price risk by isolating some communities into high-risk pools. Consequently, All Perils coverage priced in broad, undistorted risk pools becomes a highly profitable product.

Nor is this proposal a panacea. While it will dramatically lower insurance costs for insureds in high-risk communities, it will raise premiums slightly on the rest of insureds. And this is just one of the political pressure points that this proposal will have to navigate.

But in the end, the perfect cannot be the enemy of the good. This proposal would result in insurance that will be affordable everywhere, available everywhere, marketable for insurers, and attractive to homeowners.

Part I of this Article describes the premises on which this Article rests. Part II describes the current landscape (and inadequacies) of privately insuring U.S. homes for catastrophe. Part III describes hints of a solution that come from current market structures. Part IV describes extant proposals to make homeowner insurance for natural catastrophes affordable and available. Part V describes why those proposals likely won't work. Part VI proposes for an architecture that could work. Part VII addresses some anticipated criticisms of the proposal of this Article.

I. THE NECESSARY PREDICATES THAT MUST BE CONSIDERED IN ANY PROPOSED SOLUTION TO AFFORDABILITY/ACCOUNTABILITY

There are three premises that must be accounted for by any proposal to address the crisis in affordability and availability of insurance. Each premise should be obvious and yet sometimes one or both are not considered.

45. A rate filing is any time an insurer defends and seeks state approval to sell a particular insurance-policy type at a particular price.

First, insurers are pulling out of markets only because they cannot operate profitably in those markets.⁴⁶ Insurers are economic actors seeking profit and responding to incentives. In the United States, regulators and legislators should not and cannot force a private insurer to write coverage or to price risk at a loss. But if regulators or legislators construct a market that allows insurers to cover risk affordably and profitably, insurers will do so. It is a tautology that bears repeating occasionally: insurers want to sell as much insurance as they profitably can. Or put another way, there is no need to theorize about the efficacy of a proposed solution to the affordability and availability crisis that rests upon insurer behavior that insurers already can engage in. The market is its own test. If the solution works, then insurers already are doing it. Insurers want to sell insurance.

Second, so long as insurers can have narrow, undistorted risk pools—in other words, separately priced insurance arranged into population cohorts based on levels of risk—“high risk” addresses will not have access to unsubsidized, affordable insurance.⁴⁷ Numerously populated and highly heterogeneous risk pools result in lower premiums for (from an underwriting perspective) high-risk insureds and result in higher premiums for (from an underwriting perspective) low-risk insureds. Just as having affordable, available health insurance for historically unhealthy persons requires a risk pool with high take-up rates by “young healthies,” the affordability of hurricane insurance for Galveston, Texas will be advanced if: (1) Galveston is pooled with Amarillo, Texas and (2) take-up rates in Amarillo are high. But for this same reason, an insurer who does underwrite averaging hurricane risk in Galveston with Amarillo cannot compete. Other insurers will disaggregate Galveston and Amarillo addresses, thus selling to Amarillo cheaper, which will leave the first insurer with no choice but either to stop selling hurricane insurance in Galveston or dramatically raise the cost of insurance in Galveston.

Third, any government restructuring of insurance markets has embedded, potentially controversial political-policy choices. Just as including contraception within the mandated coverages of the Affordable Care Act may simultaneously reflect sound public health policy and controversial political policy, so too will choices about insuring catastrophe, such as mandating that hazard insurance cover flood even though most homes are not in flood plains, reflect sound emergency

46. See, e.g., Amy O'Connor, *Florida's Property Insurance Market Is 'Spiraling Towards Collapse' Due to Litigation: Report*, INS. J. (Jan. 20, 2021), <https://www.insurancejournal.com/news/southeast/2021/01/20/598034.htm> [<https://perma.cc/6F2C-LWX2>] (“As capital and surplus deteriorates, companies lose the flexibility to be able to write additional business . . . that has consequences for the consumer.”); accord Tim Flanagan, *Why Are Insurers Leaving the ACA Marketplace and what does it mean for Obamacare?*, HEALTHCARE RECRUITERS INT’L (Oct. 25, 2016), <https://hcrnetwork.com/insurers-leaving-aca-marketplace-mean-obamacare/> [<https://perma.cc/7D9R-B4Y6>] (“[A]ll three major insurers said they are losing money on the plans”).

47. See generally *Risk Pooling: How Health Insurance in the Individual Market Works*, AM. ACAD. ACTUARIES, <https://www.actuary.org/content/risk-pooling-how-health-insurance-individual-market-works-0> [<https://perma.cc/5HDX-AV45>] (last visited July 31, 2021) (describing the dynamics of distorted and undistorted risk pooling in the context of the ACA); accord *Issue Brief: Using High-Risk Pools to Cover High-Risk Enrollees*, AM. ACAD. ACTUARIES, <https://www.actuary.org/content/using-high-risk-pools-cover-high-risk-enrollees> [<https://perma.cc/W6MC-WJQ9>] (last visited July, 31, 2021).

planning policy but controversial political policy. Just as it may be politically controversial to mandate community pricing in health insurance that results in a healthy 20-year-old individual paying for some of the risk of an 80-year-old cancer patient, so too will it be politically controversial to price flood insurance so that some part of the cost of insuring luxury vacation homes on the coast is shared by homeowners insuring modest family homes far inland.

Any proposed solution to homeowner insurance affordability and availability should either debunk or account for all three of these premises.

II. THE CURRENT LANDSCAPE OF PRIVATELY INSURING U.S. HOMES FOR CATASTROPHE

Any proposal to reform the U.S. markets for private homeowner insurance must account for what insurance homeowners currently have and why they have it. In the current private homeowner insurance market, most but far from all owner-occupied homes are required by a mortgage to carry insurance for catastrophe loss. The vast majority of those insurance policies routinely exclude flood and earthquake from covered peril. In broadest summary, roughly one-third of American homeowners have a choice whether to insure for fire and wind, ninety percent or more of homeowners have a choice whether to insure for flood, and essentially all homeowners have a choice whether to insure for earthquake. Voluntary take-up rates differ by peril. Understanding those differences is the foundation of remediating them.

A. What Perils Are Insured

In the United States, homeowner insurance generally defines coverage for catastrophe loss through the use of one of a handful of Insurance Services Office (“ISO”) policy forms.⁴⁸ The HO-3 Special Form “is the most commonly purchased type of homeowner policy, accounting for 81.9% of all owner-occupied exposures countrywide in 2012.”⁴⁹ The HO-3 Special Form covers all perils except “flood, earthquake, war, nuclear accident, intentional loss, collapse, mold, wear and tear, seepage, settling, and other perils specifically excluded.”⁵⁰ Put simply, standard homeowner insurance covers fire and wind but not flood or earthquake.⁵¹

48. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 15–16.

49. *Id.* at 16 (citation omitted).

50. *Id.* at 17 (italics deleted from original).

51. See, e.g., Cassandra Stephenson, *Who Pays for Flood Damage? Most Middle Tennesseans Don't Have Flood Insurance.*, NASHVILLE TENNESSEAN (Mar. 30, 2021, 1:52 PM), <https://www.tennessean.com/story/money/2021/03/30/nashville-flood-most-standard-insurance-policies-dont-cover-floods/7051238002/> [<https://perma.cc/X63A-SA8X>] (“Unfortunately, a lot of renters, a lot of homeowners assume that they are fully protected for all losses, but flood is always a separate coverage — it’s always a separate policy,” Mark Friedlander, spokesperson for the Insurance Information Institute, said . . . ‘More than 95% of homeowners in the greater Nashville area do not have flood coverage,’ Friedlander said. Nationally, about 85% of U.S. homeowners are not protected against flood damage, though about 90% of natural disasters in the country involve flooding.”). And things might one day

There can be profound coverage implications to the coverage exclusion of flood and earthquake. By its terms, standard hazard insurance typically will allow an insured to opt for a coverage limit of the dwelling structure that describes the estimated full reconstruction cost (plus endorsements to cover the cost of intervening changes in building codes and possible post-disaster demand surge pricing), the loss of personal property, damage to landscaping and other structures, and alternative living expenses during the period the insured has lost the ability to live in the dwelling.⁵² Put another way, if a home is lost due to a covered peril, then the basic and intended design of a standard homeowner insurance with replacement coverage, in broad strokes, promises to fund the replacement of the home, the replacement of the stuff that was in the home, much of the cost of the replacement of things like landscaping and fencing outside of the home, and the cost of the homeowner living elsewhere while the home is being rebuilt.

Flood insurance policies are less generous by design. Virtually all flood insurance is through the federal National Flood Insurance Program (“NFIP”). In the United States in 2018 there were 5,037,266 total NFIP policies (either directly written or under a private insurer’s name) representing \$1.327 trillion of insurance in force, while by contrast the total of direct written premiums for *all* private insurers that year was \$540,875.⁵³ NFIP coverage for the reconstruction of the dwelling is capped at \$250,000.⁵⁴ Personal property loss also is covered and is capped at \$100,000.⁵⁵ There is no coverage for building code changes,⁵⁶ alternative living expenses (the cost of the homeowner living elsewhere while the home is being rebuilt), or landscaping losses (replacing the fences, trees, etc., outside of the house).⁵⁷

get even worse for the homeowner. In the summer of 2019, the Oregon Division of Financial Regulation solicited input of the “recent trend[]” of “[s]ome homeowners’ . . . liability filings” that contained proposed “exclusions for losses resulting from wildfires . . . defined broadly . . .” E-mail from Alex Cheng, Senior Pol’y Analyst, Or. Dep’t of Consumer & Bus. Servs., to Author (June 17, 5:08 PM) (on file with author). The ODFR has rejected the filings, but that does not close the matter forever.

52. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 29.

53. *Facts + Statistics: Flood Insurance*, INS. INFO. INST., <https://www.iii.org/fact-statistic/facts-statistics-flood-insurance#Private%20Flood%20Insurance,%202016-2019> [<https://perma.cc/22J6-5MAH>] (last visited July 31, 2020). An exemplar of an NFIP policy can be found at: https://www.fema.gov/pdf/nfip/manual201205/content/15_policy.pdf [<https://perma.cc/CQM6-ZDVK>].

54. *National Flood Insurance Program Answers to Questions About the NFIP*, FEMA 4 (Dec. 2020), https://www.fema.gov/sites/default/files/2020-05/f084_atq11aug11.pdf [<https://perma.cc/N2NE-NDEX>].

55. *Id.*

56. Reconstruction beyond the home as it was built, where building codes have changed since the original construction and so now, to be code compliant, a different house needs to be built.

57. *National Flood Insurance Plan Summary of Coverage*, FEMA 4-5 (Aug. 2020), https://www.fema.gov/sites/default/files/2020-09/fema_nfip-summary-coverage_jul2020.pdf [<https://perma.cc/U8J9-DYP3>].

Earthquake insurance, at least in California, is not less generous than standard hazard insurance, but it is a lot more expensive. It is difficult to know what percentage of earthquake insurance is private insurance or what that private insurance looks like nationally, but in California, almost all earthquake insurance is through public insurance programs such as the California Earthquake Authority.⁵⁸ Earthquake coverages look very much like those of a standard hazard homeowner policy but with higher premiums and higher deductibles.⁵⁹

There is wide variability of voluntary take-up rates between flood and earthquake insurance, on the one hand, and standard hazard insurance, on the other hand. Ideally, there would be broad take-up of flood insurance, because flooding is “the most common, destructive, and costly form of natural catastrophe in the United States.”⁶⁰ In 2019, the aggregate estimated reconstruction costs of single-family residential homes at risk from storm surge in Gulf and Atlantic states totaled about \$1.8 trillion.⁶¹ Through 2019, eight of the ten costliest disasters on record have been hurricanes, with the other two being the September 11 terrorist attacks (not a natural disaster) and the 1994 Northridge, California earthquake.⁶² According to the Insurance Information Institute (“I.I.I.”):

Insured losses from hurricanes rose in the past 15 years as hurricane activity has intensified. When adjusted for inflation and after losses are tallied for the 2017 and 2018 hurricanes, nine of the 10 costliest hurricanes in U.S. history have struck since 2004. In addition to the increase in storm activity, construction along both the Gulf Coast and East Coast has continued to develop, and property values have increased, resulting in higher loss exposure.⁶³

Yet as of 2019, only 10–14% of owner-occupied homes in the United States were insured for flood.⁶⁴ And 40% of owner-occupied homes insured for flood are required to have flood insurance,⁶⁵ meaning less than 10% of owner-occupied homes are explicitly, voluntarily insuring for floods.

58. *Earthquake Insurance*, CAL. DEP’T INS., <http://www.insurance.ca.gov/01-consumers/105-type/95-guides/03-res/eq-ins.cfm#basicearthquake> [<https://perma.cc/7Z7C-YJ68>] (last visited Aug. 23, 2021) (“The California Earthquake Authority (CEA) provides most earthquake insurance in California.”).

59. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 38–40. See generally CAL. EARTHQUAKE AUTH., <https://www.earthquakeauthority.com/> [<https://perma.cc/5CQ6-4468>] (last visited July 31, 2021) (showing that earthquake insurance looks very much like a standard hazard homeowner policy).

60. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 27.

61. *2020 Insurance Fact Book*, *supra* note 16, at 101.

62. *Id.* at 146.

63. *Id.* at 147.

64. *Facts + Statistics: Flood Insurance*, *supra* note 53; *Homeowners Insurance: Understanding, Attitudes and Shopping Practices*, *supra* note 22, at 5.

65. See Sarah Strochak et al., *Too Many Homeowners Lack Flood Insurance, but Many Buy It Voluntarily*, URB. INST. (Sept. 18, 2018), <https://www.urban.org/urban-wire/too->

While it is unknown precisely what percentage of homeowners required to have flood insurance would have voluntarily insured otherwise, adverse selection theorists would predict the answer to be “lots.” The facts on the ground belie this prediction. Outside of Special Flood Hazard Areas (areas where flood insurance is required to get a federally backed mortgage), “very few properties have a flood policy, even in areas at risk of flooding.”⁶⁶ Even after a major flood, voluntary take-up rates of flood insurance typically only increase by 1.5%.⁶⁷ All of this suggests that voluntary take-up rates of flood insurance probably run slightly less than 10%.

Earthquake insurance rarely is mandated.⁶⁸ The CEO of the California Earthquake Authority is quoted as saying only 10% of Californians have earthquake insurance.⁶⁹ Nationally the figure is 7%–8%.⁷⁰ When Mary Kelly, Steven Bowen, and Glenn McGillivray studied why take-up rates of earthquake insurance are so dismal (in the United States, in contrast to Canada), they concluded that the likely explanation was something unique to the American psyche and attitudes about freedom and government.⁷¹

However, standard hazard homeowner insurance is a horse of a different color. In broadest terms, more than 90% of American homeowners have basic homeowner hazard insurance. The public-facing data of the I.I.I. reports that 95% of owner-occupied homes have homeowner insurance.⁷² Marian Sassian, I.I.I.’s Research Director, reports that in the fall of 2018, 91% of homeowners said they had homeowner insurance, down slightly from 93% in 2016 and trending down since 2011 when the figure was 97%.⁷³

many-homeowners-lack-flood-insurance-many-buy-it-voluntarily [https://perma.cc/6JXT-BT94] (citing 2017 American Housing Survey Data, U.S. CENSUS BUREAU (Sept. 6, 2018), <https://www.census.gov/newsroom/press-releases/2018/ahs.html> [https://perma.cc/Z5R3-R4M3]) (“Nationally, 40 percent of those who have flood insurance purchased it because it was required and 60 percent purchased it voluntarily.”).

66. Carolyn Kousky et al., *Flood Risk and the U.S. Housing Market*, 29 J. HOUS. RSCH. S3, S9 (2020).

67. *Id.* at S10–11; see Craig E. Landry et al., *Willingness to Pay for Multi-Peril Hazard Insurance* 21 (July 28, 2020) (unpublished manuscript), <https://ssrn.com/abstract=3662668>.

68. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 38 (citation omitted).

69. Nick Miller, *Only 10 Percent of California Homes Are Covered By Earthquake Insurance*, EMPIRE KVCR (July 9, 2019 11:49 AM), <https://www.kvcrnews.org/post/only-10-percent-california-homes-are-covered-earthquake-insurance#stream/0> [https://perma.cc/X4B3-NHEU].

70. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 39 fig.9; *Homeowners Insurance: Understanding, Attitudes and Shopping Practices*, *supra* note 22, at 6.

71. Mary Kelly et al., *The Earthquake Insurance Protection Gap: A Tale of Two Countries*, 39 J. INS. REG. 1, 22, 28 (2020).

72. Claire, *How Many Homes are Insured? How Many are Uninsured?*, INS. INFO. INST.: TRIPLE-I BLOG (Jan. 29, 2016), <https://www.iii.org/insuranceindustryblog/how-many-homes-are-insured-how-many-are-uninsured/> [https://perma.cc/K5PN-JL4E].

73. E-mail from Maria Sassian, Research Dir., Ins. Info. Inst., to Author (May 29, 2020, 9:58 AM) (on file with author).

B. Theories of Variable Voluntary Take-Up Rates of Insured Perils

The common explanation for the dramatically higher take-up rates of standard hazard insurance is that Federal National Mortgage Association (FNMA) and Federal Home Loan Mortgage Corporation (FHLMC) compliant mortgages require standard homeowner insurance.⁷⁴ But from 2011–2018, only 59%–66% of homes had a mortgage or line of credit (averaging 63% without a steady trend equivalent to that of I.I.I. calculations of take-up rates of standard hazard insurance).⁷⁵ In other words, while it appears that, given the choice, only 9%–10% of U.S. homeowners choose to have flood insurance and only 7%–8% of U.S. homeowners choose to have earthquake insurance, 73.5%–87.8% of U.S. homeowners choose to have standard hazard insurance.

Perhaps the most intuitive explanation for this differential in take-up rates is that for most American homeowners, flood and earthquake insurance seems an over-priced product protecting against an unlikely to occur risk. Or put in the jargon of an economist, the differential in take-up rates is the result of self-selecting behaviors by homeowners based on either their perceived risk of incurring the peril (adverse selection⁷⁶) or their interest in buying insurance waning quickly as price increases (price elasticity⁷⁷).

The template to study this intuitive explanation is the NFIP. While adverse selection behaviors cannot exist when flood insurance is required (some mortgages require a home to have flood insurance), flood insurance remains relatively expensive, and voluntary take-up rates are consistent with adverse selection behaviors.⁷⁸ Kunreuther summarizes the problem:

On the demand side empirical evidence reveals why homeowners have been reluctant to protect themselves against low probability-high consequence events, such as natural disasters, unless they are required to do so. On the supply side there are clear reasons why the insurance industry has been reluctant to actively promote this

74. See Kenneth S. Klein, *When Enough Is Not Enough: Correcting Market Inefficiencies in the Purchase and Sale of Residential Property Insurance*, 18 VA. J. SOC. POL'Y & L. 345, 351 (2011).

75. *American Housing Survey*, U.S. CENSUS BUREAU, https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=00000&s_year=2011&s_tablename=TABLE14A&s_bygroup1=19&s_bygroup2=1&s_filtergroup1=2&s_filtergroup2=1 (last visited July 31, 2021) (click “Get Table” to generate table for 2011; to generate table for 2013, choose 2013 in “Select Year” dropdown menu and click “Get Table;” repeat for 2015 and 2017).

76. See, e.g., Paul Hudson et al., *Adverse Selection and Moral Hazard in Natural Disaster Insurance Markets: Empirical Evidence from Germany and the United States*, 93 LAND ECON. 179, 179–80 (2017).

77. See, e.g., Ajita Atreya et al., *What Drives Households to Buy Flood Insurance? New Evidence from Georgia*, 117 ECOLOGICAL ECON. 140 (2015).

78. See *Flood Insurance Coverage of Federal Housing Administration Single-Family Homes*, HUD v–vii, 20–27, 40 (March 30, 2020) (stating that homes not in a Special Flood Hazard Area are less likely to have flood insurance; homes within 600 meters of SFHA had insurance take-up rates more similar to homes further away rather than homes within SFHA).

type of coverage [volume of likely business is low, volume of new business is very low, and most acquired business is self-selected for risk].⁷⁹

In a similar vein, the Federal Insurance Office of the U.S. Department of the Treasury (“FIO”) finds: “The location of the NFIP-insured property is among the most important underwriting factors affecting the premium charged.”⁸⁰ The FIO further describes:

Homeowner insurers manage exposures to natural catastrophe risks in a variety of ways. One strategy used by insurers is to decrease exposure to risk of loss in areas that are subject to natural catastrophes. Insurers decrease exposure to the risk of loss by imposing moratoria on any new business in certain geographic markets or by exiting a market completely. For example, in 2009, one insurer ceased writing new business in Florida and in the same year non-renewed 11,000 homeowner insurance policies in five coastal counties located in Texas. In 2011, another insurer announced that it was exiting the Florida market due to the risk of natural catastrophes. The ease with which insurers can enter and exit a market varies by state. For example, some states require notice regarding an insurer’s withdrawal to be given to the state insurance regulator 180 days prior to the withdrawal.

Insurers also respond to increased risk in the homeowner insurance market through coverage exclusions and special deductibles. For example, most homeowner insurance policies exclude losses associated with earthquakes and flooding. In addition, although included in homeowner insurance policy provisions since the 1990s, concurrent causation clauses have been the subject of much debate following both Hurricane Katrina and Superstorm Sandy. At times, a covered peril (such as wind) may combine with an excluded peril (such as earth movement) to cause damage to a home; this is referred to as concurrent causation. Unless prohibited by state law, an insurer typically includes anti-concurrent causation clauses in homeowner insurance policies to limit the insurer’s liability for losses caused by excluded perils.⁸¹

79. Howard Kunreuther, *Causes of Underinsurance Against Natural Disasters*, 9 GENEVA PAPERS ON RISK & INS. 206, 219 (1984); see also Howard Kunreuther & Mark Pauly, *Neglecting Disaster: Why People Don’t Insure Against Large Losses*, 28 J. RISK & UNCERTAINTY 5 (2004). But see Celine Grislain-Letrémy, *Natural Disasters: Exposure and Underinsurance*, 129 ANNALS ECON. & STAT. 53, 53 (2018).

80. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, supra note 7, at 31.

81. *Id.* at 18 (footnotes omitted).

The bottom line is that for low take-up perils insurance—flood and earthquake—the cost is high, and the coverage may be inadequate (for example, the NFIP caps available coverage at \$250,000⁸²).

Further, forcing insurers to write coverage for high-risk insureds is no solution. The way public insurance can fail as a cost-control or availability mechanism is dramatically illustrated by the experience of auto insurance in New Jersey in the 1980s, as described by the New Jersey Supreme Court in *State Farm Mutual Automobile Insurance Co. v. State*.⁸³ For many years, New Jersey “faced an intractable problem of providing coverage for high-risk drivers.”⁸⁴ In 1983, the State passed a law requiring all insurers writing auto coverage in the State to write for high-risk drivers too in a pool called the Joint Underwriting Association (“JUA”), and JUA insurance had to be priced at the same price as for the general population.⁸⁵ The idea was that the general population of drivers would partially subsidize high-risk drivers, with the rest of the cost being covered by the State.⁸⁶ The result: “by 1988 over 50% of New Jersey drivers had to be insured by the JUA . . . [and] the JUA . . . accumulated a deficit of over \$3.3 billion in unpaid claims and other losses.”⁸⁷ Trying to force insurers to insure just is not good for anyone.

That said, it of course bears noting that homeowners are *not* reluctant to insure against hazards generally—at least 75% voluntarily do so. In other words, behavior in standard hazard insurance belies the explanation of adverse selection (or, for that matter, moral hazard).⁸⁸

What about price elasticity? The data belie this as well.⁸⁹ Once a homeowner has decided to buy, there is evidence that the homeowner will seek to fully insure. Collier and Ragin find that of homeowners who had the option to fully insure, under-insure, or over-insure, 79.55% of homeowners are either fully insured or over-insured.⁹⁰ I.I.I. surveys find, “most policyholders do not comparison shop for homeowner[s] insurance when it’s time to renew their policy.”⁹¹

In the end, there may be a variety of explanations for the high voluntary take-up rates of standard homeowner insurance. Perhaps homeowners who once were forced to buy standard hazard insurance continue to do so when the mandate is removed. Data from the most recent American Housing Survey of the U.S. Census

82. *National Flood Insurance Program Answers to Questions About the NFIP*, *supra* note 54, at 4.

83. *State Farm Mut. Auto. Ins. Co. v. State*, 590 A.2d 191 (N.J. 1991).

84. *Id.* at 195.

85. *Id.* at 195–96.

86. *Id.* at 196.

87. *Id.*

88. Peter Siegelman, *Adverse Selection in Insurance Markets: An Exaggerated Threat*, 113 *YALE L.J.* 1223 (2004).

89. Atreya et al., *supra* note 77.

90. See Benjamin L. Collier & Marc A. Ragin, *The Influence of Sellers on Contract Choice: Evidence from Flood Insurance*, *WHARTON* 12, tbl.3 (Sept. 17, 2018), https://riskcenter.wharton.upenn.edu/wp-content/uploads/2019/01/CollierRagin_Influence-of-Sellers-on-NFIP-contract-choice.pdf [<https://perma.cc/KVH9-AM2X>].

91. *Homeowners Insurance: Understanding, Attitudes and Shopping Practices*, *supra* note 22, at 13.

Bureau suggest that as of 2017, only 8.5% of owner-occupied homes were purchased outright, suggesting 91.5% of homes initially were purchased with some sort of mortgage.⁹² That is a remarkably similar number to total take-up rates of standard hazard insurance. One might call this a sort of “Netflix effect”—people pay for the service long after they stop watching the shows.⁹³ Or perhaps having purchased insurance for many years, homeowners simply see it as a good buy. Misperception may be another explanation for the contrasting voluntary take-up rates of standard hazard insurance and flood and earthquake insurance. Survey data indicate that “43% of homeowners incorrectly believe damage from heavy rain flooding is covered under their standard insurance policy,” 28% think hurricane storm surge is covered, and 29% think earthquake is covered.⁹⁴ But consistent with the “Netflix effect” explanation is that “many landlords do require their tenants to purchase renters insurance,” and while the requirement is “not consistently mandated” and is “banned or limited in some states and cities,” the take-up rates of renters insurance steadily rose from 29% in 2011 to 57% in 2020.⁹⁵

Whatever the explanation, it is patent that roughly two-thirds of U.S. homeowners are required to have basic hazard insurance, and three-quarters or more of the rest choose to buy it.

III. HINTS OF A SOLUTION

The experience of current insurers in the wake of natural disaster gives hints of a solution.

Catastrophes are so-called “fat-tailed” events (the most likely version of the event is the least costly, and the least likely is the most costly) involving “correlated losses” (when the really bad version happens, it happens to many people all at once) making them difficult to insure (meaning hard to price in a way that makes the price attractive in a non-event year and yet builds sufficient capital to adequately insure in an event year).⁹⁶ Think of it this way: given the unlikelihood

92. *American Housing Survey (AHS)*, U.S. CENSUS BUREAU, https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=00000&s_year=2017&s_tablename=TABLE13&s_bygroup1=1&s_bygroup2=1&s_filtergroup1=1&s_filtergroup2=1 (last visited July 31, 2021) (click “Get Table”).

93. If there is a Netflix-like indoctrination effect going on, then there are no data on what percentage of homeowners would have voluntarily purchased homeowner insurance in the absence of this form of indoctrination. The answer perhaps would look like the experience of earthquake and flood insurance: 7%–10%. But since over 90% of first-time homebuyers do have a mortgage, this is purely hypothetical, counter-narrative speculation.

94. *Homeowners Insurance: Understanding, Attitudes and Shopping Practices*, *supra* note 22, at 2, 6, 9.

95. *Id.* at 4; 2020 *Triple-I Consumer Poll*, INS. INFO. INST. 11 (Sept. 2020), https://www.iii.org/sites/default/files/docs/pdf/2020_triple-i_consumer_poll_091620.pdf [<https://perma.cc/A9ZX-3RYM>].

96. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 6 (citing Tristan Nguyen, *Insurability of Catastrophe Risks and Government Participation in Insurance Solutions*, PREVENTIONWEB (2013), <http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Nguyen,%202012.pdf> [<https://perma.cc/YJP7-JP3A>]; Carolyn Kousky, *Managing the Risk of*

that a storm of sufficient magnitude ever will destroy any particular Jacksonville, Florida, semi-inland home, a Jacksonville homeowner who doesn't live quite close to the water might only voluntarily buy flood insurance if it was cheap. But given that the insurer knows that in the unlikely event such a storm occurs that it could destroy hundreds of semi-inland Jacksonville homes all at once, the insurance cannot profitably be priced cheaply.⁹⁷

The challenge is illustrated by the 2011 work of Kunreuther, Michel-Kerjan, and Ranger, who explored “the potential implications of climate change for the availability and affordability of insurance in the world’s largest insurance market, the USA, focusing on wind-related property insurance in Florida.”⁹⁸ They found:

[T]he total price of insurance for Florida (assuming constant exposure) could increase significantly by 2040, from \$12.9 billion (in 1990) to \$14.2 billion, under hard market conditions. Under the lower bound projection, premiums could decline to \$9.4 billion by 2040. Taking a broader range of climate change scenarios, prices could be between \$4.7 and \$32.1 billion by 2040. The upper end of this range could suggest that insurance becomes unaffordable for many people in Florida. Adaptation significantly reduces losses and premiums under all scenarios and extends the amount of coverage that could be provided by the private insurance market. The implementation of loss reduction measures and provision of reinsurance against catastrophic losses can increase the availability of insurance in Florida and make it more affordable to residents of the state even under a high loss climate change scenario.⁹⁹

Price also can be driven down by diverse, populated, and undistorted risk pools. In some communities, for example, an effective response to the high cost of flood insurance has been to have community rating models (requiring insurance providers to offer insurance policies within a given territory at the same price without regard to otherwise differentiating underwriting factors) trigger more aggressive risk-spreading; this model results in price reductions greater than 40%.¹⁰⁰

Natural Catastrophes: The Role and Functioning of State Insurance Programs, RES. FOR FUTURE 2 (Sept. 22, 2010), <https://www.rff.org/publications/working-papers/managing-the-risk-of-natural-catastrophes-the-role-and-functioning-of-state-insurance-programs/> [<https://perma.cc/HMZ2-KXLH>].

97. See generally French, *supra* note 6, at 831–32 (and sources cited therein).

98. Howard Kunreuther et al., *Insuring Climate Catastrophes in Florida: An Analysis of Insurance Pricing and Capacity under Various Scenarios of Climate Change and Adaptation Measures*, RESEARCHGATE 2 (July 2011), https://www.researchgate.net/publication/228536886_Insuring_climate_catastrophes_in_Florida_an_analysis_of_insurance_pricing_and_capacity_under_various_scenarios_of_climate_change_and_adaptation_measures.

99. *Id.* at 14–15.

100. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 33.

But in a competitive market without the requirement of community pricing, homeowners will be driven into public or quasi-public products of last resort. Even in populous California, policies such as the California Fair Access to Insurance Requirements (“FAIR”) Plan¹⁰¹ increasingly are the only available fire insurance for homeowners in high-risk areas.¹⁰²

What does this mean? The CDI estimates 3.6 million California homes are in the wildland-urban interface.¹⁰³ Zillow estimates that nearly half a million homes in California are at high or very high fire risk.¹⁰⁴ CoreLogic notes 400,000 homes at extreme fire risk just in the metropolitan areas of Los Angeles, Riverside, San Diego, Sacramento, and San Francisco.¹⁰⁵ I.I.I. and Verisk Analytics put that number at greater than two million homes statewide.¹⁰⁶ By any measure that’s a lot of homes, and homeowners are finding that, in the markets as currently structured, private homeowner insurance is or soon will be unavailable or unaffordable.

Kunreuther argues that private insurers should have an interest in promoting an all-hazards policy.¹⁰⁷ Kunreuther argues that all-hazards coverage (or what is referred to in this Article as All Perils) avoids post-event litigation over whether the cause of loss is covered or excluded, and all-hazards coverage results in risk “diversified across hazards and thus reduces the variance of losses via the law of large numbers.”¹⁰⁸ It is unclear whether, in the insurance markets as currently structured, private insurers lack enthusiasm for selling all-hazards policies, homeowners lack enthusiasm for buying all-hazards policies, or both. What is clear is that all-hazards insurance is not prevalent in the market.¹⁰⁹ Consequently, government has had to step into the breach with FAIR Plans, the NFIP, and the

101. Insurance of last resort for homeowners who cannot find fire insurance for their dwelling. See *About FAIR Plan*, CAL. FAIR PLAN PROP. INS., <https://www.cfpnet.com/about-fair-plan/> [<https://perma.cc/WHT3-M5Q2>] (last visited July 31, 2021).

102. *Fact Sheet: Impact of Wildfires on Insurance Non-Renewals and Availability*, *supra* note 31.

103. *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*, *supra* note 17, at 1.

104. Sydney Price, *Nearly 500,000 California Homes at High or Very High Fire Risk*, BLOOMBERG BUS. (July 26, 2019), <https://www.bloomberg.com/news/articles/2019-07-26/nearly-500-000-california-homes-at-high-or-very-high-fire-risk>.

105. *2019 CoreLogic Wildfire Risk Report Highlights U.S. Wildfire Vulnerability, Finding Nearly 776,000 Homes at Extreme Risk of Wildfire Damage this Year*, CORELOGIC (Sept. 12, 2019), <https://www.corelogic.com/news/2019-corelogic-wildfire-risk-report-highlights-us-wildfire-vulnerability-finding-nearly-776000-homes-at-extreme-risk-of-wildfire.aspx> [<https://perma.cc/W8KB-DWU5>].

106. *More Than 2 Million California Homes Exposed to High Wildfire Danger*, AER (2012), <https://www.aer.com/news-events/press-releases/2012/more-2-million-california-homes-exposed-high-wildfire-danger/> [<https://perma.cc/NK8T-F9GR>].

107. Kunreuther, *supra* note 37 (citing HOWARD C. KUNREUTHER ET AL., INSURANCE AND BEHAVIORAL ECONOMICS: IMPROVING DECISIONS IN THE MOST MISUNDERSTOOD INDUSTRY 20–23 (2013)).

108. *Id.*

109. See *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 3–4, 15–48.

like.¹¹⁰ These products become exemplars of the challenges of insuring fat-tailed, correlated-loss risks. The products have high prices and low take-up rates,¹¹¹ and therefore fail to realize the price efficiencies (risk-spreading) only available if insurance is ubiquitous among a broad, undistorted risk pool. “[E]ither because of political pressure [public, last resort insurance products] are actuarially unsound and end up creating a continuing liability to governments, or in failing to price individual risks correctly they encourage property development in risky locations”¹¹²

The clearest route to an affordable price is community rating of “all perils” insurance. “By bundling hazards in a single policy, property owners are likely to perceive the risk to be sufficiently high that they will want to purchase coverage prior to experiencing a disaster.”¹¹³ Conversely, non-renewal frequency in the wake of mass loss events indicates the mechanics and incentives of geographic and risk segmentation.¹¹⁴ This all suggests that a solution would be public All Perils insurance, if it were both politically and actuarially possible (it apparently is not),¹¹⁵ or otherwise restructuring private markets to promote something akin to community pricing in health insurance.¹¹⁶

But this solution only works if an insurer can sell it, which an insurer cannot do so long as the insurer will be price-cut by its competitors.

IV. EXTANT PROPOSALS TO MAKE HOMEOWNER INSURANCE FOR NATURAL CATASTROPHES AFFORDABLE AND AVAILABLE

A. California’s Proposal for Legislative Reform of Homeowner Insurers and Ratemaking

In 2018, the CDI published *The Availability and Affordability of Coverage for Wildfire Loss in Residential Property Insurance in the Wildland-Urban Interface*

110. *Id.*

111. See, e.g., Andrew Blankstein & Monica Alba, *Why Do So Few California Homeowners Have Earthquake Insurance?*, NBC (Oct. 17, 2014, 6:28 AM), <https://www.nbcnews.com/news/investigations/why-do-so-few-california-homeowners-have-earthquake-insurance-n227711#:~:text=Premiums%20for%20earthquake%20insurance%20range,the%20counties%20most%20at%20risk> [<https://perma.cc/39ZR-M9WK>]; Mark Andrew Boyer, *Is Earthquake Insurance Worth the Cost?*, UNITED POLICYHOLDERS (June 14, 2010), <https://uphelp.org/is-earthquake-insurance-worth-the-cost/> [<https://perma.cc/CUP2-AFZ8>]; Les Christie, *3 Reasons Why Californians Shun Quake Insurance*, CNN (Aug. 27, 2014, 12:35 PM), <https://money.cnn.com/2014/08/25/pf/insurance/earthquake-insurance-cost/index.html> [<https://perma.cc/5DZJ-P3W4>].

112. John McAneney et al., *Government-Sponsored Natural Disaster Insurance Pools: A View from Down-Under*, 15 INT’L J. DISASTER RISK REDUCTION 1, 7 (2016); see also Justin R. Pidot, *Coastal Disaster Insurance in the Era of Global Warming: The Case for Relying on the Private Market*, SSRN 1 (Apr. 28, 2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1695697.

113. Kunreuther, *supra* note 37.

114. *Fact Sheet: Impact of Wildfires on Insurance Non-Renewals and Availability*, *supra* note 31.

115. See generally John McAneney et al., *supra* note 112, at 4–5.

116. See generally French, *supra* note 6, at 833 (citing Nat’l Fed’n of Indep. Bus. v. Sebelius, 567 U.S. 519, 548 (2012)).

*and Other High-Risk Areas of California: CDI Summary and Proposed Solutions.*¹¹⁷ The proposal outlined “legislative concepts” the CDI believed were “necessary” to address the issues of affordability and availability.¹¹⁸

To address availability, the CDI proposed that any insurer wishing to offer homeowner insurance anywhere in California must either also offer it in high fire-risk areas to homes that meet specified mitigation protocols or offer supplemental insurance to the California FAIR Plan to add the coverages the FAIR Plan lacks:

An insurer admitted to transact fire insurance would agree to offer, issue, or renew a “policy of residential property insurance” for reasons relating to the risk of fire loss on property located within “state responsibility areas,” . . . if the property meets specific mitigation and defensible-space criteria and any other underwriting guidelines relating to the peril of fire that have a substantial relationship to the risk of fire loss, which guidelines would be approved by the Insurance Commissioner An insurer admitted to transact fire insurance may refuse to offer, issue, or renew a “policy of residential property insurance” for reasons relating to the risk of fire loss on property located within “state responsibility areas,” . . . if the insurer instead offers the applicant or insured a “difference in conditions” insurance policy and/or a “premises liability” insurance policy A “premises liability” policy is one that covers bodily injury and property damage suffered by others in connection with the property, including personal liability coverage and medical-payment coverage. The premises-liability policy offered by the insurer must be at least as broad as the liability portion of coverage offered by that insurer under its homeowners’ insurance coverage.¹¹⁹

In order to reduce the frequency of an insurer declining to renew coverage or dramatically increasing premiums in order to renew, the CDI proposed a process for homeowners to appeal and get the CDI involved in an insurer’s underwriting decisions.¹²⁰

Finally, to address affordability, the CDI proposed three reforms. First, the CDI proposed premium subsidies from the State: “A property insured under a policy of residential property insurance is eligible for a premium credit, as compared to other similarly situated properties, if the property meets specific mitigation and defensible-space criteria, as described above, for offering, issuing, and renewing homeowners’ insurance coverage.”¹²¹

Second, the CDI proposed disallowing most disaster modeling in rate filings:

117. *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*, *supra* note 17.

118. *Id.* at 6.

119. *Id.* at 7.

120. *Id.* at 10–11.

121. *Id.* at 8.

Insurers will be permitted to use a “wildfire-risk model” (to determine eligibility for, or the premium of, a policy of residential property insurance) only if it has been filed with and approved by the Insurance Commissioner. Under this proposal, a “wildfire-risk model” is defined as any computer-based, map-based, or other measurement or simulation tool used by an insurer to rate, underwrite, or otherwise assess or evaluate the risk of wildfire and/or consequence of wildfire to residential structures. The Insurance Commissioner shall not approve a wildfire-risk model used by an insurer to determine eligibility for, or the premium of, a policy of residential property insurance unless the model takes into account the amount and density of fuel surrounding the structure, slope and slope aspect (direction) of the property, accessibility to the property by emergency responders, and any community-level or property-level mitigation efforts, if that data is provided by state or local fire officials or is otherwise available to the insurer by way of an inspection of the property.¹²²

Third, the CDI proposed aggregating data to have more accurate risk ratemaking:

CDI will be granted authority to obtain data from insurers in order to examine the aggregated California premium-and-loss data by wildfire risk (e.g., the data used by CALFIRE’s model) to create a wildfire-exposure-risk manual similar in concept to the frequency and severity bands manual used by auto insurers in developing private passenger auto rates. Insurers could rely on the aggregated wildfire-exposure-risk data to develop credible wildfire-risk rates that would allow them to more accurately price the few risks currently being written as well as loosen their current underwriting restrictions and write more risks that are currently being turned down for coverage.¹²³

In February of 2020, the CDI proposed and argued for legislation to increase the prevalence of “fire-hardened” communities.¹²⁴ The bill faced fierce industry opposition and died in committee.¹²⁵ That same year, the California Insurance Commissioner vowed to pursue the same initiative by regulation.¹²⁶ In February of 2021, the Commissioner and the Governor of California announced an initiative to do so.¹²⁷

122. *Id.* at 10.

123. *Id.* at 12.

124. Act of Feb. 18, 2020, No. 2367, 2019–2020 Cal. Legisl. http://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB2367 [<https://perma.cc/U2BP-BPQ6>] (adding Section 2063 and Article 9 (commencing with Section 13575) to Chapter 2, Division 3 of the Insurance Code).

125. *Id.*; Bikales, *supra* note 37.

126. *See* Bikales, *supra* note 37.

127. *Commissioner Lara and Governor Newsom’s Administration to Establish Home and Community Hardening Standards for Insurance*, CAL. DEP’T INS. (Feb. 8, 2021) <http://www.insurance.ca.gov/0400-news/0100-press-releases/2021/releaseXXX-2021.cfm> [<https://perma.cc/XKZ2-J8GH>].

B. Professor Kunreuther's Proposal for Private, All-Perils Homeowner Insurance

In 2018, Professor Howard Kunreuther—arguably the most important and prolific academic writer on insurance and natural disaster—proposed solving affordability and availability through a regulatory restructuring by states to require the sale of All Perils insurance, or, put another way, to prohibit homeowner hazard insurance that excluded perils such as flood and earthquake.¹²⁸

Kunreuther starts from two premises: “Premiums should reflect risk” and “any special treatment given to low-income individuals currently residing in hazard-prone areas should come from general public funding and not through insurance premium subsidies.”¹²⁹

Kunreuther then proposes a multi-pronged solution. Kunreuther proposes that “policymakers should consider requiring catastrophic coverage for all individuals who face risk.”¹³⁰ He proposes “risk-based insurance premiums . . . coupled with building codes so that those residing in hazard-prone areas adopt cost-effective loss-reduction measures.”¹³¹ He contemplates “property improvement loans” and multi-year insurance contracts “of 3–5 years with backup from the public sector on catastrophic losses.”¹³² He envisions “means-tested vouchers or tax-credits via the public sector to those who undertook cost-effective mitigation measures.”¹³³ Finally, he argues for state reinsurance facilities to the extent that the private sector does not fulfill this role.¹³⁴

Kunreuther asserts: “If insurers were permitted to charge risk-based premiums, they would very likely want to market coverage against earthquakes and floods as long as they were protected against catastrophic losses.”¹³⁵ And he argues that “by bundling hazards into a single policy, property owners are likely to perceive the risk to be sufficiently high that they will want to purchase coverage prior to experiencing a disaster.”¹³⁶

C. Professor French's Proposal for Public, All-Perils Homeowner Insurance

Professor Christopher French's work is more of a departure from current market structures than that of the CDI or Kunreuther. French describes how earthquakes and floods are correlated risks, and so have long been excluded from traditional hazard insurance of flood and earthquake as too dangerous to insurer solvency.¹³⁷ French also describes how wildfire, as distinct from “regular” fire, behaves as a correlated risk too expensive to insure.¹³⁸ French explains how the

128. Kunreuther, *supra* note 37; accord Mary Kelly et al., *supra* note 71, at 26.

129. Kunreuther, *supra* note 37.

130. *Id.* at 149.

131. *Id.*

132. *Id.* at 150.

133. *Id.* at 152.

134. *See id.* at 149, 152.

135. *Id.* at 149.

136. *Id.* at 143.

137. *See* French, *supra* note 6, at 824–25.

138. *Id.*

solution is All Perils insurance sold in large, undistorted risk pools.¹³⁹ French further explains why he and other scholars believe insurance should be thought of “as something more akin to a public financial instrument than a traditional contract between private parties,” and thus “[p]rivate insurers should not be allowed to refuse to insure existing high-risk properties in the absence of an alternative insurance option.”¹⁴⁰ But recognizing that private insurers will never be forced to affordably insure high-risk properties,¹⁴¹ French proposes an alternative insurance option.¹⁴² That proposal is: “bundling coverages for numerous types of natural catastrophe perils together in a single policy sold by the [federal] government”¹⁴³

Simply put, French recognizes the fundamental failing of public insurance of last resort—it is the “last resort” aspect. Last resort insurance is insurance of high-risk insureds, and in order to be actuarially sound, it must price as a high-risk pool. Politicians are given a Hobson’s Choice: either offer actuarially unsound insurance or price their own constituents out of the market.

French solves this problem by eliminating any avenue for low-risk insureds to get private standard hazard insurance, and so he eliminates the “last resort” structure, thus driving down the price. While he is not explicit about whether he is proposing nationalized insurance or a public option, he must be proposing the former because currently public All Perils insurance as an option could not compete with private insurance as currently sold. In all but high-risk areas where private insurers refuse to offer coverage, private insurers would parse out risk and offer cheaper insurance for covered perils. So, one has to understand French’s proposal as envisioning that private insurers will be out of the homeowner insurance business.

V. CONCERNS WITH THE EXTANT PROPOSALS

A. CDI’s Approach

The CDI’s proposal is provocative in its philosophical structure—it essentially imposes the rule that an insurer who wants to offer insurance anywhere in California has to offer it everywhere (assuming the home or community has taken appropriate mitigation measures). Under the proposal, an insurer who wishes to sell insurance anywhere has to commit to sell it in all high-risk communities.¹⁴⁴ So, unless an insurer wishes to write *only* high-risk insurance, the insurer presumably will try to capture as much non-high-risk business as possible. The idea is innovative and sound. California is the most populous state in the United States. The industry as a whole is not going to abandon the states entirely.

But the CDI’s solution to availability is a bit illusory as a means of promoting private hazard insurance for the rebuilding of a dwelling post-fire, because a private insurer wishing to do business in California is not required to write

139. See *id.* at 821–22.

140. *Id.* at 846.

141. See *id.* at 847.

142. See *id.* at 847–58.

143. *Id.* at 821–22.

144. See *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*, *supra* note 17, at 7.

dwelling coverage in a high-risk community. Rather, an insurer is required *either* to offer dwelling coverage *or* write supplemental coverage to public FAIR Plan dwelling coverage.¹⁴⁵ This will solve availability but will do nothing for affordability. Because an insurer will not have to compete on price and there will not be a requirement of undistorted risk pools (risk-spreading), the insurers do not have an incentive to reduce price.

The CDI's approach to affordability rests on an assumption that, with proper mitigation, even homes in otherwise high-risk places will be affordably insurable.¹⁴⁶ Thus, except for some low-income homeowners (who will receive premium subsidies), property with appropriate mitigation measures will, if properly underwritten, have an affordable premium.

All observable evidence suggests that mitigation alone does not resolve unaffordability. First, if there are mitigation measures at a community level that substantially change risk profiles and thus drive down insurance costs, then one would expect communities already do them. For some communities, of course, this sort of comprehensive mitigation is either unaffordable or not cost-justified. But if that is the case for *all* communities, then mitigation as a cost-control measure is either not feasible or not reasonable. Or, put another way, if by aggressively mitigating risk a community could change its risk profile from high-risk to low-risk and thus make insurance broadly available and affordable in that community without unacceptable consequences to the environment and other concerns, then of course a community would do that.¹⁴⁷ Communities ubiquitously would have done so. There either wouldn't *be* high-insurance cost communities at all or there wouldn't be enough such communities to be characterized as a state-wide crisis. A statewide unaffordability crisis would not exist. Legislative reform would not be necessary.

This is not to say that state-encouraged or even state-required community- or home-specific mitigation is a bad idea. Community and individual home

145. *See id.*

146. *See id.* at 8 (“Homeowners have filed a significant number of complaints alleging that their insurer has increased their premiums due to the real or perceived wildfire risk. . . . CDI believes there are legislative changes that can be enacted to lessen the severity of these high-premium increases. . . . A property insured under a policy of residential property insurance is eligible for a premium credit, as compared to other similarly situated properties, if the property meets specific mitigation and defensible-space criteria, as described above, for offering, issuing, and renewing homeowners’ insurance coverage.”).

147. *See* Howard Kunreuther et al., *Risk Analysis for Extreme Events: Economic Incentives for Reducing Future Losses*, NAT’L INST. STANDARDS & TECH. 49–66 (Oct. 2004), https://tsapps.nist.gov/publication/get_pdf.cfm?pub_id=100961 [<https://perma.cc/Y7X5-7WFR>] (discussing when it is cost effective for homeowners or communities to adopt voluntary mitigation measures, accounting for all factors including the wealth of the homeowner and the savings in insurance premiums); *accord* Andrew S. Natsios, *Economic Incentives and Disaster Mitigation*, CIDBIMENA, <http://cidbimena.desastres.hn/pdf/eng/doc4729/doc4729-contenido.pdf> [<https://perma.cc/CN2H-YQMT>] (last visited Aug 2, 2021) (“Policymakers can probably change social behaviors more effectively through market incentives than by threatening punishment for failure to comply with rules.”). It is, of course, possible to require a community to cut down all the trees and shrubs within a mile of the community, pave over every surface, and build all structures out of concrete. But that is not going to happen.

mitigation can and does help.¹⁴⁸ But it is not a magic bullet to resolve affordability in high-risk areas.¹⁴⁹ Homeowners in high-risk communities will still pay for insurance priced on the basis that they live in high-risk communities. And that insurance will be priced as a high-risk pool of insureds.¹⁵⁰

And homeowners cannot (or will not) solve that problem by mitigating at a homeowner level. Nothing prevents homeowners right now from voluntarily fire-hardening their home to realize a lower price of insurance. Only 24% of homeowners say they are likely to take action to protect their homes if it would lower the premiums on their insurance.¹⁵¹ This suggests that homeowners do not perceive the cost of mitigation to be worth the savings in insurance premiums. Unless a state intervenes, there is absolutely nothing that prevents an insurer right now from requiring mitigation as a condition of insurance. Again, if the cost of mitigation was perceived by homeowners as affordable, and if that in turn was a sufficient basis to drive price from current levels to affordable levels, then insurers already would require mitigation as a means of capturing business.

This is not simply a consumer-education issue. Insurers and regulators think deeply about how to better educate consumers about mitigation and promoting

148. See, e.g., *Mitigation Matters – and Hurricane Sally Proved It*, INS. INFO. INST.: RESILIENCE BLOG (Oct. 19, 2020), https://resilience.iii.org/resilience-blog/hurricanes/mitigation-matters-and-hurricane-sally-proved-it/?utm_source=I.I.I.+Daily+Newsletter&utm_campaign=f6b9df9f0f-EMAIL_CAMPAIGN_2020_09_28_02_24_COPY_01&utm_medium=email&utm_term=0_092139a76a-f6b9df9f0f-122627950 [<https://perma.cc/4XXG-THQS>]; Dale Kasler & Phillip Reese, *'The Weakest Link': Why Your House May Burn While Your Neighbor's Survives the Next Wildfire*, SACRAMENTO BEE (Apr. 11, 2019), <https://www.sacbee.com/news/california/fires/article227665284.html>; Joseph Serna, *Want to Fireproof Your Home? It Takes a Village*, L.A. TIMES (Oct. 3, 2019), <https://www.latimes.com/environment/story/2019-10-03/wildfire-defense-fire-proof-home-hardening-sprinklers> [<https://perma.cc/2FGA-HY6U>].

149. See, e.g., Bikales, *supra* note 37 (reporting on homeowners who did everything the insurance company asked of them and still were not renewed). For another, more dramatic example, see the Grand Jury Report in 2008—ten years before the Camp Fire—on how to protect the community of Paradise California from wildfire. *Butte County Grand Jury Report 2008/2009 Wildfire & Safety Considerations for Butte County General Plan 2030*, BUTTE CNTY., https://www.buttecounty.net/Portals/1/GrandJury/08-09/Grand_Jury_Report_FY08-09-Sec10.pdf [<https://perma.cc/P8JY-3A2S>] (last visited Aug. 2, 2021). It will not be lost on insurers that the Camp Fire still occurred, even with this introspective mitigation plan, and so undoubtedly if and when Paradise is rebuilt insurance will either be unavailable or unaffordable for many.

150. See, e.g., David Lazarus, *California Fires Will Result in Higher Insurance Rates for Homeowners*, L.A. TIMES (Oct. 31, 2019) <https://www.latimes.com/business/story/2019-10-31/fire-insurance-david-lazarus-column> [<https://perma.cc/F9T9-9HBA>] (quoting Mark Sektnan, vice president of the American Property Casualty Association, as saying, “Insurers will continue to reflect risk in their rates. As risk increases, so will rates.”). See generally Christopher J. Conover & Emily P. Zeitler, *High Risk Pools* (Duke Univ. Health Ins. Regul., Working Paper No. 1-10, 2006), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1090.5411&rep=rep1&type=pdf>.

151. 2020 *Triple-I Consumer Poll*, *supra* note 95, at 6.

perils insurance.¹⁵² Insurers *want* to sell lots of insurance. And governments want lots of safe homes. And so far, none of these efforts have worked.

One might argue that consumers in the hundreds of millions remain wrong (or ignorant) about the relative costs and benefits of mitigation. Economists argue that people misvalue high-consequence, low-likelihood risks.¹⁵³ But if consumer misperception is the root cause of low voluntary take-up of earthquake and flood insurance, then correcting misperception plainly is a stickier issue than better education and information can solve.¹⁵⁴ For whatever reason, the market behaves as if the cost of mitigation does not justify the savings or even the availability of insurance.¹⁵⁵

In sum, if homeowner-level mitigation was the solution to affordability in high-risk areas and the cost of mitigation did not create unaffordability issues of its own, then there wouldn't be ubiquitously unaffordable insurance in high-risk areas. And requiring mitigation isn't going to solve the issue of unaffordable insurance in high-risk areas.

Finally, the CDI proposal requiring supplemental coverage to the FAIR Plan bears brief discussion. The FAIR Plan has coverage gaps. This CDI proposal will address those coverage gaps. But it will not make the total premium a

152. See, e.g., *Do I Need Flood Insurance for my Home?*, INS. INFO. INST. <https://www.iii.org/article/do-i-need-flood-insurance-for-my-home> [<https://perma.cc/J3AY-DRNK>] (last visited Aug. 2, 2021); *Do I Need Flood Insurance?*, ALLSTATE (June 2019) <https://www.allstate.com/tr/flood-insurance/do-i-need-flood-insurance.aspx>; *Flood Insurance: Why You Need a Policy and What It Costs*, TEX. DEP'T INS. (May 25, 2021), <https://www.tdi.texas.gov/tips/flood-insurance-cost.html> [<https://perma.cc/Q3LW-5LQY>]; *Protect Your Home with Flood Insurance*, GEICO, <https://www.geico.com/flood-insurance/> [<https://perma.cc/RM7M-LMRP>] (last visited Aug. 2, 2021); *'What the Flood!' NAIC Quiz Helps Americans Understand Flood Insurance*, NAIC, https://naic-static.org/Releases/2019_docs/what_the_flood_quiz.htm [<https://perma.cc/M6S2-UF2P>] (last visited Aug. 2, 2021); *The Truth About Earthquake Insurance*, LEMONADE, <https://www.lemonade.com/blog/earthquake-insurance/> [<https://perma.cc/L8CC-ZV6L>] (last visited Aug. 3, 2021); *Fault Lines: Do I Need Earthquake Insurance?*, USAA (Dec. 8, 2020), <https://www.usaa.com/inet/wc/advice-disaster-knowyourquake?akredirect=true>; *Do You Need Earthquake Insurance if You Don't Live on the Coast?*, STATE FARM <https://www.statefarm.com/simple-insights/residence/do-you-need-earthquake-insurance> [<https://perma.cc/33AF-7SZF>] (last visited Sept. 10, 2021); *Earthquake Insurance*, CAL. DEP'T INS., <http://www.insurance.ca.gov/01-consumers/105-type/95-guides/03-res/eq-ins.cfm> [<https://perma.cc/FFM7-YDZD>] (last visited Aug. 4, 2021).

153. See, e.g., Paul Slovic et al., *Preferences for Insuring Against Probable Small Losses: Insurance Implications*, in *THE PERCEPTION OF RISK* 51, 67–68 (Paul Slovic ed., 2000); HOWARD KUNREUTHER, *DISASTER INSURANCE PROTECTION: PUBLIC POLICY LESSONS* 236–37 (1978).

154. See generally J. C. J. H. Aerts et al., *Integrating Human Behaviour Dynamics into Flood Disaster Risk Assessment*, 8 *NATURE CLIMATE CHANGE* 193 (2018) (describing how the willingness to invest in risk avoidance or reduction measures such as mitigation and insurance fades over time due to human cognitive factors influencing risk perception, even though from a purely economic calculus the rationality of the choice has not changed.)

155. At the risk of belaboring the point, if the cost of mitigation was justified by the savings realized from available, affordable, insurance, then one would expect to see this playing out in communities on the ground.

homeowner pays for “FAIR Plan + private-insurer supplemental coverage” any cheaper than already unaffordable, private insurance.

B. Kunreuther’s Approach

An important and novel insight of Kunreuther’s approach is his explication of how manipulation of market incentives can change the availability and affordability of private All Perils insurance in high-risk communities. The crux of Kunreuther’s proposal is demand-side focused, requiring homeowners in high-risk areas to buy coverage for all perils. Kunreuther does not explain the mechanics of how such a requirement would be structured or enforced. But assuming there is such an architecture, Kunreuther does not describe his idea as a mechanism to reduce price but rather as a mechanism to have public support of price through vouchers.¹⁵⁶

One might think of Kunreuther’s approach as analogous to the Affordable Care Act, with the mandate and required coverages, but without community pricing. Such an approach to insurance is significantly more proactive in addressing the prevalence of insureds seeking to buy insurance than it is in addressing the cost of that insurance.¹⁵⁷ Put another way, it does a really good job of making sure almost everyone is insured and does very little to control the cost of the insurance.

For that reason, Kunreuther’s approach may be small solace to the communities currently suffering a crisis of homeowner insurance availability and affordability. In those communities, homeowners will be required to buy insurance, but insurers will not be required to sell it at all, much less at an affordable price. Put another way, insurers will have no incentive to make that insurance cheaper than it is today. Rather, Kunreuther’s proposal simply anticipates shifting some responsibility for paying all or some of the bill from the pocketbook of insureds to the pocketbook of governments and does so without positioning governments to bargain on price. It bears noting that there is nothing today that prevents governments from offering aggressive vouchers to support all perils insurance in high-risk communities. If governments saw offering aggressive vouchers as a viable solution, then presumably it already would be happening.

C. French’s Approach

French’s proposal is audacious and comprehensive, and it would work. But is it politically possible?

French proposes national, public All Perils insurance. French does an effective job of knocking back many anticipated criticisms to his proposal. In response to concern about imposing cross-subsidization amongst insureds, he notes that this argument proves too much because *all* insurance involves cross-subsidization to one degree or another.¹⁵⁸ In response to anticipated political blow-

156. Kunreuther, *supra* note 37, at 147–51.

157. See Melinda Beeuwkes Buntin & John A. Graves, *How the ACA Dented the Cost Curve: An Analysis of Whether or Not the Affordable Care Act Reduced the Annual Rate at Which Total National Health Care Costs Increased and Brought Per Capita Health Spending Growth Rates Down*, 39 HEALTH AFFS. 403 (2020) (describing how the ACA’s direct and indirect impacts on the cost of health insurance and the delivery of health care remains uneven and uncertain ten years after passage of the Act).

158. See French, *supra* note 6, at 858–59.

back based on accusations of socialism, he highlights examples of popular, extant government programs that are philosophically socialist.¹⁵⁹ He recognizes the perception of some that “America needs less governmental involvement with private industries, not more,” and he responds that insurance is already highly regulated.¹⁶⁰ He deals with the inevitable criticism that insuring natural disasters creates moral hazard by detailing how these concerns, when pressed back upon and tested, do not bear out.¹⁶¹ And he squares up to the weary history of public insurance programs—most notably the NFIP¹⁶²—as at best poor substitutes for private insurance.¹⁶³ Specifically, he makes the case that bundling all perils into a single, national policy would resolve the inefficiencies of public insurance written to cover idiosyncratic regional risks.¹⁶⁴

But what French does not address are the political realities of whether his proposal could ever actually come to pass. And while generically it might be a foolish endeavor to try to predict the chances of passing any particular legislative initiative, there is a lot of clarity on how both the industry and insurance regulators/legislators would react to French’s proposal.

It is not hard to predict the industry’s reaction. French’s proposal is an existential threat to an entire profitable industry segment. The NAIC reports that in 2019, for example, Homeowners Multiple Peril Insurance generated over \$90 billion in net premium earned, generating 1.4% in underwriting profits, 3% investment gain on insurance transactions, and 6.6% gain in net worth.¹⁶⁵ To protect these amounts of profit, the industry reaction will be the same as its reaction to health insurance proposals to nationalize health care through “Medicare For All”—do whatever it takes to defeat the proposal.¹⁶⁶

159. *Id.* at 859–60.

160. *Id.* at 861.

161. *Id.* at 861–65.

162. *See generally* *The Cost of Climate*, FIRST ST. FOUND. (Feb. 2021), https://assets.firststreet.org/uploads/2021/02/The_Cost_of_Climate_FSF20210219-1.pdf [<https://perma.cc/8M28-TS7G>].

163. French, *supra* note 6, at 865–69 (2020). *But see* Omri Ben-Shahar & Kyle D. Logue, *The Perverse Effects of Subsidized Weather Insurance*, 68 STAN. L. REV. 571 (2016).

164. *Id.*

165. *Report on Profitability by Line and by State in 2019*, NAIC 37 (2020), <https://content.naic.org/sites/default/files/publication-pbl-pb-profitability-line-state.pdf> [<https://perma.cc/NYQ3-ZAF5>].

166. *See, e.g.*, Robert Pear, *Health Care and Insurance Industry Mobilize to Kill ‘Medicare for All’*, N.Y. TIMES (Feb. 23, 2019), <https://www.nytimes.com/2019/02/23/us/politics/medicare-for-all-lobbyists.html>; Jeff Stein, *‘We’ve Done a Lot More than You Would Think’: How the Health-Insurance Industry is Working to Pull Democrats away from Medicare-for-all*, WASH. POST (Apr. 12, 2019), <https://www.washingtonpost.com/business/2019/04/12/weve-done-lot-more-than-you-would-think-how-health-insurance-industry-is-working-pull-democrats-away-medicare-for-all/>; P’SHIP FOR AM.’S HEALTH CARE FUTURE, <https://americashealthcarefuture.org/> [<https://perma.cc/U6LN-8XG6>] (last visited Aug. 4, 2021) (“Build on what’s working . . . not start over”); *A Brief History: Universal Health Care Efforts in the U.S.*, PNHP, <https://pnhp.org/a-brief-history-universal-health-care-efforts-in-the-us/> [<https://perma.cc/JX3V-MMPPM>] (last visited Aug. 4, 2021).

Regulator response will be no better. The NAIC “is governed by the chief insurance regulators from the 50 states, the District of Columbia, and five U.S. territories” and is committed to “state-based insurance.”¹⁶⁷ How committed? The NAIC has created and runs the website, <statebasedsystems.com>.¹⁶⁸ Similarly, the press release of the NAIC marking the organization’s 150th anniversary was sub-headed *Historical Milestone and Highlights Value of State-based Regulatory System*.¹⁶⁹ There is little reason to expect regulators are going to support nationalized homeowner insurance.

And then there will be the response of state legislators. The National Council of Insurance Legislators (“NCOIL”) “works to both preserve the state jurisdiction over insurance as established by the McCarran-Ferguson Act seventy-four years ago,” and “toward that end, NCIOL works to . . . [a]ssert the prerogative of legislators in making state policy when it comes to insurance” including “speak[ing] out on Congressional initiatives that attempt to encroach upon state primacy in overseeing insurance . . . ;” as NCOIL emphasizes, “*NCOIL is an adamant, vocal opponent of any Congressional initiative* that would deprive consumers of key state protections, preempt state laws that respond to unique insurance markets, [and] threaten critical state premium tax revenue”¹⁷⁰ One can confidently predict NCOIL opposition.

But what about public support? For some insight, consider the experience of a “public option” in health insurance—a significant step down from Medicare-For-All. As of this writing, for the first eleven years of the political life of health care reform resulting in the Affordable Care Act in all of its iterations, a public option has never even reached a floor vote in Congress.¹⁷¹ And that is despite about

167. *About*, NAIC, https://content.naic.org/index_about.htm [<https://perma.cc/XXX4-YH9G>] (last visited Aug. 6, 2021).

168. *About Us*, NAIC, <https://statebasedsystems.com/solar/about.html> [<https://perma.cc/KMM8-9S9N>] (last visited Aug. 6, 2020).

169. *The National Association of Insurance Commissioners (NAIC) to Celebrate 150th Anniversary*, NAIC (Jan. 14, 2021), https://content.naic.org/article/news_release_national_association_insurance_commissioners_naic_celebrate_150th_anniversary.htm [<https://perma.cc/U72K-ZV6D>].

170. *History & Purpose*, NAT’L COUNCIL INS. LEGISLATORS, <http://ncoil.org/history-purpose/> [<https://perma.cc/WS6V-YHKG>] (last visited Aug. 6, 2021).

171. See generally Helen A. Halpin & Peter Harbage, *The Origins and Demise of the Public Option*, 29 HEALTH AFF. 1117 (2010).

70% public support.¹⁷² Medicare-For-All has only about 40% public support.¹⁷³ The public perception of a crisis in natural disaster insurance is far less than any public understanding of a health care insurance crisis. It appears that less than half of the nation thinks they have a risk of a natural disaster risk at all, and it may be that far more Americans think they are insured for a disaster such as flood than actually are.¹⁷⁴ There is no groundswell or even sprouting seeds for a public clamoring for nationalized homeowner hazard insurance.

Functionally, nationalized homeowner hazard insurance has no friends; it is a political orphan. There are many reasons to worry that French's proposal—intelligent and necessary and correct as it is (it would work!)—nonetheless is not going to happen.

VI. AN ALTERNATIVE APPROACH

Because so much groundwork has been done by the exceptional work of others, it now is simpler to describe a solution to the sticky problem of insuring disaster—a solution that threads the needle between the CDI's approach, Kunreuther's approach, and French's approach, navigating around the shoals of trouble each of those approaches may founder upon.

172. *Poll: Democrats Like Both the Public Option and Medicare-for-All, but Overall More People Support the Public Option, Including a Significant Share of Republicans*, KFF (Jan. 30, 2020), <https://www.kff.org/health-reform/press-release/poll-democrats-like-public-option-medicare-for-all-but-overall-more-people-support-public-option-including-significant-share-of-republicans/> [<https://perma.cc/AJB3-MLX6>]; Nate Silver, *Medicare For All Isn't That Popular – Even Among Democrats*, FIVETHIRTYEIGHT (July 25, 2019, 1:29 PM), <https://fivethirtyeight.com/features/medicare-for-all-isnt-that-popular-even-among-democrats/> [<https://perma.cc/D877-DYPL>] (describing MARIST POLL 15, http://maristpoll.marist.edu/wp-content/uploads/2019/07/NPR_PBS-NewsHour_Marist-Poll_USA-NOS-and-Tables_1907190926.pdf#page=3 [<https://perma.cc/L7GC-2632>] (last visited Aug. 5, 2021)).

173. Silver, *supra* note 172.

174. See *2020 Triple-I Consumer Poll*, *supra* note 95, at 5–10 (“Among homeowners, 17 percent say they live in an area likely to experience a wildfire. About a quarter (26 percent) of homeowners say they live in an area likely to be impacted by a hurricane, and the same proportion say it is somewhat likely or very likely that their home would be damaged or destroyed by flooding. In the survey, 41 percent of homeowners said they took steps to protect their homes from natural disasters, up slightly from 38 percent in November 2016. . . . In 2020, 27 percent of homeowners policyholders said they had flood insurance, the highest level since the Triple-I began asking this question in 2007. However, National Flood Insurance Program (NFIP) estimates seem to suggest that the percentage of homeowners who now have its flood insurance policies is much lower. It is possible that those with homeowners insurance believe they have flood coverage when they actually do not. One reason this may occur is that homeowners may not fundamentally understand what flood coverage is and how it works. Or they may think flood coverage encompasses water damage from a burst pipe instead of a weather-related event like a hurricane or from a river flooding. While the actual reason may be a combination of these misunderstandings, the discrepancy between those who have flood insurance and those who think they do presents an ongoing opportunity for insurers to inform their customers about the need to purchase flood insurance, whether from the NFIP or a private company.”).

The starting point is to return to the first premise: insurers want to sell as much insurance as they profitably can sell. Why don't insurers already robustly sell hazard insurance without excluded peril priced in broad, undistorted risk pools? Because insurers cannot profitably do so. There may be a variety of explanations.¹⁷⁵ The intuitively obvious, arguably under-discussed explanation is that competitors will price cut this product every time. If the market gave the opportunity to profitably sell All Perils insurance priced in broad, undistorted risk pools, then one would expect at least one adequately capitalized insurer to be broadly and successfully selling it, because it would vastly increase gross profits by increasing the size and value of insurers' portfolios. There is no such example in the market.

And homeowners would buy it. Roughly two-thirds of homeowners would have no choice—hazard insurance is required by their mortgage. And many years of data report that at least three-quarters of the remaining homeowners still buy homeowner hazard insurance voluntarily. There has never been a moment in recent decades when, all-in, take-up rates of homeowner hazard insurance have been below 90%.¹⁷⁶

As others, including French, have detailed, the tendency of homeowners to purchase homeowner hazard insurance provides an opportunity. The trick is to structure insurance markets so that all homeowner hazard insurance is All Perils and is priced across broad, undistorted risk pools, meaning it is not priced differently based on a property location. This can be achieved by cobbling together the core insights of the CDI, Kunreuther, and French. First, states should not approve homeowner hazard insurance rate filings if such rate filings exclude any natural disaster perils (Kunreuther).¹⁷⁷ Second, states should not approve homeowner hazard insurance rate filings if such rate filings consider the risk of the disaster profile of the community that a property is located within (French).¹⁷⁸ Finally, states should require that an insurer who sells anywhere in the states must sell everywhere.¹⁷⁹

This architecture sidesteps the political obstacles of French's approach, incorporates the insights of Kunreuther's approach while filling in its gaps, and addresses the questions left unresolved by the CDI's approach. It is somewhat similar in approach and rationale to a proposal for natural disaster insurance for Western Europe, despite the distinct differences internally in some respects within Europe and externally from the United States in both social policy and in the way the insurance-business segment is structured.¹⁸⁰ If all this is done, then insurers will

175. See generally Howard Kunreuther, *All-Hazards Homeowners Insurance: A Possibility for the United States?*, SOC'Y ACTUARIES (Feb. 2017), <https://www.soa.org/globalassets/assets/files/research/projects/2017-02-policy-homeowners-insurance.pdf> [<https://perma.cc/K5MU-29JV>].

176. See *supra* Section II.A.

177. See Kunreuther, *supra* note 37.

178. See French, *supra* note 6, at 821–22.

179. See *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*, *supra* note 17, at 7.

180. See Donatella Porrini & Reimund Schwarze, *Insurance Models and European Climate Change Policies: An Assessment*, 38 EUR. J. LAW ECON. 7, 17 (2012).

be able to sell such insurance because there cannot be price-cutting through exclusion of a peril or a high-risk location. Homeowners will have All Perils insurance priced across broad, undistorted risk pools. And insurers will sell insurance everywhere because the alternative is to be excluded entirely.

Structurally, any state should be able to adopt this proposal. It is easy for a state to decline to approve rate filings for homeowner hazard insurance that excludes coverage for losses caused by fire, wind, water, or earth movement. It is an easy thing for a state to require that an insurer who sells homeowner hazard insurance anywhere in a state must offer it everywhere in the state (essentially the CDI proposal without the escape hatch). But it might appear to be a far harder thing to use the rate filing review process to eliminate insurers pricing insurance as high-risk pools property in high-risk areas.

This apparent problem, however, is not an actual conundrum because it is just a variant of a familiar tension in ratemaking. There is, was, and always will be tension between insurers and rate-makers concerning how an insurer uses data to package and re-package risk pools. Insurers always will seek ways to find metrics that can give an insurer a competitive advantage against other insurers (for example, credit-scoring or “good grades” discounts in auto insurance), and rate-makers will always be pressed to dig deep into the metrics being used and evaluate them for appropriateness.¹⁸¹ For example, rate-makers already dig beneath facially neutral rate-filings to identify state-identified, inappropriate, potential disparate impact on insureds on the basis of race.¹⁸² This is why it is not hard to identify how to regulate ratemaking to eliminate insurance isolating high-risk communities in high-risk pools.¹⁸³ It merely requires adding a home’s location into the state’s extant list of identified, inappropriate, and disparate impact factors.

181. See, e.g., *Insurers Don’t Like New Credit Scoring Ban in Washington, but Say They’ll Follow the Law*, INS. J. (Apr. 28, 2021), <https://www.insurancejournal.com/news/west/2021/04/28/611881.htm> [<https://perma.cc/J79R-2GU2>].

182. See, e.g., Michael Ferullo & Roger Yu, *Credit-Based Insurance Premiums Raise Concerns About Racial Bias*, BLOOMBERG LAW (Dec. 22, 2020, 4:00 AM), <https://news.bloomberglaw.com/insurance/credit-based-insurance-premiums-raise-concerns-about-racial-bias> [<https://perma.cc/5P5L-2TMJ>] (“Insurance regulators in Washington and Oregon are pushing to eliminate credit-based insurance scoring in property-casualty products in the coming year, and legislation has been introduced in several states, including New York and New Jersey, and at the federal level.”); Brent Kabler, *Insurance-Based Credit Scores: Impact on Minority and Low Income Populations in Missouri*, MO. DEP’T INS. (Jan. 2004), <https://insurance.mo.gov/reports/credscore.pdf> [<https://perma.cc/282C-7MXB>] (“The widespread use of credit scores to underwrite and price automobile and homeowners insurance has generated considerable concern that the practice may significantly restrict the availability of affordable insurance products to minority and low-income consumers.”).

183. See *Manage Wildfire Risk at the Address Level*, VERISK, <https://www.verisk.com/siteassets/media/downloads/underwriting/location/location-fireline.pdf> [<https://perma.cc/4E43-CQTA>] (last visited Aug. 6, 2021); Kathleen Pender, *Do You Know Your Home’s Wildfire Risk Score? Your Insurance Company Does.*, S.F. CHRON. (Dec. 14, 2019, 5:11 PM), <https://www.sfchronicle.com/business/networth/article/Do-you-know-your-home-s-wildfire-risk-score-14905676.php> [<https://perma.cc/AT3A-S525>].

To repeat then, the architectural approach this Article suggests for assuring available, affordable insurance responding to all perils is a three-point proposal: first, an insurer who offers homeowner hazard insurance anywhere in a state must offer it everywhere.¹⁸⁴ Second, rate filings for homeowner hazard insurance will not be approved if the insurance would exclude any natural disaster peril.¹⁸⁵ Third, rate filings for homeowner hazard insurance will not be approved if the insurance discriminates against homes based on the location of the home.¹⁸⁶

VII. ANTICIPATED CRITICISMS

A. *Natural Disaster is Not Actually Insurable*

As Professors Koursky and Light describe, “economists have developed a framework of ideal insurability conditions. Namely, to be insurable, risks must be random, well-enough understood to make pricing and underwriting possible, diversifiable, and exist in markets with low levels of moral hazard and adverse selection.”¹⁸⁷ The three-point proposal of this Article ticks every box.

The first box—risks must be random—means, as Koursky and Light explain:

There must be a *risk*, rather than a *certainty*. No insurer would write a policy for a known adverse event at a price less than the full cost because risk transfer in that situation produces no gain. Therefore, long-term, inevitable threats such as sea-level rise cannot typically be insured against. The risk in any given year of tidal flooding, however, may be insurable.¹⁸⁸

Private hazard insurance typically is written year-to-year.¹⁸⁹ The catastrophe-modeling tools estimate the likelihood of a peril occurring and the impacts should it occur in any given year across an insurer’s portfolio. By this standard, the perils are insurable.

The second box—pricing and underwriting are possible—means, as Koursky and Light explain:

[T]he risk must be well-enough understood to allow for pricing and underwriting. If the risk is not well understood, insurers cannot determine how much premium to charge or whether a risk is worth adding to their portfolio. For instance, the insurer may worry about the potential for catastrophic losses if they price premiums too low or accept too many high risks. Often pricing is done using historic data, but also—especially for rare, changing, or uncertain risks—with

184. This idea is taken from the CDI approach (and slightly modified); it is not part of the Kunreuther proposal.

185. This idea is part of Kunreuther’s proposal. See Kunreuther, *supra* note 37.

186. This idea is new to the literature.

187. Carolyn Kousky & Sara E. Light, *Insuring Nature*, 69 DUKE L.J. 323, 355 (2019).

188. *Id.*

189. See Paul Kleindorfer et al., *Single-Year and Multi-Year Insurance Policies in a Competitive Market*, 45 J. RISK & UNCERTAINTY 51, 52 (2012) (“Insurance policies for property insurance are normally issued as annual contracts . . .”).

modeling. Risks do not have to be perfectly estimated, however, since insurers can and do charge higher prices for risks that are ambiguous or difficult to model. But if insurers are too uncertain about a risk, they may shy away from the market completely.¹⁹⁰

It appears this challenge has been solved—perils risk can be acceptably, accurately modeled.¹⁹¹ Or in the words of two of the largest modelers themselves:

For over 30 years, RMS has led the way in transforming the catastrophe risk industry, helping organizations make better decisions to improve human and environmental outcomes. By combining proven modeling science with powerful advances in technology, RMS Risk Intelligence solutions enable clients to better assess risk and reduce uncertainty.¹⁹²

Need greater accuracy? RMS is known for precision.¹⁹³

In the case of rare but severe events, historical loss information has proven unreliable in assessing future loss potential. AIR Worldwide developed probabilistic models that help organizations prepare for the financial impacts of catastrophes—before they occur. Today, organizations use AIR models to assess the likelihood and severity of loss from catastrophes in more than 110 countries worldwide. AIR models capture how catastrophe behave and impact insurable assets using sophisticated simulation models . . . Detailed output from AIR models is the basis for understanding and quantifying catastrophe risk. It is the “currency” by which risk is priced, transferred, and traded, and applications today go far beyond those within the insurance industry . . . the models capture the full range of potential future catastrophe experience, including the most extreme events that may not have occurred historically.¹⁹⁴

190. Kousky & Light, *supra* note 187, at 355–56.

191. See Tom Larsen, *Catastrophe Risk Management*, CORELOGIC 1–2, <https://www.corelogic.com/downloadable-docs/2-catriskmgmt-0216-01-catastrophe-risk-management-021016.pdf> [<https://perma.cc/PD2W-8DSB>] (last visited Aug. 6, 2021) (“Catastrophe modeling has become ubiquitous in the property insurance industry The early adopters . . . capitalizing on information asymmetry—having more information than their policy holders and competition”); accord Dwight M. Jaffee & Thomas Russell, *Should Governments Provide Catastrophe Insurance?*, BERKELEY U.C. (Apr. 2006), <http://faculty.haas.berkeley.edu/jaffee/papers/095BEPress06.pdf> [<https://perma.cc/K5R6-JRDJ>].

192. *Cloud-Based Analytics Provide Powerful Risk Insights*, RMS, <https://www.rms.com/risk-analytics> [<https://perma.cc/K3Y4-JVZR>] (last visited Aug. 6, 2021).

193. *Discover How RMS Helps Customers Outperform*, RMS, <https://www.rms.com/risk-analytics/why-rms-infographic> [<https://perma.cc/MH4E-LTSU>] (last visited Aug. 6, 2021).

194. *About Catastrophe Modeling*, AIR, <https://www.air-worldwide.com/models/About-Catastrophe-Modeling/> [<https://perma.cc/2X3U-Q4UV>] (last visited Aug. 6, 2021);

Increasing uncertainty with regard to the severity and frequency of catastrophic events is challenging the P&C insurance industry to revisit existing catastrophic risk management and loss adjustment strategies by improving the overall understanding of all natural hazards. With 6 continents, 100+ countries/territories, and 185+ models, CoreLogic has the breadth, depth, and granularity to get you the data you need, enabling you to stand with us at the forefront of next-level catastrophe modeling.¹⁹⁵

Touters tout. But AIR and CoreLogic have gone beyond advertising puffery—AIR has represented to the federal government that it can and does do catastrophe modeling down to the granularity of a single property address, and CoreLogic has represented to the federal government that its granularity reaches to individual structures within a multi-structure property address.¹⁹⁶ Further, the market has tested these claims, and insurers are using these models and writing insurance relying upon them.¹⁹⁷ It would seem the second box is ticked. And yes, some insurers are pulling back from insuring some communities.¹⁹⁸ But disaster is everywhere in some form or fashion, and insurers broadly remain in the markets.¹⁹⁹

The third box—the risk is diversified—means, as Koursky and Light explain:

[R]isk pooling must be possible. This requires a substantial number of insureds whose risks are independent of each other and for which catastrophic losses are not possible. These are the conditions under which the average claim approaches the expected value (thanks to the

see *Catastrophe Modeling: Why All the Fuss?*, MARSH, <https://www.marsh.com/us/insights/research/catastrophe-modeling.html> [<https://perma.cc/T8MK-XHF6>] (last visited Aug. 6, 2021).

195. *Catastrophe Risk Management Solutions*, CORELOGIC, <https://www.corelogic.com/protect/catastrophe-risk-management-solutions/> [<https://perma.cc/3MM8-TG86>] (last visited Aug. 8, 2021).

196. *FHFA Public Listening Session on Climate and Natural Disaster Risk Management at the Regulated Entities*, FED. HOUS. FIN. AGENCY, 1:12:10–1:31:55 (Mar. 4, 2021), <https://www.fhfa.gov/Videos/Pages/FHFA-Public-Listening-Session-on-Climate-and-Natural-Disaster-Risk-Management-at-the-Regulated-Entities.aspx> [<https://perma.cc/TNW9-MBBJ>] (“Most importantly, in the context of mortgage portfolios, the models calculate the financial loss . . . to estimate potential losses from extreme events . . . at the property level . . . we have to get to a property-by-property assessment, and that’s what we’ve been able to do. So, with the tool that we have built, we’re able to give you a composite score property by property, centroid by centroid, structure by structure on a property.”).

197. See, e.g., *Our Clients*, AIR, <https://www.air-worldwide.com/about-air/Our-Clients/> [<https://perma.cc/3VYM-3HTG>] (last visited Aug. 6, 2021).

198. See Salisbury, *supra* note 2.

199. See generally Bethan Moorcraft, *More Choice—An Answer to America’s Gaping Flood Protection Gap*, INS. BUS. AM. (Feb. 15, 2021), <https://www.insurancebusinessmag.com/us/news/catastrophe/more-choice—an-answer-to-americas-gaping-flood-protection-gap-246475.aspx> [<https://perma.cc/T6R5-VZUX>] (“This is an area where private flood insurers have an advantage in that most are using cutting edge data analytics tools . . . which can differentiate flood risk between neighborhood properties on the same street . . .”).

Law of Large Numbers) and the policyholder's expected loss will be approximated by the population's expected loss (thanks to the Central Limit Theorem).²⁰⁰

This is the precise problem that is emerging nationally with increasing frequency, and it is the "availability" focus of this Article, the CDI approach, and the French approach. The solution is not novel: have broad, undistorted risk pools. This Article's three-point proposal addresses this by a "write anywhere, write everywhere" rule coupled with an imposed form of community pricing. It is CDI's idea without the escape hatch.

The fourth and final box—moral hazard and adverse selection—means, as Koursky and Light explain:

Finally, the market must also be subject to minimal levels of moral hazard and adverse selection. . . . Insurance premiums in a well-functioning private market are directly tied to the risk. Although regulators may suppress prices, in most private insurance markets, insurers still charge higher prices for higher risks. This means insurance markets may be able to create incentives to reduce risk by rewarding insureds' investments in risk reduction with lower premiums.²⁰¹

French aptly addresses moral hazard and adverse selection concerns.²⁰² This Article does not mean to minimize those concerns. But crucially, in the sphere of homeowner hazard insurance it does not generally appear that homeowners act in moral hazard or adverse selection ways. When homeowners are broadly offered hazard insurance, about 75% or more buy it without regard to perceived peril risk.²⁰³ Conversely, when homeowners in a high-risk flood zone are not mandated to buy flood insurance, most don't.²⁰⁴ Neither behavior is consistent with the predictions of the theories of adverse selection or moral hazard. And, of course, under this proposal most homeowners will not be a position to adversely select; rather, roughly two-thirds of homeowners will be required by their mortgage to buy All Perils insurance. Finally, working within the Koursky and Light articulation of the concern, the response is to impose mitigation measures into an insurance policy (as the CDI approach would). Insurers can and should set mitigation standards and cost rewards in policies. Nothing prevents it. Insurers do it. This criterion too is met.

B. Insurers Will Pull Out of the Market²⁰⁵

Related to the concern that catastrophe is not insurable is the concern that the more "socialized" insurance is, the less likely insurers are to sell it. Or put more bluntly, insurers will leave the market.

200. Kousky & Light, *supra* note 187, at 356.

201. *Id.* at 357.

202. French, *supra* note 6, at 861–63.

203. *See supra* Section II.B.

204. *See supra* Section II.B.

205. The ideas discussed in this Section supplement the reasons already articulated by Kunreuther. Kunreuther, *supra* note 37, at 9.

It would be hubris to guarantee this won't happen. But given that there are, for example, over 6,000,000 owner-occupied homes in Florida,²⁰⁶ and all the visible data indicate that over 90% of these homeowners buy hazard insurance,²⁰⁷ it is hard to imagine that insurers who can profitably compete in that market will abandon it.

There is a concrete example suggesting that homeowners will not be left with no provider of private insurance. In the sphere of health insurance, community rating has resulted in some private insurers refusing to insure but has not resulted in any community having no options for private insurance.²⁰⁸ This suggests that if all insurers are playing on a level playing field, such that an insurer does not need to segment insurance by covered risk or likelihood of an insured experiencing a loss, then in a carefully structured market private insurers can and will continue to profitably offer insurance.²⁰⁹

Yet insurers could leave. And if they do, then the market has spoken. Catastrophe is not insurable by private insurers. But then so too would there no longer be insurance-industry opposition to the French approach,²¹⁰ which, in turn, would be the necessary predicate for the French proposal to blossom into political reality.

C. It Will Be Unaffordable

A related concern to “insurers will leave” is that insurers will stay but that this will not be of much help to homeowners, because insurance under this Article’s three-point proposal will be unaffordable to many homeowners.

206. *QuickFacts Florida*, U.S. CENSUS BUREAU, <https://www.census.gov/quickfacts/fact/table/FL/RHI725219> [<https://perma.cc/74RE-K2D8>] (last visited Aug. 8, 2021).

207. Claire, *supra* note 72.

208. Five states—Maine, Massachusetts, New Jersey, New York, and Vermont—have community rating and were able to have private insurers offer coverage in the time of mandated purchase of health insurance. See generally PricewaterhouseCoopers, LLP, *Challenges of Partial Reform—Lessons from State to Reform the Individual and Small Group Market Before the Affordable Care Act*, CAL. HEALTH CARE FOUND. (Feb. 2017), <https://www.chcf.org/wp-content/uploads/2017/12/PDF-ChallengesStateReformBeforeACA.pdf> [<https://perma.cc/NL8P-QVSL>]; Justin Giovannelli & Kevin Lucia, *State Experiences Show Why Repealing the ACA’s Premium Subsidies and Individual Mandate Would Cripple Individual Health Insurance Markets*, COMMONWEALTH FUND (Jan. 20, 2017), <https://www.commonwealthfund.org/blog/2017/state-experiences-show-why-repealing-acas-premium-subsidies-and-individual-mandate-would> [<https://perma.cc/5VGF-YPGH>]. Even in the absence of mandated health insurance, there is no place in the United States that has no private insurer offering health insurance, and in these five states every place has multiple private insurers. *County by County Plan Year 2020 Insurer Participation in Health Insurance Exchanges*, CMS, <https://www.cms.gov/CCIIO/Programs-and-Initiatives/Health-Insurance-Marketplaces/Downloads/Final-2020-County-Coverage-Map.pdf> [<https://perma.cc/B5FL-YMY9>] (last visited Aug. 8, 2021).

209. See Matthew Fielder, *Taking Stock of Insurer Financial Performance in the Individual Health Insurance Market Through 2017*, BROOKINGS (Oct. 2020), <https://www.brookings.edu/wp-content/uploads/2017/10/individualmarketprofitability.pdf> [<https://perma.cc/B6RL-ZLYH>].

210. See *supra* Section V.C.

That is a hard concern to address because, before this Article, there has not been a publicly reported calculation of what private, All Perils insurance would cost a homeowner on average. Indeed, there has not been any publicly reported data set from which such a calculation could even be easily derived.

Any discussion of what this sort of insurance would cost must start with this: *Insurers* either know or could easily calculate what it would cost. The challenge is to get an idea of cost from public-facing information.

As Koursky details, “[t]he thorny theoretical problems involved in estimating the economic consequences of disasters are coupled with extreme data limitations that make actual estimates far from what would be the hypothetical ‘true’ disaster costs.”²¹¹ Or, put more simply, it is hard (nigh on impossible) to get good *public* data.

In theory, the calculation could be straightforward—divide the total economic damage to owner-occupied homes in a state in a year by the number of owner-occupied homes in the state in that year, and then adjust the resulting figure by profit and overhead factors to result in average per home direct premium. But it is difficult to isolate state-by-state, regional, or event-level aggregation of catastrophe loss to owner-occupied homes that can be matched to the number of potentially insurable homes in the footprint of the aggregated loss.²¹² This requires data on both insured and uninsured-but-insurable losses,²¹³ isolated to owner-occupied homes. Available data are overinclusive or underinclusive, or both. Further, what data are available are reported as economic loss, which is different from cost to insure, as it excludes the administrative and profit components of privately insuring.

California, for example, when studying wildfire, only collects data on *insured* loss.²¹⁴ In 2018, California reported that insured losses to homes totaled \$11.4 billion, but did not report total losses, whether insured or uninsured.²¹⁵ And complicating matters further, this data included losses without disaggregation to “Homeowners; Condominium Unit Owners; Mobile Home; Tenants/Renters; Dwelling Fire and Allied Lines; and Lender/Force-Placed and Real Estate Owned

211. Carolyn Kousky, *Informing Climate Adaptation: A Review of the Economic Costs of Natural Disasters*, 46 ENERGY ECON. 576, 580 (2014).

212. See email from Seth Christensen, Tex. Dep’t Emer. Mgmt., to Author (Feb. 10, 2020, 9:37 AM) (on file with author) (responding to a public records request, officially representing that the State has no such data); email from Joan Batten, Pub. Recs. Coordinator for Fla. Off. Ins. Regul., to Author (Sept. 17, 2019, 6:45 AM) (on file with author) (responding to a public records request, describing the nature of the data the State has and does not have).

213. Researchers using a Monte Carlo simulation tool found that in the United States, uninsured expected property loss from natural catastrophes should exceed insured loss. Thomas Holzheu & Ginger Turner, *The Natural Catastrophe Protection Gap: Measurement, Root Causes and Ways of Addressing Underinsurance for Extreme Events*, 43 GENEVA PAPERS ON RISK & INS.—ISSUES & PRAC. 37, 48, fig.3 (2018).

214. Email from Camilo Pizarro, Manager, Cal. Dep’t Ins., to Author (Feb. 3, 2020, 3:34 PM) (on file with author).

215. *Insured Losses from the 2018 California Wildfire*, CAL. DEP’T INS., <http://www.insurance.ca.gov/0400-news/0100-press-releases/2019/upload/nr041-19InsuredLosses2018Wildfires050819.pdf> [<https://perma.cc/G6VB-Z4FN>] (last visited Feb. 4, 2020).

(REO).²¹⁶ Put another way, the data did not support isolating uninsured, insured losses to owner-occupied homes.²¹⁷

California is not an outlier. State governments simply do not collect data on economic losses—insured and uninsured—to owner-occupied homes. In response to a Freedom of Information Act (“FOIA”) request on all economic losses to homes (whether insured or not) in Florida in 2017, the Florida Office of Insurance Regulation reported that it performed a data call on Hurricane Irma (the only major storm hitting Florida in 2017) but did not collect any data on uninsured losses, and it suggested the Florida Division of Emergency Management might have collected data on uninsured losses.²¹⁸ The Florida Division of Emergency Management reported it did not “have records that would show monetary damages to homes” but perhaps the Florida Office of Insurance Regulation would.²¹⁹ Similarly, the author of the flood analysis work commissioned by the State of Texas²²⁰ confirms that he has no data on uninsured loss.²²¹ Nor does the State of Texas Department of Insurance.²²²

Similarly unhelpful is NOAA data on flood loss. While NOAA tracks economic direct damage from floods, “the NOAA loss estimates include damage from freshwater flooding and rainfall from hurricanes, but they omit damage from other coastal flooding (e.g., storm surge) [and] . . . it is likely that a substantial portion of flood-related direct damage is to uninsured property.”²²³

One of the most comprehensive public-facing studies is the work done by the City of Houston after Hurricane Harvey. The City of Houston estimates that in

216. *Id.*

217. Email from Luciano Gobbo, Manager, Cal. Dep’t Ins., to Author (Feb. 4, 2020, 2:58 PM) (on file with author) (stating that California’s reported data on residential property loss does not disaggregate data “further than personal residential property, commercial property, auto, and other. Thus personal residential property includes homeowners, dwelling fire, tenant/renters, condo, mobile home, etc. and was not reported by the different types. Tenant/Renters provides coverage to one’s content regardless if individual lives in an apartment complex or in a single family home.”).

218. Email from Joan Batten, Pub. Recs. Coordinator Fla. Off. Ins. Regul., to Author (Sept. 17, 2019, 6:45 AM) (on file with author) (responding to a public records request, describing the nature of the data the State has and does not have, to Author).

219. Email from Sherin Joseph, Attorney, Fla. Dep’t Emergency Mgmt., to Author (Sept. 20, 2019, 11:55 AM) (on file with author).

220. *Rebuild Texas*, CTR. FOR TEX. BEACHES & SHORES, <http://www.texascoastalatl.com/TexasAtlas/splash%20screen/splash.html> [<https://perma.cc/VL26-WUJC>] (last visited Aug. 8, 2021).

221. Email from Sam Brody, Lead Technical Expert, Governor’s Comm’n to Rebuild Tex., to Author (Dec. 13, 2019, 8:18 AM) (on file with author).

222. Email from Marianne Baker, Dir., Property & Casualty Div.—Prop. & Casualty Lines Div., Tex. Dep’t Ins., to Author (Feb. 4, 2020, 9:11 AM) (on file with author) (“We don’t collect data on damages to homes that were uninsured.”).

223. *Framing the Challenge of Urban Flooding in the United States*, NAT’L ACADS. OF SCIS., ENG’G, & ME. 32, <https://doi.org/10.17226/25381> (last visited Aug. 08, 2021).

2017, Hurricane Harvey caused \$16 billion in residential damage.²²⁴ That figure does not disaggregate owners from renters, single-family units from multi-family units from group homes, or on-site construction from manufactured homes.²²⁵

Industry data is no better. In the insurance industry, catastrophe risk modelers do not have this data. For example, CoreLogic, self-described as at the “forefront of next-level catastrophe modeling,”²²⁶ disclaims that it has “any data on the breakdown by percentage, within insurable causes, of residential total losses (entire structure—whether including foundation or not—requires reconstruction) that are caused by natural disasters causes vs. any other causes.”²²⁷

Reinsurer Swiss Re estimates globally “the expected uninsured losses from natural disasters of USD 153 billion annually.”²²⁸ That figure makes no distinction between whether the loss was to a home or some other type of property such as an apartment or business, nor breaks down the figure by nation.

In the end, there is no obvious public data set to base a calculation of what it would cost an average homeowner to buy private All Perils insurance. But obvious data is different from “no data.” There is some public-facing data. Deep in work performed for the NAIC, an accounting firm, Milliman, has a stray line where Milliman estimated “the potential private residential flood insurance market to represent between \$34 billion and \$48 billion in direct written premium.”²²⁹ The calculation was developed from “an input file representative of single-family homeowners in contiguous United States;” “assumed ‘policy limits’ similar to a homeowners policy—full insurance to value for building coverage, plus additional coverage for contents, ALE, other structures;” “used multiple catastrophe models to estimate and AAL an insurer might use;” and “built in an estimated expense range for all expenses[] and covered loss plus LAE plus anything else included in running the business—in other words, the actual cost to the collective insureds in paid premium if all covered losses were fully covered (the coverage

224. *The Harvey Data Project: City of Houston Housing and Community Development Department*, CITY HOUSTON TEX. 2 (Mar. 2019), <https://www.houstontx.gov/postharvey/public/documents/3.2019-havrvey-data-project.pdf> [<https://perma.cc/9M5B-6BDV>].

225. *Local Housing Needs Assessment: Hurricane Harvey Housing Recovery*, CITY HOUSTON TEX. 105–60, <https://houstontx.gov/housing/plans-reports/Local-Housing-Needs-Assessment-112818.pdf> [<https://perma.cc/FAE4-MWGL>] (last visited Aug. 8, 2021).

226. *Catastrophe Risk Management Solutions*, CORELOGIC, <https://www.corelogic.com/solutions/catastrophe-risk-management.aspx> [<https://perma.cc/TAS8-M4DC>] (last visited Aug. 8, 2021).

227. Email from Sarah Jakubiak, Pro. Exec. Assistant, CoreLogic, to Author (June 26, 2020, 7:16 AM) (on file with author) (responding to request for clarification following a CoreLogic webinar on natural disaster loss modeling).

228. Swiss Re Ltd., *Underinsurance of Property Risks: Closing the Gap*, RISK & INSURANCE 1, https://riskandinsurance.com/wp-content/uploads/2015/10/Swiss-Re_Underinsurance-of-property-risks.pdf [<https://perma.cc/HU32-PT5C>] (last visited Aug. 24, 2021).

229. *Considerations for State Insurance Regulators in Building the Private Flood Insurance Market*, NAIC 11–12 (Nov. 19, 2019), https://content.naic.org/sites/default/files/national_meeting/CATWG%20materials%20without%20agenda.pdf [<https://perma.cc/55HW-R4BS>] (pages 73–74 of pdf).

limits were adequate to fully cover the loss).²³⁰ Thus, Milliman had calculated the total in annual premiums all homeowners would pay if every homeowner in the United States had flood insurance.

Milliman's work can be used to derive an approximate cost of direct written premium for private residential All Perils insurance based on the ratio of insured flood peril to all perils. Steve Bowen, a Director and Meteorologist for Aon, is Aon's Head of Catastrophe Insight within its Impact Forecasting Department and one of the authors of Aon's *Weather, Climate & Catastrophe Insight 2019 Annual Report*.²³¹ I asked Mr. Bowen:

In a typical year, of all annual economic loss from natural disasters in the United States, what percentage of economic loss is due to flood? For these purposes, I define "economic loss from flood" as a loss that if one had a flood insurance policy, then coverage would respond.²³²

He answered:

Flood is a broad term that includes riverine, flash flood, storm surge, coastal flood and is often bucketed within different perils – namely tropical cyclone, severe convective storm, or winter weather. These impacts are typically incurred via direct costs to property, vehicles, infrastructure, agriculture, and net-loss business interruption. Only a fraction of these economic damage costs is covered by insurance. In the case of damage to homes and businesses, less than 10 percent of US homeowners have NFIP policies.

With these metrics in mind, I can provide you some numbers with broad assumptions that does include a fair amount of uncertainty.

The mainland U.S. has averaged **\$80 billion** in economic damage from natural disasters since 2000 (all values inflation adjusted to 2020 USD). Based on some assumptions to account for flood-related impacts from tropical cyclones, thunderstorms, and winter storms, that roughly equates to **\$27 billion**; or **about one-third** of annual direct disaster-related economic costs.²³³

Applying the 27/80 ratio to Milliman's figures results in a range of annual average direct written premium for all economic damage from natural disasters to owner-occupied homes in the United States of about \$100.74 billion to \$142.22 billion.

230. Email from Nancy Watkins, Principal & Consulting Actuary, to Author (Feb. 26, 2020, 6:16 PM) (on file with author) (responding to follow-up questions about a presentation Ms. Watkins made to the NAIC).

231. *Weather, Climate & Catastrophe Insight*, *supra* note 8, at 81.

232. Email from Author to Steve Bowen, Dir. & Meteorologist, Head Catastrophe Insight Impact Forecasting, Aon (Feb. 27, 2020, 1:20 PM) (on file with author).

233. Email from Steve Bowen, Dir. & Meteorologist, Head Catastrophe Insight Impact Forecasting, Aon, to Author (Feb. 28, 2020, 3:18 PM) (on file with author).

This ratio, in turn, can be used to calculate an average per house cost of direct written premium for every owner-occupied house in the United States. As of July 1, 2019, U.S. Census Bureau statistics describe 89,397,916 owner-occupied homes in the United States.²³⁴ Spreading the total calculated direct premium across every one of these homes results in a “back of the envelope” per home direct premium range of \$1,127–\$1,591.

This calculation comes with a host of assumptions and caveats. It calculates a per house cost, but insurance premiums are not per house capitated²³⁵ within underwriting pools. It is calculated by spreading data nationally, but insurance is priced—even in its theoretically broadest form—on a state-by-state basis. Milliman’s figures have a very broad error range, and the model then builds on that range using Bowen’s numbers, which he self-describes as based on a “fair amount of uncertainty.”²³⁶ Aon’s numbers are across residential, commercial, and agricultural numbers,²³⁷ and so the resulting ratio calculation assumes that the ratio holds regardless of whether the impact is confined to only one of these spheres. Also, the denominator may be suspect—the most recent American Housing Survey suggests that in 2017, there were only 72,526,000 owner-occupied attached or detached homes which were not “Manufactured/mobile home or trailer” (a different sort of insurance policy) or “Other” (boat, RV, van, etc.).²³⁸

Nonetheless, this calculation allows at least some analysis of whether the proposal of this Article will cost too much. There are some other data calculations that suggest \$1,127–\$1,591 per house might be in the ballpark. In 2017, the average premium nationally for HO-3 coverage for homes was \$1,211, with Louisiana being most expensive at \$1,968 and Oregon being least expensive at \$677;²³⁹ in 2017, fire and lightning, wind and hail, and water damage and freezing accounted for 92.8% of all property damage claims made on HO-2, HO-3, and HO-5 homeowners insurance policies,²⁴⁰ and HO-3 is coverage for wind and fire but not flood and earthquake.²⁴¹ Using ISO loss estimates and U.S. Census Bureau data, economic fire

234. *Quick Facts*, U.S. CENSUS BUREAU, <https://www.census.gov/quickfacts/fact/table/US/PST045218> [<https://perma.cc/WTZ8-EVBJ>] (last visited Aug. 8, 2021) (stating that there were 139,684,244 housing units as of July 1, 2019, multiplied by the owner-occupied housing unit rate, 2014–2018, of 64%).

235. See, e.g., *How Home Insurance Premiums Are Calculated*, TD INS., <https://www.tdinsurance.com/products-services/home-insurance/tips-advice/premium-calculations> [<https://perma.cc/7PWP-UJR6>] (last visited Aug. 8, 2021).

236. Email from Steve Bowen, Dir. & Meteorologist, Head Catastrophe Insight Impact Forecasting, Aon, to Author (Feb. 28, 2020, 3:18 PM) (on file with author).

237. *Weather, Climate & Catastrophe Insight*, *supra* note 8, at 78.

238. See *American Housing Survey (AHS)*, U.S. CENSUS BUREAU, https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=00000&s_year=2017&s_tablename=TABLE1&s_bygroup1=1&s_bygroup2=1&s_filtergroup1=2&s_filtergroup2=1 (last visited Aug. 8, 2021) (click “Get Table”).

239. *2020 Insurance Fact Book*, *supra* note 16, at 108–10.

240. *Id.* at 111.

241. For a more fulsome discussion of the HO-3 form, see *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 14–15, 18–26.

losses in the United States in 2018 cost just \$133.21 per capita,²⁴² which if multiplied out by the 2018 population of the country (about 330 million²⁴³) and then divided by the Census Bureau's figure of 89 million owner-occupied homes²⁴⁴ equates to \$494 per house. That figure leaves plenty of room for coverage of other perils and for insurer overhead and profit. And finally, French calculates the cost of his approach as \$1,171.²⁴⁵

But is the cost, assuming it is \$1,127–\$1,591, affordable? For an individual homeowner, that will be an idiosyncratic answer. But what is clear is that this cost would not be a deviation of significance from what homeowners already, on average, are paying. It bears repeating that the I.I.I. reports as to the most recent year for which it has collected data, and in 2017, the average expenditure of U.S. homeowners for insurance for hazard insurance was \$1,211.²⁴⁶

D. Homeowners Will Not Want It

A closely related concern to “homeowners can’t afford it” is that homeowners can afford it but won’t choose to buy it. Put another way, homeowners who can afford All Perils insurance will perceive it as costing too much—it just will not be perceived as a good buy. Or put in the jargon of economists, there will be significant price elasticity. This is an important concern to square up to, because economists recognize that insureds undervalue low-probability, high-consequence risks.²⁴⁷

Whatever the theoretical concern about price elasticity, it does not bear out in the real world of buying peril insurance. Kunreuther summarizes the prior research confirming that, “by bundling hazards into a single policy, property owners are likely to perceive the risk to be sufficiently high that they will want to purchase coverage prior to experiencing a disaster.”²⁴⁸ Further, as summarized above, other research confirms that over 90% of homeowners do have and want hazard insurance and are not price elastic about the cost.

An equally encouraging response to price elasticity concerns is a 2020 paper empirically evaluating homeowner willingness to purchase All Perils insurance. Global pricing of property insurance rose 20% in the fourth quarter of

242. 2020 *Insurance Fact Book*, *supra* note 16, at 166.

243. U.S. and World Population Clock, U.S. CENSUS BUREAU, <https://www.census.gov/popclock/> [<https://perma.cc/5YMZ-Z7MX>] (last visited Aug. 8, 2021).

244. *Quick Facts*, *supra* note 235.

245. French, *supra* note 6, at 859.

246. 2020 *Insurance Fact Book*, *supra* note 16, at 108.

247. See, e.g., Howard Kunreuther, Robert Meyer & Erwann Michel-Kerjan, *Overcoming Decision Biases to Reduce Losses from Natural Catastrophes*, in *THE BEHAVIORAL FOUNDATIONS OF PUBLIC POLICY* (Eldar Shafer, ed. 2013) (“[I]ndividuals often utilize informal heuristics that have proven useful . . . but that are likely to be unsuccessful when applied to the kind of low-probability, high-stakes decisions they are now facing in a catastrophic environment.”); accord Andrew Royal, *Dynamics in Risk Taking with a Low-Probability Hazard*, 55 *J. RISK & UNCERTAINTY* 41 (2017).

248. Kunreuther, *supra* note 37, at 143.

2020 and an additional 15% in the first quarter of 2021.²⁴⁹ That said, Landry et al. specifically studied the willingness of homeowners to pay for All Perils coverage and found that the premium homeowners were willing to pay for All Perils insurance was \$3,393.65–\$4,396.93, while a homeowner who has separately purchased “flood insurance, wind insurance, and a standard homeowners policy pays on average \$3,152 in premiums for all three types of coverage.”²⁵⁰ In other words, this Article’s proposal apparently is well within the price elasticity pain point for All Perils coverage.

E. It is Politically Untenable

There will be concern about the political headwinds that this three-point proposal may face. Natural disasters affect people and communities differently. The cost of insurance breaks differently amongst different communities. These differences can create political tensions that regulators and legislators must anticipate and navigate.

1. Rich v. poor

As alluded in the discussion of cost, what is a good buy to one person is a barrier to entry to another person. A \$1,211 hazard insurance policy is a great buy for a \$1,000,000 home and a far less attractive price for a \$50,000 home. The median home value of owner-occupied homes in the United States is \$200,000,²⁵¹ which suggests that a state could think of the predicted price as “per \$200,000 of home value” rather than “per house” and thus understand the affordability of all perils in that state.

Of course, this sort of re-framing only goes so far. If one compares the 2017 reported median home values in California, Florida, Illinois, Maryland, Massachusetts, New York, Pennsylvania, Texas, and Virginia,²⁵² with average insurance premiums for homeowner insurance in those states in 2017,²⁵³ there is no correlation. Home value is a dependent variable, but far from the only one.

The most obvious “other” variable would be the risk profile of a property. The impact of that variable will be reduced under this Article’s three-point proposal to whatever degree a state decides to do it. There could be a single, state-wide risk-pool, or something less.

249. Matthew Lerner, *Global Price Increases Slow in Q1*, BUS. INS. (May 4, 2021), <https://www.businessinsurance.com/article/20210504/NEWS06/912341621/Global-insurance-price-increases-slow-in-Q1-Marsh-> [https://perma.cc/FBD6-N73J].

250. Landry et al., *supra* note 67, at 22.

251. *American Housing Survey*, *supra* note 92.

252. The American Housing Survey tracks median home values for California, Colorado, Florida, Illinois, Maryland, Massachusetts, New York, Ohio, Pennsylvania, Texas, and Virginia; however, for Colorado and Ohio there is no reported 2017 data. See *American Housing Survey*, U.S. CENSUS BUREAU, https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=00008&s_year=2015&s_tablename=TABLE13&s_bygroup1=1&s_bygroup2=1&s_filtergroup1=1&s_filtergroup2=1 (last visited Aug. 8, 2021) (click “Get Table”).

253. *2020 Insurance Fact Book*, *supra* note 16, at 108–10.

But under any approach there will be income disparities. There will be rich households who do not need any insurance premium reduction but will realize it. And there will be poor households who either have a premium increase they cannot afford or an insufficient premium reduction to gain entry to the housing market.

Restructuring the homeowner insurance market will not solve these wealth inequity issues. That is what governments do through programs such as subsidies and vouchers.²⁵⁴ But these issues should not be ignored.²⁵⁵

2. Racial injustice

In the context of this Article's proposal, wealth disparity and racial injustice are related concerns. Eroding homeowner insurance availability and affordability inevitably erodes homeownership.²⁵⁶ Communities of color suffer a homeownership gap.²⁵⁷ And lack of ownership may have unexpected, knock-on, negative effects beyond concerns about intergenerational wealth accumulation. For example, literature suggests that "variations in home ownership may contribute to persistent racial and socioeconomic health inequities."²⁵⁸ The availability of disaster

254. See Kunreuther, *supra* note 37, at 147–49 (arguing for government response to cost inequity but also arguing that vouchers are highly preferred to subsidies).

255. See Robert E. Litan et al., *Easing the Homeowners' Insurance Crisis on the Atlantic and Gulf Coasts*, DOCPLAYER (Oct. 2007), <https://docplayer.net/15624827-Easing-the-homeowners-insurance-crisis-on-the-atlantic-and-gulf-coasts-robert-e-litan-1-frank-nutter-2-marc-racicot-3.html> [<https://perma.cc/3BTV-BG6V>].

256. See generally *Flood Insurance Coverage of Federal Housing Administration Single-Family Homes*, *supra* note 78, at vii–viii, 27–39, 42–43 (higher flood insurance premium amounts correlate to likelihood of mortgage loan default); accord Clifford V. Rossi, *Assessing the Impact of Hurricane Frequency and Intensity on Mortgage Default Rates*, FED. HOUS. FIN. AGENCY 25, <https://www.fhfa.gov/Videos/Documents/HurricaneImpactAnalysis-DrCliffordRossi.pdf> [<https://perma.cc/4MG8-BYNL>] (last visited Aug. 8, 2021) (describing how increased frequency and intensity of hurricanes increases mortgage default rates).

257. Laurie S. Goodman & Christopher Mayer, *Homeownership and the American Dream*, 32 J. ECON. PERSPECTIVES 31, 36–37 (2018); accord Lindsay Owens, *Soaked: A Policy Agenda to Prepare for a Climate-Triggered Housing Crash*, FED. HOUS. FIN. AGENCY 11 (July 2020), <https://www.fhfa.gov/Videos/Documents/ClimateandHousingReport-DrLindsayOwens.pdf> [<https://perma.cc/9V8E-BQDT>] (asserting communities of color "are even more likely to be impacted by climate change and to experience blight and abandonment, as they are less likely than white communities to be aided and rebuilt.").

258. Roshanak Mehdipanah et al., *Neighborhood Context, Homeownership and Home Value: An Ecological Analysis of Implications for Health*, 14 INT. J. ENV'T RSCH. PUB. HEALTH 1098, 1098 (2017). See generally William M. Rohe & Michael A. Stegman, *The Effects of Homeownership: On the Self-Esteem, Perceived Control and Life Satisfaction of Low-Income People*, 60 J. AM. PLAN. ASSOC. 173 (2007) (showing that homeownership results in a significant increase in life satisfaction); Glen Bramley & Noah Kofi Karley, *Homeownership, Poverty and Educational Achievement: School Effects as Neighbourhood Effects*, 22 HOUS. STUD. 693 (2007) (discussing how homeownership affects school attainment); Dalton Conley & Brian Gifford, *Home Ownership, Social Insurance, and the Welfare State*, 21 SOCIO. F. 55 (2006); Urb. Inst., *Climate and Natural Disaster Risk Management Request for Input*, FED. HOUS. FIN. AGENCY (Apr. 19, 2021), <https://www.fhfa.gov/AboutUs/Contact/Pages/input-submission-detail.aspx?RFID=1442> (click "FHFA Climate RFI - Urban Institute Response.pdf"). But see Stephanie M. Stern, *Reassessing the Citizen Virtues of Homeownership*, 111 COLUM. L. REV. 890 (2011).

mitigation resources specifically also can break differently on racial lines.²⁵⁹ The point here is simple and disquieting: insurance unavailability and unaffordability can exacerbate racial injustice in the United States.

This Article presents only an economic proposal. In other words, this proposal does not explicitly address environmental racism, but this proposal also should not be considered independently of understanding whether it exacerbates, ameliorates, or is neutral to environmental racism. Disparate impacts are a moral and political reality that any governmental action always must account for.

The issue is an enormous one and is a paper in itself—well beyond this Article. But it would seem, at least on an intuitive level, that making homeowner insurance more affordable and available is helpful, not hurtful, on metrics of environmental racism.

3. *Industry opposition*

There is an obvious reason that insurers will be less concerned with this Article's three-point proposal than with the French approach—this proposal does not seek to eliminate their business. But is it enough?

It is too simplistic to postulate that the insurance industry will act as a single entity, unanimous amongst its component companies, and oppose. Arguably this proposal is actually positive for the industry as a whole. More gross risk will be covered. Most dramatically, the take up rate of coverage of earthquake and flood peril should rise to about 90%.

As Kunreuther articulates, risk must be actuarially and soundly written.²⁶⁰ This Article's proposal in no way assumes that insurers will price risk other than profitably. If take-up of earthquake and flood insurance rises from less than 20 percent to over 90 percent, then even if profit margins do not change, gross profits will. They will rise—dramatically. There are no restrictions on covered risk, in gross, being profitably underwritten. And so gross industry underwriting profits will rise. And if gross profits across the industry segment rise, then the industry should be, on the whole, enthused.

But as with all things, there will be winners and losers. Insurers who anticipate profiting from the proposal will support it. Other insurers will have the opposite calculus and oppose. Most notably, small insurers who can write regionally but not statewide will oppose.

259. See, e.g., James R. Elliott et al., *Racial Inequities in the Federal Buyout of Flood-Prone Homes: A Nationwide Assessment of Environmental Adaption*, 6 *SOCIUS* 1, 12 (2020) (“[R]acialization is now occurring in new ways that provide more opportunities to whiter communities to participate in the latest wave of federal flood mitigation, while leaving neighborhoods of color more likely either to consent or face future flood risks. This dynamic is not a contradiction. It is how privilege seems to work in the age of climate change It brings more options and public resources to those living in more socially advantaged spaces, especially if they own property, while leaving those in socially marginalized spaces more reliant on government assistance that is not only less likely to come but less trusted when it does.”).

260. Kunreuther, *supra* note 37, at 146–47.

No doubt, the instinctive response of the industry to any restriction on ratemaking is negative. But the industry is the very opposite of emotional and precipitous in its actions; the lifeblood of insurance is cold data analytics.²⁶¹ If this proposal pencils out positively for the industry as a whole, then the weight of the industry will support it.

4. Public insurers

There is a politically attractive aspect of this proposal: it removes public entities from the uncomfortable position of public insurer of last resort. One might characterize the NFIP as the poster child for, in French's words, "a failing insurance program."²⁶² But it's not as if any other public insurance product is thriving. There is no example of public peril insurance of last resort that the offering state government *wants* to offer.

5. Each state is different

Finally, there is the concern that different states experience natural disaster differently, because "generally, an insurer is required to obtain approval from the state insurance regulator for all of the homeowner insurance policy forms that the insurer intends to use in that state."²⁶³ Or put another way, for some states there is a crisis, but for others there may not be one. And that's fine. This solution is not a "one-size-fits-all-states" proposal. It is a template for each state to react to or not as the state's needs dictate.

6. Maybe some homes should not be rebuilt

Sometimes natural disaster survivors are asked, "Did you rebuild on the same lot?" To which the answer often is "yes," because many homeowners understandably prefer to go home rather than move somewhere else and start over.²⁶⁴ And, of course, the land the lost home sat upon is the only lot the homeowner owns. The questioner probably is asking a question about fear; after all, there is now at least one stark data point that this home's location is a dangerous place for a home to be.

261. See, e.g., Bethan Moorcraft, *Show Me the Money – Insurers See Benefits of Data and Analytics*, INS. BUS. AMERICA (Apr. 22, 2021), <https://www.insurancebusinessmag.com/us/news/technology/show-me-the-money--insurers-see-benefits-of-data-and-analytics-252994.aspx> [<https://perma.cc/9DDW-2NA4>]; Ramnath Balusubramanian et al., *Insurance 2030—The Impact of AI on the Future of Insurance*, MCKINSEY & CO. (Mar. 12, 2021), <https://www.mckinsey.com/industries/financial-services/our-insights/insurance-2030-the-impact-of-ai-on-the-future-of-insurance#> [<https://perma.cc/K66L-MUM5>]; *Artificial Intelligence*, NAIC (Oct. 30, 2020), https://content.naic.org/cipr_topics/topic_artificial_intelligence.htm [<https://perma.cc/6K8A-8JDD>]; *Big Data*, NAIC (May 27, 2021), https://content.naic.org/cipr_topics/topic_big_data.htm [<https://perma.cc/LT5Y-DU7F>].

262. French, *supra* note 6, at 855.

263. *Report Providing an Assessment of the Current State of the Market for Natural Catastrophe Insurance in the United States*, *supra* note 7, at 15.

264. See *Roadmap to Recovery Surveys*, UNITED POLICYHOLDERS, <http://uphelp.com/> (last visited Aug. 8, 2020) (click "Media," then click "Survey Results;" consistently reporting over half of homeowners who have lost their home to a natural disaster intend to rebuild).

The data point frames a political Hobson's Choice: No politician wants to publicly put hurdles in the path of victims getting home. That said, maybe one lesson from a flood, for example, is that building a home next to this particular river is the last place the politician should want homes to be built. Put simply, affordable, adequate, and available insurance in high-risk communities is *not* an unambiguous societal good.²⁶⁵

This Article's proposal cannot solve that political conundrum. This Article simply says that *if* building codes and zoning codes determine that homes can exist in a location, *then* here is a method to insure those homes in an adequate way. And it is a way to make sure that climate change survivors can get back home if politicians wish to support that choice.

7. *The cost of inaction*

Every political calculus has two sides (at least!) to the equation. A final factor in the political calculus should be the cost of inaction. Awareness of catastrophe risk destabilizes real-estate markets and makes property more expensive.²⁶⁶ As Governor Lael Brainard of the Federal Reserve remarked in March of 2021:

[C]limate-related risks . . . could manifest as shocks or increase financial system vulnerabilities or both. One example is property and casualty insurance . . . embedding vulnerabilities that could result in cascading losses in the event of large-scale adverse weather outcomes or other shocks to asset valuations. . . . As we have seen in California and in Florida, insurance companies can pull back from insuring properties and facilities in geographic areas subject to heightened flood or fire risk or seek to raise rates on these properties and facilities to more accurately reflect risks. Although such changes may ultimately result in a more accurate assessment of actual risks, the abrupt changes to a wide range of contracts that embed systemic mispricing could initially amplify the shock. It is also increasingly apparent that the value and, in some cases, the usability of real estate in many areas will be directly affected by the increased risks of flood, wildfires, severe storms, and sea-level rise associated with climate change. The direct effects on homeowners . . . can have severe effects on safety and the usability of properties. As climate risks grow over time, the mortgages on these properties may become riskier . . .²⁶⁷

265. *Rebuilding for a Resilient Recovery*, NEXT 10, 28 (June 2021), <https://www.next10.org/sites/default/files/2021-06/Next10-Rebuilding-Resilient.pdf> [<https://perma.cc/7NDK-JRCA>] (arguing that there are some locations where post-wildfire homes should not be built or rebuilt).

266. Miyuki Hino & Marshall Burke, *Does Information About Climate Risk Affect Property Values?* (13 Nat'l Bureau Econ. Rsch., Working Paper No. 26807, 2020), <http://www.nber.org/papers/w26807>.

268. Lael Brainard, *Financial Stability Implications of Climate Change*, Speech at "Transform Tomorrow Today" Ceres 2021 Conference, BD. GOVERNORS FED. RSRV. SYS. (Mar. 23, 2021), <https://www.federalreserve.gov/newsevents/speech/brainard20210323a.htm> [<https://perma.cc/BJ7V-WXP8>].

In sum, the political cost of inaction may well swamp any political costs of changing the current structure of insurance markets.

CONCLUSION

After Hurricane Harvey, the City of Houston found that the storm had caused an aggregate of \$16 billion in property damage to residences; the economic impact was not distributed evenly; the storm was “especially hard” on people who already were “socially vulnerable;” only slightly more than \$3 billion of that damage was covered by Federal assistance programs; “[a] majority of the remaining funds will be covered by non-Federal sources, such as private insurance, individual savings, or local recovery funds;” and there would be \$2 billion—perhaps even \$3 billion—of “remaining unmet need for seriously damaged homes.”²⁶⁸ Houston’s experience with Hurricane Harvey is not extraordinary. It is emblematic of the new normal. There is an urgency for ubiquitously available, affordable private insurance for all perils. It is the only way home. This Article provides a path forward for that to occur.

269. *The Harvey Data Project: City of Houston Housing and Community Development Department*, *supra* note 225, at 7–12.