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Minding the Protection Gap: Resolving Unintended, Pervasive, Profound Homeowner Underinsurance

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MINDING THE PROTECTION GAP: RESOLVING UNINTENDED, PERVASIVE, PROFOUND HOMEOWNER UNDERINSURANCE

*KENNETH S. KLEIN**

A significant majority of homeowners in the United States unwittingly have less insurance than necessary to rebuild their home in the

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Writing on insurance, construction, and economics is challenging, because there is so little publicly available information about insurance, and so little economics or construction information that is published for the uninitiated. As a consequence, even non-controversial propositions – such as that an insurance producer receives a commission on the amount of premium written, or that prices go up in the wake of natural disaster – can be difficult to source and support with citation. This article depended upon the generosity of many people who were willing to take my telephone calls and shared with me their time and expertise. My thanks to Professor Peter Siegelman from University of Connecticut School of Law; Professor Daniel Schwarcz from the University of Minnesota Law School; Professor Howard Kunreuther from The Wharton School, University of Pennsylvania; Professor Tom Baker from the University of Pennsylvania School of Law; Professor Jay Feinman from Rutgers Law; Professor Jeffrey Stempel from the UNLV – William S. Boyd School of Law; Professor Benjamin L. Collier from Temple University’s Department of Risk, Insurance, and Healthcare Management; Professor Peter Kochenburger from University of Connecticut School of Law; Amy Bach from United Policyholders; Valerie Saunders from the National Association of Mortgage Brokers; Guy Kopperund from CoreLogic; Todd Rissel from e2Value; Mark Whatley from Actionable Insights; Chris McCloy of Yapacopia; David Shaffer from David Shaffer Insurance Services; Gary T. Fye from Gary T. Fye Company; Attorney Frederick C. Berry, Jr.; Jonathan Klein from Safe Auto, Ins. Co. (I love you like a brother!); retired insurance executive Elliot Flood; Professor Martin Grace from Temple University Fox School of Business; Madelyn Flanagan, Vice President, Agent Development, Education, and Research of the Independent Insurance Agents and Brokers of America, Inc.; and fire restoration contactor and author, Sean Scott. The generosity of these individuals should not be confused with their agreement with the views and assertions I make in this Article. All errors are entirely my own, and any

event of a complete loss. This persistent, multibillion-dollar protection gap first emerged in the 1990s and has never resolved despite a desire by most homeowners to contract for full replacement coverage. While a great deal of academic and industry literature has addressed the issue of underinsurance, the work has been done without reference to two sources that unlock the conundrum. The first is the 1550+ page administrative rulemaking file of the California Department of Insurance collected in the wake of wildfires in 2007. The second is a deep understanding of the software insurers use to determine the adequacy of coverage limits when a homeowner purchases full replacement coverage.

In addition to these two sources, this Article documents the problem of underinsurance and its causes by synthesizing both prior scholarship and primary source documents, including SEC filings, patents, industry websites, and interviews with trade organization representatives. After establishing the existence of widespread underinsurance, this Article demonstrates how the law's treatment of risk allocation in the wake of inadequate insurance coverage encourages inaccurate coverage limits by uncoupling the risk created by inaccurately calculated coverage limits from the responsibility for the consequences of error. This Article concludes with a proposed regulation that would recouple risk and responsibility while still providing the insurance industry and consumers with the freedom to contract for alternative coverage limits.

opinions a reader disagrees with are entirely mine as well.

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INTRODUCTION

The vast majority of American homeowners do not have adequate homeowner insurance,¹ and almost none of them know it. Today, the systems insurers use to identify recommended adequate coverage limits make incidences of profound, unintended underinsurance ubiquitous.² Understanding those systems is the key that unlocks the pervasive problem of unintended underinsurance, yet is an undertaking previously largely ignored by the academic and industry literature.

Most homeowners never lose their home, and so have no reason to know whether their insurance is adequate. Until the 1990s, many if not most homeowners had “guaranteed replacement coverage,” meaning coverage to rebuild a home whatever the cost.³ This coverage has all but disappeared, however, and now the ubiquitous form of homeowner insurance, even if purportedly for “full” replacement of the home, has a coverage limit. As a consequence, pervasive underinsurance is a predictable news story in the wake of a natural disaster. In 2003, after the Cedar Fire in San Diego,

¹ There is a lack of agreement regarding whether the correct generic titling of standard insurance covering the loss of a residence is “homeowners,” “homeowner’s,” “homeowners’,” or “homeowner” insurance. This Article adopts the later convention – “homeowner.”

² See Sara Nephew Hassani, *Magnifying Disaster: The Causes and Consequences of Home Underinsurance* 106 (April 2013) (unpublished doctoral dissertation, Princeton University) (“insurers are aware – and have been aware since at least the late 1930s – that insurance values are far below actual post-disaster replacement costs”). The reinsurer Swiss Re cautions that technically the delta between the economically ideal coverage and the insured loss is ‘underinsurance,’ while the delta between total economic loss and insured loss is a ‘protection gap.’ Swiss Re, *Underinsurance of property risk: closing the gap*, 5 SIGMA 1, 2 (2015), http://media.swissre.com/documents/sigma5_2015_en.pdf. This Article uses both the terms “underinsurance” and “protection gap” to refer to the difference between the coverage limits in a homeowner policy for replacement of a lost dwelling, on the one hand, and on the other hand, the actual cost to replace. This is also sometimes referred to as the need to have “insurance to value,” or ITV.

³ 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, 385 (2011); JAY M. FEINMAN, *DELAY, DENY, DEFEND: WHY INSURANCE COMPANIES DON’T PAY CLAIMS AND WHAT YOU CAN DO ABOUT IT* 135-36 (2010).

California, the California Department of Insurance found itself besieged by stories of homeowners who were shocked to find they did not have enough insurance to rebuild their homes.⁴ The same happened after catastrophic California wildfires in 2007 and 2008.⁵ The Texas Department of Insurance received large numbers of homeowner complaints regarding denials, delays, and claims handling both after the 2011 wildfires and after Hurricane Harvey in 2017.⁶ In the wake of Hurricanes Irma and Maria, the Florida Division of Banking, Insurance and Financial Regulation received “a higher number of insurance claimants than the division expected” from “homeowners who had insurance policies that covered less than 80 percent of their property’s appraised replacement cost,” and while the division could not give a percentage as to how many homeowners were over 20% underinsured, the number was “high enough to warrant an emergency order issued by [the] division.”⁷ In the wake of Hurricane Katrina, litigation in Louisiana blossomed by homeowners who felt duped by the mistaken belief that they had sufficient insurance.⁸ The same happened in New Jersey after Hurricane

⁴ See, e.g., Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183 at 1103, *Ass’n. of Cal. Ins. Cos. v. Jones*, 235 Cal. App. 4th 1009 (2015) (No. B248622), *rev’d*, 212 Cal. Rptr. 3d 395 (2017) (“The policy underlying the proposed action is to assure that homeowners receive from Department licensees more accurate replacement value estimates regarding their insured structures. The Department and the California Legislature received a significant number of complaints by homeowners who lost their residences in the Southern California wildfires of 2003....[F]ire survivors complained about problems including their experience that after the fire they learned that the replacement value estimates made in setting coverage limits for their homes was too low, causing underinsurance issues to arise during efforts to rebuild or replace their residences.”).

⁵ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 29-274, 319-1026.

⁶ Tex. Dep’t of Ins. Response to TDI Open Records request 194243 (on file with author).

⁷ *Senate Hears of Post Hurricane Insurance Complaints*, ST. JOHN SOURCE (Feb. 21, 2018), <https://stjohnsource.com/2018/02/21/senate-hears-explanation-of-post-hurricane-complaints/>. See also Osbert E. Potter, *Emergency Order on Underinsurance* (Feb. 14, 2018), <https://www.propertyinsurancecoveragelaw.com/files/2018/02/emergency-order-on-underinsurance.pdf>.

⁸ See, e.g., *Freeman v. Travelers Ins. Co.*, No. 06-8794, 2007 WL 519234 (E.D. La. Feb. 12, 2007); *Ruiz v. State Farm Fire and Cas. Co.*, No. 06-5640, 2007 WL 128800 (E.D. La. Jan. 17, 2007); *Halmekangas v. ANPAC La. Ins.*

Sandy.⁹

Natural disasters do not create, but rather expose and exacerbate the depth and breadth of underinsurance. When wildfires ravaged California in 2007, the California Department of Insurance (“CDOI”) comprehensively studied the problem of underinsurance. The resulting 1550+ page administrative rulemaking file describes how insurers deploy software that purports to account for the likelihood of weather events causing mass loss and concomitant price surges. Yet even when a homeowner both relied on that software to calculate adequate coverage limits and bought 25%, 50%, 100% or even more additional coverage on top of the coverage the insurer and/or producer recommended, over half of homeowners were *still* underinsured. Despite the dramatic findings of the CDOI, the administrative record has not been analyzed in any academic literature to date. Simply put, the academic record helps confirm what until now was only inferred – that across the United States, most homeowners are materially underinsured, and are unaware of that fact. Most homeowners *think* they have more than adequate insurance.

Co., 95 So. 3d 1192 (La. Ct. App. 2012); D’Amico v. Scottsdale Ins. Co., No. 06-7174, 2007 WL 854308 (E.D. La. Mar. 15, 2007); Dobson v. Allstate Ins. Co., Nos. 06-0252, 06-1097, 06-1064, 06-1255, 06-1734, 06-1585, 2006 WL 2078423 (E.D. La. July 21, 2006); Campo v. State Farm Ins. Co., No. 06-7324, 2007 WL 840125 (E.D. La. Mar. 16, 2007); Tillery v. State Farm Fire and Cas. Ins. Co., No. 06-6876, 2007 WL 805785 (E.D. La. Mar. 13, 2007). These are the residential underinsurance cases from just the first twenty responsive cases to a Westlaw search in just Louisiana state and federal cases, searching for “‘Hurricane Katrina’ & underinsure!” (search performed on March 2, 2018). These cases often were reported – in other words, showed up in the WL database – only because of a federal district court decision on a remand motion after removal. Put another way, these cases are just the tip of the iceberg that was the post-Katrina underinsurance litigation.

⁹ See, e.g., Linblad v. Nationwide Mut. Ins. Co., No. 14-908, 2014 WL 6895775 (D. N.J. Dec. 4, 2014); Bannon v. Allstate Ins. Co., No. 14-1229, 2015 WL 778828 (D. N.J. Fed 24, 2015); Robert v. Liberty Mut. Ins., No. 14-06308, 2015 WL 4138990 (D. N.J. July 8, 2015). Again, these are just the first three of 92 responsive cases identified within Westlaw to the search – within just New Jersey state and federal cases – “‘Hurricane Sandy’ & insurance” (search conducted on March 3, 2018). All three of these cases involve homeowners who were underinsured and sued their insurers, and all are in the Westlaw database because of procedural motions leading to early written trial court orders. Like with Hurricane Katrina, this paints a suggestive picture of a much, much larger body of filed litigation.

The explanation for the prevalence of profound, unintended underinsurance lies with the cost estimator software insurers use to recommend coverage limits. The CDOI only briefly alluded to this software, and the academic world studying insurance appears largely unaware of it. These replacement cost estimators are at the heart of the problem. Through a combination of software design choices in the way that insurance is bought and sold, underinsurance is almost inevitable. For example, the software allows for a “shortcut” calculation rather than detailed analysis, and insurers compensate producers in ways that encourage using the shortcut. While the software can recalculate replacement costs and adequate coverage limits annually, producers are incentivized to not do so for fear of losing existing customers. The software requires time and expertise to accurately detail all construction components, but the deployment of the software usually relies on the homeowner to input data by answering a handful of questions in a few minutes. These are just some of many software features combined with incentives that routinely cause inadequate calculations of replacement costs that get worse over time.

For insurers, the prevalence of inadequate and eroding coverage limits resulting from cost estimators is a feature, not a glitch. Cost estimating software creates the opportunity to capture and retain more market share by selling nominally ‘full’ but actually inadequate insurance coverage. It is an unusual market where a buyer wants and is willing to pay for a more expensive product than the seller has sold. What is particularly peculiar in homeowner insurance, however, is that the insurer is aware this is occurring, and the homeowner is not. As big data companies, insurers have known for the better part of three decades that most homeowner insurance has profoundly inadequate coverage limits, and that the policyholder does not know it. But the legal landscape frequently protects and encourages the insurer. Thus, under the current legal landscape of regulation, legislation, and decisional law, because of the ways cost estimators function and insurance is quoted, homeowners usually bear the cost of a shortfall. In turn, the insurer can more than make up in captured and retained business any actual liability for underinsurance.

This is what many economists would call a ‘moral hazard problem.’ Nobel Prize-winning economist, Paul Krugman, defines ‘moral hazard’ as, “any situation in which one person makes the decision about how much risk to take, while someone else bears the cost of things going badly.”¹⁰ As Peter

¹⁰ See PAUL KRUGMAN, *THE RETURN OF DEPRESSION ECONOMICS AND THE CRISIS OF 2008* 63 (W.W. Norton Co. Ltd. 2009). See also, *Definition of ‘Moral Hazard’*, ECON. TIMES, <https://economictimes.indiatimes.com/definition/moral-haz>

Molk, explains, “insurance brings the potential for perverse increases in risk levels and losses....”¹¹

Exposing the problem also points to a solution. Unintentional underinsurance can be resolved by rejoining risk and responsibility, which can be achieved without constraining the business flexibility or viability of insurers.

This Article will unwind the confluence of misplaced incentives, software, expectations, regulation, and legal interpretation that all cohere to create pervasive, unwitting underinsurance in the United States. Part I of this Article documents and roughly quantifies what is intuitively understood but hard to confirm – that underinsurance is pervasive in the United States. Part II isolates the prevalence of homeowners *unintentionally* underinsuring. Part III describes the cost estimating tools used by insurers, and the human factors that intersect with those tools result in inadequate replacement cost estimates. Part IV collects anecdotal data to bolster or undermine the theoretical predictions of Parts I-III. Part V describes the mechanisms of allocation of risk from underinsurance. Part VI describes how unwitting underinsurance is a moral hazard-like problem. Finally, Part VII suggests reform – allowing insurers to calculate coverage limits however an insurer wishes, but making the insurer bear the cost of error.

I. COVERAGE LIMITS ARE PERVASIVELY INADEQUATE TO REPLACE A LOST HOME

In 2007, Marshall & Swift/Boeckh (“MSB”), the company that at that time manufactured the industry standard software insurers used to calculate insurance coverage limits, reported that for the years it studied, roughly 60% of American homeowners were underinsured by roughly 20-25%.¹² This was not a description of neighborhoods after a flood or fire but rather a snapshot of the entirety of the housing stock in the United States.

ard; Tejvan Pettinger, *Moral Hazard*, ECON. HELP (Nov. 6, 2017), <https://www.economicshelp.org/blog/105/economics/what-is-moral-hazard/>. (“Examples of moral hazard include: Comprehensive insurance policies decrease incentive to take care of your possessions.... Governments promising to bail out loss-making banks can encourage banks to take greater risks.”).

¹¹ Peter Molk, *Playing with Fire? Testing Moral Hazard in Homeowners Insurance Valued Policies*, 2018 UTAH L. REV. 347, 349 (2018).

¹² PETER M. WELLS, *INSURING TO VALUE: MEETING A CRITICAL NEED* 46 (2d ed. 2007).

While the underlying data supporting that conclusion has never been disclosed, MSB has been cited for it even by insurers.¹³

Indeed, empirical verification and quantification of underinsurance is elusive. Even general information about insurance – such as what insurance coverage a company offers – is hard to come by. The insurance industry is, to put it mildly, parsimonious with data.¹⁴ And when it comes to pervasive, inadequate, nominally ‘full’ insurance coverage, an insurer has little if any reason to gratuitously aggregate and publicly *self*-proffer potentially derogatory data. Nor does a regulator likely have the resources (or the necessary reasonable suspicion) to investigate potential *systemic* problems in response to a single, disgruntled homeowner complaining of a one-off underinsured loss claim.¹⁵

Thus, until very recently, there was no reliable source to verify or contradict the MSB conclusions. But that has changed with the combination of a new study on flood insurance and a California Department of Insurance Market Conduct investigation that recently made its way into a public court file. It can be concluded with confidence that most American homeowners nominally have coverage limits described as adequate to fully replace a lost home, and most of the time that coverage is inadequate. Further, it appears the frequency of underinsurance may be closer to 80% than to 60%.

A. THE PREVALENCE OF NOMINALLY ‘FULL’ REPLACEMENT COVERAGE

Professor Jay Feinman writes, “96 percent of homeowners carry insurance.”¹⁶ But not all homeowner insurance provides replacement coverage. A homeowner may have the option to purchase either “actual cash

¹³ Chubb, *Homes*, <https://www2.chubb.com/us-en/individuals-families/Homes.aspx> (last visited March 12, 2018) (citing a “2013 survey by Marshall and Swift/Boeckh” which states that “an estimated 60% of homeowners do not have comprehensive protection.”).

¹⁴ See Daniel Schwarcz, *Transparently Opaque: Understanding the Lack of Transparency in Insurance Protection*, 61 UCLA L. REV. 394, 413-53 (2014).

¹⁵ The matter is further complicated because several states have adopted an NAIC-recommended protocol that empowers state regulators to aggregate market data from insurers in exchange for a commitment that the data remain confidential. See generally Frederick C. Berry, Jr., *Shining a Light on Insurer Misconduct*, https://www.uphelp.org/sites/default/files/publications/shinning_a_light_on_insurer_misconduct_12_1_0.pdf.

¹⁶ Feinman, *supra* note 3, at 122.

value” coverage (ACV) or “replacement cost value” coverage (RCV).¹⁷ And not all consumers purchasing RCV opt for ‘full’ coverage limits.

All that said, likely most homeowners do buy RCV and a relatively small percentage of policyholders choose ‘less than full insurance coverage.’ In 2010 the trade magazine, *Insurance Journal*, reported that according to insurer-commissioned survey results, 71% of homeowners thought their homes were insured for the full cost to rebuild (and were willing to pay a higher premium to get that).¹⁸ In a 2017 study of homeowners required to purchase flood insurance, Professors Collier and Ragin found that given the choice between less than full, full, or more than full replacement cost coverage limits, only 20.45% of homeowners opted for less than full coverage limits.¹⁹ There is no published study reaching a materially different result for standard homeowner’s insurance.

While the Collier and Ragin work focused on flood insurance rather than standard homeowner insurance, there are a variety of reasons to extrapolate the findings of the Collier and Ragin study to standard homeowner insurance. For the most part, standard homeowner insurance is required – if a home has a mortgage then it must have insurance protecting the lender.²⁰ As a consequence, for roughly 70% of homes the required coverage will be for 80% or more of the mortgage.²¹ But when selecting

¹⁷ FED. INS. OFF., U.S. DEP’T OF THE TREASURY, REPORT PROVIDING AN ASSESSMENT OF THE CURRENT STATE OF THE MARKET FOR NATURAL CATASTROPHE INSURANCE IN THE UNITED STATES 16 (Sept. 2015), <https://www.treasury.gov/initiatives/fio/reports-and-notice/Documents/natural%20Catastrophe%20Report.pdf>; See generally Johnny Parker, *Replacement Cost Coverage: A Legal Primer*, 34 WAKE FOREST L. REV. 295 (1999).

¹⁸ *Homeowners Coverage Knowledge Gap Wide Among Consumers*, INS. J. (Aug. 24, 2010), <https://www.insurancejournal.com/news/national/2010/08/24/112704.htm>.

¹⁹ Benjamin L. Collier & Marc A. Ragin, *The Influence of Sellers on Contract Choice: Evidence from Flood Insurance* 6-8, 12, tbl.3 (Fox School of Business Research Paper No. 18-017, 2018), <https://ssrn.com/abstract=3162388>. Usually flood insurance is optional. Standard homeowner insurance, by contrast, is required by any mortgage. But Collier and Ragin confined their study to homeowners who were required to purchase flood insurance. *Id.* at 6.

²⁰ Kenneth S. Klein, *Following the Money – The Chaotic Kerfuffle When Insurance Proceeds Simultaneously are the Only Rebuild Funds and the Only Mortgage Collateral*, 46 CAL. W. L. REV. 305, 308 (2009).

²¹ According to the 2015 Housing Survey, of the 56,337,000 owner-

coverage limits, standard homeowner insurance is cheap. For example in 2015, the average premium for homeowner insurance in the United States was \$1,168,²² while the average premium to insure a single automobile was \$1,009.²³ Or put another way, the average annual cost of auto insurance for an American homeowner with two cars is 42% more than their annual cost of home insurance.²⁴ Because standard insurance is comparatively cheap, there often may be little additional annual expense to a policyholder in purchasing 80% vs. ‘full’ RCV.²⁵

Further, there is a financial incentive for a homeowner to purchase full replacement insurance. Most property insurance policies contain a

occupied homes reporting how their purchase or construction was financed, all but 16,545,000 had a down payment of 20% or less. American Housing Survey, U.S. CENSUS BUREAU (2015), https://www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html?s_areas=a00000&s_year=n2015&s_tableName=Table13&s_byGroup1=a1&s_byGroup2=a1&s_filterGroup1=t1&s_filterGroup2=g1&s_show=S. In other words, by the terms of their mortgages, slightly over 70% of all mortgaged homes were required, at the time of purchase or construction, to have insurance of at least 80% of the purchase or construction price. In 2015, over 60% of all owner-occupied homes with a mortgage had property insurance as part of the monthly mortgage payment. *Id.*

²² NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS, DWELLING FIRE, HOMEOWNERS OWNER OCCUPIED, AND HOMEOWNER TENANT AND CONDOMINIUM/COOPERATIVE UNIT OWNER’S INSURANCE REPORT: DATA FOR 2015 at 34, tbl.4 (2017), http://www.naic.org/prod_serv/HMR-ZU-17.pdf.

²³ NAT’L ASS’N OF INS. COMM’RS, AUTO INS. DATABASE REPORT 2014/2015 at 27, tbl.5 (2017), http://www.naic.org/prod_serv/AUT-PB-14.pdf.

²⁴ *Accord* INS. INFO. INST., *2016 Consumer Insurance Survey – Homeowner Insurance: Understanding, Attitudes and Shopping Practices* at 3, Fig. 2 (Feb. 2017), <https://www.iii.org/sites/default/files/docs/pdf/pulse-wp-020217-final.pdf> (“...only 31 percent of Americans consider homeowner insurance to be a financial burden.”).

²⁵ *Accord* INS. INFO. INST., *2016 Consumer Insurance Survey – Homeowner Insurance: Understanding, Attitudes and Shopping Practices* at 3, fig.2 (Feb. 2017), <https://www.iii.org/sites/default/files/docs/pdf/pulse-wp-020217-final.pdf> (“[O]nly 31 percent of Americans consider homeowner insurance to be a financial burden.”).

“coinsurance provision.”²⁶ These provisions penalize a homeowner for less than 80% insured.²⁷

But perhaps more to the point, it bears recognizing what Collier and Ragin have been studying. Their goal has been to isolate what the influence of producers (any person or entity licensed to negotiate, solicit, or sell insurance²⁸) of insurance and insurers are on the selection of coverage amounts.²⁹ They chose the context of flood insurance sold to homeowners who are required to purchase it because the product is identical no matter what insurer offers it – in other words, the only variable is the seller.³⁰ Collier and Ragin characterize their “main result” as showing “that insurers help select households’ flood insurance contracts.”³¹ Importantly, the insurers’ impact is not trivial, but rather the insurer “significantly affect[s]” the selected coverage amount.³²

The import of this finding is central to the question of the frequency of homeowners purchasing ‘full’ replacement coverage in their standard homeowner insurance. Producers – whether captive or independent – are compensated based on the percentage of premium written.³³ Commissions

²⁶ See ALLEN FIN. INS. GRP., *Coinsurance Defined & Coinsurance Explained*, <https://www.eqgroup.com/coinsurance/> (last visited Sept. 10, 2018).

²⁷ *Id.*; see also Yoong-Sin Lee, *A Graphical Treatment of the Coinsurance Clause*, 52 J. RISK & INS. 644 (1985); IRMI, *Coinsurance Provision*, <https://www.irmi.com/term/insurance-definitions/coinsurance-provision> (last visited Sept. 8, 2018); William K. Austin, *Property Insurance: Coinsurance*, IRMI (2012), <https://www.irmi.com/articles/expert-commentary/property-insurance-coinsurance>.

²⁸ *What is an Insurance Producer?*, CT Ins. Dept., www.ct.gov/cid/lib/cid/anscomle.rtf (last visited Sept. 10, 2018).

²⁹ Collier & Ragin, *supra* note 19, at 1.

³⁰ Collier & Ragin, *supra* note 19, at 1.

³¹ Collier & Ragin, *supra* note 19, at 4.

³² Collier & Ragin, *supra* note 19, at 18, 23-25.

³³ Rick Mikolasek, *How Much Do Insurance Agents Make?*, THE TRUTH ABOUT INS. (Jan. 30, 2012), <http://www.thetruthaboutinsurance.com/how-much-do-insurance-agents-make/>; John Cain, *How Much Do Insurance Agents Make*, U.S. INS. AGENTS, <https://usinsuranceagents.com/how-much-do-insurance-agents-make/>; *Become An Agent: Agent Costs & Compensation*, STATE FARM, <https://www.statefarm.com/careers/become-an-agent/why-state-farm/cost-compensation> (last visited Apr. 2, 2018). Accord E-mail from Madelyn Flannagan, Vice President, Agent Dev., Educ., & Research, Independent Insurance Agents and Brokers of America, Inc., to

positively relate to the amount of coverage.³⁴ More coverage leads to more premium which in turn leads to more commission. In this environment of incentives for full insurance and disincentives for less than full insurance, it is hard to articulate a reason to expect that the percent of ‘full’ RCV coverage limits for standard homeowner coverage is different than for required flood insurance.

All of this suggests that roughly 80% of all homeowners have what they think is standard homeowner insurance coverage limits adequate to fully replace their home if it is lost. Indeed, Madelyn Flannagan – the Vice President, Agent Development, Education, and Research of the Independent Insurance Agents and Brokers of America, Inc. (the trade organization for independent insurance agents) – reports that “at least” 65%-85% of homeowners have full replacement coverage.³⁵

B. THE PREVALENCE OF INADEQUATE REPLACEMENT COVERAGE

Since the overwhelming majority of homeowners want, and are willing to pay for full insurance, one would expect that the overwhelming majority of homeowners have adequate coverage to rebuild in the instance of a total loss. Usually this does not seem like the case.

United Policyholders (“UP”), a pre-eminent consumer advocacy group, has been tracking and working to solve the underinsurance problem since the 1991 Oakland/Berkeley firestorm.³⁶ As part of the organization’s Roadmap to Recovery work in disaster areas it surveys survivors.³⁷ Even allowing for some selection effect, the data describes profound underinsurance. Twenty-four months after the 2007 Southern California Fires, 66% of respondents reported they were underinsured by an average of

Ken Klein (Mar. 29, 2018) (on file with author).

³⁴ Collier & Ragin, *supra* note 19 at 4.

³⁵ E-mail from Madelyn Flannagan, Vice President, Agent Dev., Educ., & Research, Independent Insurance Agents and Brokers of America, Inc., to Ken Klein (Mar. 29, 2018) (on file with author).

³⁶ *Our Mission*, UNITED POLICYHOLDERS, <https://www.uphelp.org/about/mission> (last visited May 11, 2018).

³⁷ *Data Collection Surveys: Roadmap to Recovery Surveys*, UNITED POLICYHOLDERS, <https://www.uphelp.org/roadmap-recovery-surveys> (last visited Dec. 9, 2018). (“Our Purpose: To collect data from disaster survivors on insurance claims and recovery progress at various intervals; identify coverage issues, individual and common problems and solutions, assess the pace of recovery and the claims handling performance of the various insurers in the region.”).

\$319,500.³⁸ Twelve months after the 2010 San Bruno Gas Explosion/Fire, 50% of respondents self-reported they were underinsured by an average of \$200,000.³⁹ Twelve months after the 2010 Fourmile Canyon Fire, 64% of respondents self-reported they were underinsured by an average of \$200,000.⁴⁰ Twelve months after the 2011 Central Texas Wildfire, 56% of respondents self-reported they were underinsured by an average of \$110,000.⁴¹ One year after the 2012 Colorado High Park & Woodland Heights Wildfires, and Waldo Canyon Wildfire, respondents self-reported underinsurance respectively 54%, by an average of \$101,000 and 27.2% by an average of \$77,000.⁴² Six months after the 2013 Black Forest Fire, 38% of respondents self-reported they were underinsured by an average of \$100,000.⁴³ Six months after the 2015 Butte Fire, 65.22% of respondents self-reported they were underinsured.⁴⁴ Six months after the 2015 Valley Fire, 53% of respondents self-reported they were underinsured by an average of \$103,000.⁴⁵ Six months after the 2017 North Bay fires 66% of respondents self-reported they were underinsured on the dwelling portion of their claim by an average of \$317,000.⁴⁶

Other sources (reporting conclusions from undisclosed methodology) come to similar conclusions. A 2015 research paper by Swiss Re describes that in the US and Canada, properties valued at under \$5 million are underinsured by an average of 38%.⁴⁷ A Princeton University doctoral candidate found “the vast majority of interviewed 2003 fire survivors reported that the amount of compensation available to them under their [coverage] limited policies was much less than the cost required to rebuild.”⁴⁸ The financial-focused media entity, CNBC, reports, “According to real estate data company CoreLogic, more than half of homeowner

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Butte Fire – 6 Month Survey*, UNITED POLICYHOLDERS, http://www.uphelp.org/sites/default/files/attachments/buttefire_6mo_results.pdf (last visited Apr. 2, 2018).

⁴⁵ UNITED POLICYHOLDERS, *supra* note 37.

⁴⁶ *North Bay Fires – 6 Month Survey Results*, UNITED POLICYHOLDERS, https://www.uphelp.org/sites/default/files/attachments/north_bay_fires_-_6_month_survey_results_v.2_4.26.18.pdf (last visited Apr. 2, 2018).

⁴⁷ Swiss Re, *supra* note 2, at 22.

⁴⁸ Hassani, *supra* fn. 2 at 149.

insurance policies have a maximum payout that is less than the cost to rebuild the home in the event of a catastrophic loss. Moreover, CoreLogic reports that 1 in 4 homes is protected with a homeowner policy that would cover less than 80 percent of the cost to replace the home.”⁴⁹

This set of converging conclusions is suggestive but does not necessarily equate to rigorous study. A more rigorous study, however, has emerged in an administrative rulemaking file of the CDOI, filed in defense of a regulatory change in the state insurance code.

In the wake of wildfires in Southern California in 2007, the CDOI studied the problem of underinsurance.⁵⁰ The outgrowth of that work was the addition in 2011 of section 2695.183 to Title 10 of the California Code of Regulations (seeking to make replacement cost estimates more adequate). The insurance industry challenged the new regulation in court, with litigation that ultimately ended with a 2017 Opinion by the California Supreme Court.⁵¹ And buried in the Administrative Rulemaking File that the CDOI filed with the trial court is the market conduct study the CDOI performed on the prevalence of underinsurance amongst homeowners generally as well as amongst homeowners who had purchased “extended coverage.”⁵²

⁴⁹ Carla Fried, *Recent Disasters are a Wake-Up Call to Check your Homeowners Insurance*, CNBC (Sept. 5, 2017, 9:01 AM), <https://www.cnbc.com/2017/09/05/harvey-is-a-wake-up-call-to-check-your-homeowners-insurance.html>.

⁵⁰ Ass’n. of Cal. Ins. Cos. v. Jones, 386 P.3d 1188, 1191-93 (2017).

⁵¹ *Id.* at 1194-95.

⁵² Ass’n. of Cal. Ins. Cos., 235 Cal. App. 4th at 1027-30. The work was done by the Department of Insurance’s Market Conduct Division (“MCD”), and before being submitted to the court was reviewed by the Bureau Chief of the Field Rating and Underwriting Bureau. *Id.* MCD “commenced examinations of four insurers who together accounted for approximately 50% of the market share in the residential property insurance line at the time” – Farmers, Allstate, State Farm, and Travelers. *Id.* The “examinations targeted the claim-handling practices related to total losses that resulted from the [2007 El Dorado, Los Angeles, Orange, San Bernardino, San Diego, and Ventura] wildfires, and the underwriting practices related to insurance to value and the customer’s selection of coverage limits when purchasing and continuing the policy.” *Id.* “Similar processes surrounding the dwelling of replacement cost and the selection of Coverage A dwelling limits were observed in each of the four examinations.” *Id.* “In general, each insurer had its own replacement cost estimating tool and value generated by this tool and the value generated by this tool was considered (from the insurer’s perspective) to be the minimum Coverage A limit for which the policy could

The CDOI's focus on extended coverage is important – “Extended coverage is based on a basic coverage amount that is equal to or greater than the estimated replacement cost. In fact, extended coverage cannot be provided unless the basic coverage is at least as great as the estimated replacement cost of the property.”⁵³ In other words, underinsurance amongst homeowners with extended coverage is, by definition, unwitting underinsurance – homeowners who wanted full coverage, were willing to pay for full coverage, and indeed who thought they had *more than* full coverage.⁵⁴

The California Supreme Court later described the survey results, as well as some of its methodology:

In 2008, the Department of Insurance's market conduct division conducted an investigation of the four largest insurers—ones that together accounted for approximately half the market covering these losses. The survey revealed that for a majority of the policies examined, coverage limits matched what was indicated by the insurer's own coverage calculator. But the recommended coverage nonetheless understated what was actually needed to rebuild the insured's home over 80 percent of the time. Even when the homeowner had purchased extended replacement cost coverage, 57

be issued.” *Id.* “MCD staff examined a total of 188 policies during these examinations. In 126 of these cases, the Coverage A limit selected matched the figure produced by the insurer's tool...of these 126 cases, the Coverage A limit was lower than the cost to rebuild following the loss in 102 cases.” *Id.* “When factoring in any extended replacement cost coverage that applied, 72 continued to be underinsured for the total loss.” *Id.* “[T]he examinations revealed that regardless of the insurers' stated positions, the policyholder is relying upon the insurer's estimate...to select Coverage A limits in a significant number of cases.” *Id.*

⁵³ Ass'n. of Cal. Ins. Cos. v. Jones, No. B248622, 2014 WL 1576212 at *34 (Cal. App. 2d. Apr. 4, 2014) (Respondent's Brief).

⁵⁴ See, e.g., State Farm's answer in 2008 to why for one of its insureds it did nothing to confirm that the Coverage A limit was high enough to qualify the insured for extended replacement cost extensions that the insured had: “The underwriter did not need to confirm that the Coverage A limit was high enough...because the Coverage A amount selected by the insured met or exceeded the insurance-to-value estimate.” Ass'n. of Cal. Ins. Cos., 235 Cal. App. 4th at 698.

percent of these policies still underinsured their policyholders relative to the cost of rebuilding their homes.⁵⁵

All of this data is in harmony – roughly 80% of Americans do not have ‘full’ insurance, and most are short by a material amount.

II. THE PREVALENCE OF UNINTENDED, INADEQUATE FULL COVERAGE LIMITS

Sometimes when insurance coverage limits are inadequate to rebuild a home that is a homeowner’s intention. As reinsurer Swiss Re notes, “undervaluation of residential property...can be driven by homeowner... policy choice based on affordability rather than adequate coverage.”⁵⁶ Indeed, some economists theorize an economically rational actor’s ‘optimal’ amount of insurance coverage often may not be full insurance.⁵⁷ This all raises the question of how a homeowner decides on coverage limits.

Many homeowners do not devote much time or attention to purchasing or renewing homeowner’s insurance According to a survey by the Insurance Information Institute (“I.I.I.”), less than half of homeowner insurance policyholders comparison shop at all when their policy is up for

⁵⁵ *Jones*, 2 Cal. 5th at 383.

⁵⁶ Swiss Re, *supra* fn. 2 at 22.

⁵⁷ See, e.g., Jan Mossin, *Aspects of Rational Insurance Purchasing*, 76 J. POL. ECON. 553 (1968). *But see* Eric J. Johnson, John Hershey, Jacqueline Meszaros, & Howard Kunruether, *Framing, Probability Distortions, and Insurance Decisions*, 7 J. RISK & UNCERTAINTY 35, 36 (1993) (“There is abundant evidence, although much of it is anecdotal, that consumers do not make these decisions rationally.”). See also Vernon L. Smith, *Optimal Insurance Coverage*, 76 J. POL. ECON. 68 (1968); George G. Szpiro, *Optimal Insurance Coverage*, 52 J. RISK & INS. 704 (1985); Artur Raviv, *The Design of an Optimal Insurance Policy*, 69 AM. ECON. REV. 84 (1979), reprinted in FOUNDATIONS OF INSURANCE ECONOMICS: READINGS IN ECONOMICS AND FINANCE 251, 261 (Georges Dionne & Scott E. Harrington, eds.) (Kluwer 1991) (“the Pareto optimal insurance contract involves a deductible and co- insurance of losses above the deductible.”). *But see* Christian Gollier, *Optimal Insurance Design: What Can We Do With and Without Expected Utility?* printed in GEORGES DIONNE, HANDBOOK OF INSURANCE 97-115 (Kluwer 2000) (arguing that if information is adequate and symmetrical, the optimal insurance for a risk adverse purchaser may be full insurance, depending upon various factors, such as the type of deductible).

renewal,⁵⁸ and of those who do comparison shop, well over half do so either by phone or online⁵⁹ (neither of which are processes conducive to the kind of detailed inquiry needed to properly determine coverage limits adequate to fully fund a rebuild of a home). Indeed, because for over 60% of homeowners with a mortgage,⁶⁰ their insurance premium is a component of their mortgage payment, the price of insurance may be essentially invisible.

And even for the engaged customer, there is little reason to expect a productive price comparison. According to the I.I.I., 70% of homeowner insurance – measured by premium – is directly written, meaning through captive agents, the internet, or other direct means.⁶¹ Directly written insurance does not generate a price comparison of two or more insurers.⁶²

This all would suggest a lack of price sensitivity by purchasers of homeowner's insurance. This is interesting, because academic research is inconsistent about whether property insurance customers are price elastic.⁶³ Yet one must ask whether resolving this inconsistency matters, since as a former insurance executive confirms, "Insurance companies *believe* their customers are extremely price sensitive, and for this reason are more likely to seek to reduce premium than increase coverage."⁶⁴

⁵⁸ INS. INFO. INST., *supra* note 24, at 13.

⁵⁹ *Id.*

⁶⁰ U.S. CENSUS BUREAU, *supra* note 21.

⁶¹ *Background on: Buy Insurance: Evolving Distribution Channels* INS. INFO. INST., (last visited Dec. 9, 2018), <https://www.iii.org/article/background-on-buying-insurance>. A report published by the Independent Insurance Agents & Brokers Association of America, Inc. places this figure at 55.7%. *Indep. Ins. Agents & Brokers Ass'n of Am., Inc., 2017 Market Share Report* at "Homeowners" Table, <https://www.independentagent.com/Resources/Research/SiteAssets/MarketShareReport/default/2017-Market-Share-Final.pdf>.

⁶² Some confirmation that the difference between captive and independent agent matters is a study of the purchase of flood insurance that found the coverage behavior of agents differed depending upon whether the agent was a captive agent or an independent agent. Collier, *supra* note 19, at 4, 31.

⁶³ Grace, *supra* note 25, at 362 Table 4; *accord* INS. SERV. OFFICE, *Managing Catastrophe Risk* 4 (1996) ("An insurer willing to pay the price of sufficient catastrophe insurance could have trouble competing for business."). *But see* Justin Sydnor, *(Over)insuring Modest Risks*, 2. AM. ECON. J. 179 (2010) (finding Americans are inefficiently risk averse and so pay more than they should for low deductibles).

⁶⁴ Email from Elliott Flood to Ken Klein (Mar. 9, 2018). (Explaining the related issue of policyholder behavior, Molk confirmed the primacy of belief

But generalized price elasticity does not necessarily equate to *intended* less than nominally ‘full’ RCV. While real or perceived price elasticity could result in less than full coverage limits to reduce premiums,⁶⁵ it also could manifest in higher deductibles to reduce premiums,⁶⁶ aggressive comparison shopping between insurers, or some combination of these factors.⁶⁷

Stephan Young, Senior Vice President & General Counsel of the trade association, Insurance Brokers and Agents of the West, suggests that the answer is *intentional* understated replacement cost *both* by producers and their customers:

Both insurers and homeowners have an economic incentive to underestimate replacement costs. Simply put, the lower the replacement cost valuation, the lower the premium. And the lower the premium, the more likely an insurer is to sell its policies in a highly competitive marketplace, and the more money a homeowner can save.⁶⁸

But that explanation falls flat when – as the CDOI found with frequency – insurance coverage is inadequate even with the purchase of extended coverage.

In reality, most policyholders almost certainly are without reflection following the advice generated by a producer or insurer of what coverage limit is adequate to fully replace a home. Why? Because doing just that is the unanimous advice of anyone knowledgeable about buying insurance.

in explaining behavior). Molk, *supra* note 11, at 6-7.

⁶⁵ Swiss Re, *supra* note 2, at 21.

⁶⁶ Grace, *supra* note 25, at 378 (“[Explaining] that consumers tend to follow experts’ advice to increase their deductibles and use the premium savings to purchase additional coverage that offers a better value in terms of protection against risk”). *But see* Johnson, *supra* note 57, at 42 (“Consumers appear to dislike deductibles.”); Sydnor, *supra* note 63 (customers overpay for lower deductibles).

⁶⁷*But see* Benjamin Collier, Howard Kunreuther, Erwann Michel-Kerjan, & Daniel Schwartz, *Risk Preferences in Small and Large Stakes: Evidence from Insurance Contract Decisions*, NBER Working Paper No. w23579 (July 17, 2017), <https://ssrn.com/abstract=3003717> (examining risk preferences in flood insurance, policyholders have substantial risk aversion, strongly preferring low deductibles and high coverages).

⁶⁸ Administrative Rulemaking File for Cal. Code Regs., tit.10, § 2695.183, *supra* note 4, at 1198.

State Departments of Insurance across the country advise homeowners to ask their insurer or agent for the amount of coverage necessary to replace a home.⁶⁹

⁶⁹ See, e.g. TEX. DEP'T OF INS., *Homeowners Insurance* (September 2017), www.tdi.texas.gov/pubs/consumer/cb025.html (“Ask your insurance company if you aren’t sure how much it would cost to rebuild your home.... Consider whether your property coverage limits are high enough to replace your house.... You can increase property...coverages if you don’t think they are high enough.”); STATE OF WIS., OFFICE OF THE COMM’R OF INS., *Frequently Asked Questions, Homeowner’s Insurance 2* (Jan. 2017), <https://oci.wi.gov/Documents/Consumers/PI-232.pdf> (“[a]mount should equal the cost of rebuilding your home in the event that it is destroyed.... Your agent will be able to assist you in determining the amount of insurance that is appropriate for your home...”); IND. DEP’T OF INS., *Property Insurance*, <https://www.in.gov/iDOI/2573.html> (“To adequately insure your dwelling, you must know its replacement value. If you aren’t sure of your home’s value, play it safe and get help from your agent.”); PENN. DEP’T OF INS., *Insurance Facts for Pennsylvania Consumers, Your Guide to Homeowners Insurance* 6-7, <http://www.insurance.pa.gov/Coverage/Documents/homeowners.pdf> (“It is important to insure your home to replacement cost value because under certain circumstances you may be subject to a recovery amount less than what it would cost you to restore your home to its pre-loss condition.... You should also check with your agent or insurance company at least once a year to make sure your policy provides adequate coverage.”); N.C DEP’T OF INS., *A Consumer Guide to Homeowner’s Insurance* 15 (2010), http://www.ncDOI.com/_Publications/Consumer%20Guide%20to%20Homeowners%20Insurance_CHO1.pdf (“You should also discuss your insurance needs with an insurance agent. It is this person’s job to help you choose the right type and amount of insurance.”); COMMONWEALTH OF VA., STATE CORP. COMM’N, *Homeowners Insurance: Consumer’s Guide* 15 (2011), <https://www.scc.virginia.gov/boi/pubs/hoguide.pdf> (“The first step towards determining what policy limits you need is to determine what it would cost to replace your house. The best way to do this is to have an appraiser estimate how much it would cost to rebuild your home if it were totally destroyed and document his estimate in writing. However, appraisals are expensive, so you may want to rely on advice from your insurance agent. Most agents have charts and home replacement cost estimation procedures to help you determine how much insurance you need. If you are not sure of the replacement cost of your house, ask your agent for help.”).

The I.I.I. describes itself as “the leading independent source of objective information, insight, analysis and referral on insurance.”⁷⁰ The I.I.I. website posted an article entitled, *How much homeowner insurance do I need?*, and describes, among other things that “... your insurer will provide a recommended coverage limit for the structure of your home....”⁷¹ In another informational document the I.I.I. generates for homeowners, it advises, “[t]he amount of insurance you buy should be based on rebuilding costs.... Your insurance agent or company representative generally can calculate rebuilding costs for you....”⁷²

The National Association of Mortgage Bankers (“NAMB”) describes itself as “...the voice of the mortgage industry representing the interests of mortgage professionals and homebuyers since 1973.”⁷³ The NAMB’s Executive Director describes that in order to close a purchase of a mortgaged home, typically the anticipated insurer provides to the anticipated lender a binder that reflects the “proposed dwelling coverage which would include replacement cost of the home.”⁷⁴ Indeed, the Executive Director of the NAMB reports that she “would presume that the insurer would inform the consumer regarding the maximum coverage that they would be able to purchase based on replacement cost.”⁷⁵

In testimony before the National Association of Insurance Commissioners, Ron Papa, past President of the National Association of Public Insurance Adjusters, explained, “Many consumers believe *having insurance* equates to *having insurance for everything* and that is the way some in the industry seem to like it.”⁷⁶

⁷⁰ INS. INFO. INST., *About Us*, <https://www.iii.org/about-us> (last visited Feb. 20, 2018). It bears mention, however, that the membership of the Board of Directors of the I.I.I. is 100% comprised of representatives from insurers and reinsurers. INS. INFO. INST., *2018 Board of Directors*, https://www.iii.org/sites/default/files/docs/pdf/2018_board_of_directors.pdf (last visited Feb. 20, 2018).

⁷¹ INS. INFO. INST., *How Much Homeowners Insurance Do I Need?*, <https://www.iii.org/article/how-much-homeowners-insurance-do-you-need> (last visited Feb. 27, 2018).

⁷² INS. INFO. INST., *Insurance for Your House and Personal Possessions: Deciding How Much You Need*, <https://www.iii.org/sites/default/files/docs/pdf/possessions.pdf> (last visited Apr. 2, 2018).

⁷³ NAT’L ASS’N OF MORTG. BROKERS, *About NAMB*, https://www.namb.org/about_namb.php. (last visited Apr. 2, 2018).

⁷⁴ E-mail from Valerie Saunders (Feb. 21, 2018) (on file with author).

⁷⁵ *Id.*

⁷⁶ Ronald J. Papa, *Testimony of the National Association of Public*

There are companies that build and sell tools directly to insurance companies for determining the cost to replace a particular property during underwriting. These companies generate the tools as well as extensive training videos and directions for agents as to how to use these tools. While a consumer *could* buy the tool, that is not these companies' target customer. Their business model simply assumes it is the insurer who calculates replacement cost when coverage determinations are made in the course of selling or renewing insurance.⁷⁷

Finally, of course, there are the consumers themselves. They tell the same story repetitively – they relied on their agent to set coverage.⁷⁸ As one

Insurance. Adjusters Before the National Association of Insurance Commissioners Property and Casualty Insurance. (C) Committee Public Hearing on Catastrophe Claims at 10, NAIC (Dec. 2, 2012), http://www.naic.org/documents/committees_c_related_hearing_testimony_docs.pdf?160.

⁷⁷ Verisk, *360Value*, <https://www.verisk.com/insurance/products/360value-overview/> (last visited Apr. 4, 2018) (“360Value helps property insurers meet evolving customer expectations, while maintaining rating integrity.”); CoreLogic, *RCT Express: Risk Assessment and Valuation Platform*, <https://www.corelogic.com/products/rct-express.aspx> (last visited Apr. 4, 2018) (“RCT Express delivers the reliable reconstruction cost estimating that carriers have come to rely on for their new business and renewal workflows.”).

⁷⁸ See, e.g., ASS'N. OF CAL. INS. COS., 235 Cal. App. 4th at 56 (“I ask about the \$186,000 total if it was necessary for I was going to remodel my kitchen. He told me with replacement costs built into my policy I would be fine.”), 65 (“I had a conversation with my agent 3 months before the fires about the possibility of being under insured...”), 80 (“After the Cedar fire [sic] in San Diego I contacted my broker to increase my coverage.”), 100 (“Given the fact that my Agent stated that we were fully covered, I felt we were indeed ‘in good hands’ and believed that, in the case of a total loss, we would indeed have enough to fully replace our lost home.”), 175-76 (“I contacted State Farm in the fall of 2004 and told Ms. Bowman that I was concerned about being underinsured in the aftermath of the Cedar Fire.... Ms. Bowman told me unequivocally that we had enough insurance coverage and were fully protected.... At one point she used the phrase ‘buckets of money’ to describe the protection that the State Farm policy provided.”), 200 (“In 2003, after the Old Fire, I called Allstate to ask if my policy limits were adequate in the event of a total loss.... I was told they were.... I called Allstate again.... My policy limits were raised I was thoroughly reassured...that I had ‘more than enough coverage’....”), 562 (“My husband said the amount

homeowner wrote to the CDOI in 2008, “I assumed that the insurance agent was an expert in determining the cost to rebuild my home based on the fact that she is an insurance broker; insurance is her business in my community.”⁷⁹

Here is how the CDOI described essentially the same point in briefing to the California Supreme Court:

[D]espite insurers’ attempts to place the responsibility to select appropriate coverage limits on homeowners, homeowners in fact relied on insurers’ estimates of replacement cost to determine the amount of coverage to buy, and, as a result of insurers’ failure to include all reasonable and necessary expenses in their estimates, a large number of homeowners were underinsured.... “[T]he insurers’ processes and tools for estimating replacement cost are inadequate for formulating a realistic dwelling rebuilding cost” and their use “result[s] in insureds who believe they are adequately covered for the full reconstruction cost of their dwelling....”⁸⁰

United Policyholders filed an amicus brief with the California Supreme Court, along with the neighborhood associations of two San Diego neighborhoods devastated by two separate wildfires, summarizing what all industry insiders have always known:

The vast majority of underinsured homeowner *followed an agent or insurer’s recommendations and purchased an amount of home insurance that was based on a replacement estimate provided by the agent or insurer.* Insurance sales representatives routinely perform a replacement estimate calculation and provide it to the insured at the point of sale. They induce consumers to rely on their professional expertise and consumers do so. Insurance sales representatives advertise themselves as experts in protecting people’s assets. That expertise and the quality of the protection...is the essence of their sales pitch.⁸¹

seemed low, he offered to increase the insurance, and he questioned the amount several times. The agent represented that the amount was enough to replace the house.”).

⁷⁹ Ass’n. of Cal. Ins. Cos., 235 Cal. App. 4th at 723.

⁸⁰ Ass’n. Cal. Ins. Cos. v. Jones, No-S226529, 2014 WL 508598 at *11 (Cal. App. Feb. 5, 2014) (Appellant’s Opening Brief).

⁸¹ Ass’n. of Cal. Ins. Cos. v. Jones, No. S226529 2014 WL 3428812 at

There simply is no real dispute from the interested parties on all sides – other than in a post natural disaster public relations or legal damage control context⁸² – that a homeowner buys homeowner insurance on the basis of a coverage recommendation given at the point of sale by the insurer or insurer’s producer.⁸³ Indeed, in the files of the CDOI, insurers routinely acknowledge that at least historically, insurers or their producers were the ones that estimated coverage limits.⁸⁴

Of course, producers have at least two reasons to quote *full* coverage limits. First, producers are paid on commission, and presumably know the infrequency of customers price-shopping insurance. Second, intentionally mis-describing and understating the adequacy of coverage exposes the producer to liability.⁸⁵ So, one would reasonably expect that in the majority of instances, producers want to quote full coverage at whatever number the producer actually thinks is ‘full’ RCV.⁸⁶

*16-17 (Cal. App. July 10, 2014) (Amicus Brief of United Policyholders, Scripps Ranch Civic Association, Rancho Bernardo Community Council in Support of Defendant and Appellant) (emphasis in original).

⁸² Klein, *supra* note 3, at 364-65.

⁸³ See, e.g., Hassani, *supra* note 2, at 151-72.

⁸⁴ See, e.g., Ass’n. of Cal. Ins. Cos., 235 Cal. App. 4th at 74, 146, 154, 186, 196, 227, 323 (“The agent appears to have calculated coverage...”), 371, 411, 414 (“agency calculated...dwelling coverage limit”), 464 (“The Coverage A limit was figured at policy inception. Over the years...I figured...”), 520 (“With the information provided by the insured I used the CAN replacement cost estimator to calculate the estimated coverage”), 562, 584, 689 (“My agency did not calculate the Coverage A amount. We did, however, calculate an estimate”), 993-94.

⁸⁵ For an overview of the complex set of regulations concerning duties of producers, see UNITED POLICYHOLDERS, *Links to Materials Produced in the Agents E&O Standard of Care Project which was Commissioned by the Big “I” Professional Liability Program and Swiss Re Corporate Solutions* (October 2016), http://www.uphelp.org/sites/default/files/publications/listing_of_big_i_swiss_re_agents_standard_of_care_information.pdf. It bears noting that through the device of the insurable interest requirement, an insurer can limit the amount paid to the actual replacement value even if the coverage exceeds that amount. See Mol, *supra* note 11, at 360.

⁸⁶ In 2008, the trade magazine, *National Underwriter Property & Casualty*, asked its readers, “what producers and insurers should ethically do to have properties properly insured;” it summarized the answers it got as, “[V]ery few responding believed there was no ethical responsibility for

And yet this leads to a conundrum – if a policyholder is willing to buy ‘full’ coverage and a producer has a financial incentive to sell ‘full’ coverage then why is the estimated ‘full’ coverage so routinely low?

III. HOW THE COST TO REBUILD A HOME IS ESTIMATED

Why are RCV coverage limits pervasively and profoundly inadequate? The answer comes from knowing where the predicted ‘cost of full replacement’ number comes from. And the answer to that question is replacement cost estimating tools.⁸⁷ To understand why coverage limits are ubiquitously low, one must understand the tools.⁸⁸

A. THE COVERAGE ESTIMATING TOOLS

There are two companies – Verisk Analytics, Inc.⁸⁹ and CoreLogic, Inc.⁹⁰ – that dominate the market of creating and selling to insurers software

producers to offer advice as to insurance-to-value. On the other hand, no one claimed there was any legal duty to do so, either.” Peter R. Kensicki, *Whose Fault is it When Properties are Underinsured?*, NAT’L UNDERWRITER PROP. & CAS. (Apr. 27, 2008), <https://www.propertycasualty360.com/2008/04/27/whose-fault-is-it-when-properties-are-underinsured/>.

⁸⁷ See, e.g., Ass’n. of Cal. Ins. Cos., 235 Cal. App. 4th at 464 (“The Coverage A limit was figured at policy inception. Over the years in talking with contractors, and seeing the typical replacement cost figures that the Farmers system (which uses Marshall-Swift) would give me, I figured”), 520 (“With the information provided by the insured I used the CAN replacement cost estimator to calculate the estimated coverage”), 689 (“My agency did not calculate the Coverage A amount. We did, however, calculate an estimate using the Marshall & Swift/Boeckh tool State Farm provided at the time.”). See also *Id.* at 1029 (“each insurer had its own replacement cost estimating tool.”).

⁸⁸ Hassani, *supra* note 2, at 33 (“valuation algorithms and methodologies have routinely failed to generate accurate home reconstruction costs ...”).

⁸⁹ Verisk began as the Insurance Services Office – the property and casualty insurer trade organization – but now describes itself as, among other things, “a leading data analytics provider serving customers in insurance” Verisk, Annual Report (Form 10-K) at 4 (Dec. 2, 2018).

⁹⁰ CoreLogic self-describes itself as a “leading property information, analytics and data-enabled services provider in North America” CoreLogic, Inc., Annual Report (Form 10-K) at 3 (Feb. 24, 2017). According to CoreLogic, central to CoreLogic’s ability to compete with Verisk as a

to calculate appropriate homeowner insurance coverage limits. Between them, they capture close to the entirety of the market.⁹¹ A third company – e2Value – is a relatively recent market entrant trying to compete by doing something largely different.⁹² For residential underwriting, Verisk’s underwriting product is 360Value. CoreLogic’s underwriting product is RCT. e2Value’s underwriting product is Pronto (a later generation trade name of a sister-product, Mainstreet). The most straightforward way to describe the three coverage estimating tools is to detail what 360Value does and then to differentiate RCT and Pronto.

1. 360Value

Verisk describes 360Value as a tool for insurers – when underwriting new insurance or renewing existing coverage -- for determining the cost to rebuild a home: “From underwriting to policy renewal” 360Value provides a “replacement cost estimation system to generate reliable estimates

provider of tools for estimating rebuilding costs is that CoreLogic acquired Marshall & Swift/Boeckh in March of 2015. *Id.* at 79. MSB, which CoreLogic headlines as “the gold standard of building cost data,” is described by CoreLogic as having “80 years of experience ... ensuring users have the tools for a complete and defensible determination of value.” CoreLogic, *Marshall & Swift: The Gold Standard of Building Cost Data*, <http://www.corelogic.com/solutions/marshall-swift.aspx> (last visited Apr. 2, 2018).

⁹¹ E-mail from Guy Kopperud to Ken Klein (Mar. 22, 2018, 9:20 PST) (on file with author). Verisk says its decision analytics customers are “the majority of the P&C insurers in the U.S.” Verisk Analytics, Inc., Annual Report (Form 10-K) at 4 (Feb. 20, 2018). *Accord* Collier & Ragin, *supra* note 61, at 7 (“Out of the eight [insurers identifying] their replacement cost software, six currently use Marshall & Swift ...”). According to its co-founder, e2Value’s market share as measured by percentage of insurer entities in the U.S. (~1500) is about a third, but as measured by written premium would not be nearly that. e2Value’s market share has a higher penetration in high-value insured properties. E-mail from Todd Rissel to Ken Klein (May 2, 2018).

⁹² e2Value is a private company formed in 2000 by George Moore and Todd Rissel. *Company*, E2VALUE, <http://e2value.com/coompany> (last visited Mar. 1, 2018). On May 13, 2008, the United States Patent and Trademark Office issued Patent No. 7,373,303 to Moore and Rissel for a method and system for “estimating building reconstruction costs.” U.S. Patent No. 7,373,303, at [21] (issued May 13, 2008).

for every property....”⁹³ And per Verisk, a *lot* of insurers use it: “Insurers already use 360Value to conduct almost 50% of all property replacement cost estimates in the United States.... 360Value is becoming the most widely used reconstruction cost estimator in the United States.”⁹⁴ For these 50% of all U.S. property replacement cost estimates, Verisk makes a promise: using 360Value, there will be “no surprises for underwriters or policyholders in the event of a total loss.”⁹⁵

360Value seeks to deliver on Verisk’s promise by leveraging Verisk’s existing data and tools for claims adjusting. The data and tools primarily are those of Xactware Solutions, Inc. Xactware is a wholly owned subsidiary of Verisk.⁹⁶ Verisk represents that Xactware is “a leading supplier of estimation software for professionals involved in building repair and reconstruction.”⁹⁷ 360Value starts with Xactware’s database, and massages the numbers to account for some variables such as rising building costs over time⁹⁸ and demand surge in the wake of natural disaster⁹⁹, and thus derives an estimated cost to replace for purposes of underwriting at the time of selling insurance or revisiting coverage limits at the time of renewal. Or in the words of Verisk, 360Value is designed to “match the front end to the back end.”¹⁰⁰

But while 360Value utilizes a variety of data sources (the delineated data sources are “public records, global information system (GIS) data, existing underwriting and claims estimates, [and] regional modeling”),¹⁰¹ fundamentally 360Value is reliant upon Xactware’s data and technology, which Verisk describes as, “The key to the accuracy and reliability of 360

⁹³ VERISK, 360VALUE 3 (2016), <https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-overview.pdf>.

⁹⁴ *Id.* at 2. This is a serious encroachment on the market share of MSB, which as recently as 2006 was described as having a monopoly position. Elliot Spagat, *Insurance Calculator Questioned: Homeowners Discover Coverage Was Insufficient*, WASH. POST, at G3 (July 24, 2004), <http://www.washingtonpost.com/wp-dyn/articles/A9509-2004Jul23.html?noredirect=on>.

⁹⁵ VERISK, *supra* note 93, at 8.

⁹⁶ VERISK, *supra* note 91, at 112.

⁹⁷ VERISK, *supra* note 91, at 5.

⁹⁸ VERISK, *supra* note 93, at 3.

⁹⁹ VERISK, *360Value Overview*, <https://www.verisk.com/insurance/products/360value-overview/> (last visited Feb. 28, 2018).

¹⁰⁰ VERISK, *supra* note 93, at 8.

¹⁰¹ VERISK, *supra* note 93, at 5.

Value estimates...”¹⁰² That ‘data and technology’ set comes from claims adjusting – it is “Xactimate, Xactware’s industry-leading claims estimation solution.”¹⁰³ That is an extensive set, because 360Value claims Xactimate is used by “80 percent of insurance repair contractors” and “22 of the top 25 U.S. property insurers.”¹⁰⁴ As Verisk brags, 360Value uses “true component-based replacement cost estimates based on actual claims information.... This true component-based approach...is what sets 360Value apart from other cost-estimating tools.”¹⁰⁵

So, what is Xactimate? Xactimate is aptly described by an Xactimate Affiliate Trainer, Mark Whatley:

Xactimate gives users access to pricing databases for 468 distinct markets throughout the United States and Canada. Xactware publishes and maintains these price lists for both structural repair and cleaning, updating them at least once per quarter.

Each structural repair and cleaning database contains more than 19,500 unit-cost line items. For each line item, Xactimate provides:

- Labor costs
- Labor productivity rates (for new construction and restoration)
- Labor burden and overhead
- Material costs
- Equipment costs
- Contents replacement cost value

The Xactimate price lists seek to contemplate the costs to perform various activities within the confines of the restoration ecosystem. e.g., storage, contents packouts & restoration, mold remediation, water extraction, environmental testing, asbestos abatement, etc.

In most regions, a new price list is generated monthly. This updated price list incorporates ~10 new line items and significant modifications to an additional ~30 line items. Traditionally, user feedback is the catalyst for the adoption of new line items and material updates.¹⁰⁶

¹⁰² VERISK, *supra* note 93, at 3.

¹⁰³ VERISK, *supra* note 93, at 3.

¹⁰⁴ VERISK, *supra* note 93, at 8.

¹⁰⁵ VERISK, *supra* note 93, at 3.

¹⁰⁶ Mark Whatley, *Xactimate: The History & The Future*, ACTIONABLE INSIGHTS 2 (Apr. 2018), <https://www.getinsights.org/xactimate-history-future/>.

To understand Xactimate, and in turn Xactware, and in turn 360Value, it is of immense importance to understand precisely *where* the foundational price data comes from, because it is not simply a download of the prices charged by a big box construction supply store such as Home Depot or Lowe's. Xactimate is the self-described "industry leading" tool for claims adjusting.¹⁰⁷ And the raw data for the "industry leading" tool largely is the aggregated data from billions of line items from previously adjusted claims.¹⁰⁸

That, in a nutshell, is how 360Value works. Billions of lines of data are aggregated from millions of adjusted claims. That data is combined with localized retail price data as well as a database of construction contracts emerging from those claims negotiations. The claims data then is updated quarterly,¹⁰⁹ monthly,¹¹⁰ or even more frequently as needed,¹¹¹ and for purposes of 360Value is combined with weather and other predictive software to incorporate unusual risk factors.¹¹² And this then all results in a tool that a producer can use to estimate rebuild costs in order to determine coverage limits and premium. Essentially, used properly, 360Value prices the hypothetical reconstruction of a house down to its nails and screws.¹¹³

But that takes a lot of time. Time a producer may not have.¹¹⁴ According to Verisk's literature, "360Value can calculate residential building estimates with as little as the address, year built, and total finished square footage."¹¹⁵ Additionally, "360Value gives you the option of selecting

¹⁰⁷ VERISK, *supra* note 93, at 3.

¹⁰⁸ Whatley, *supra* note 104, at 13; XACTWARE, *Pricing Data Services*, <https://www.xactware.com/en-us/resources/pricing-data-services/overview/> (last visited Feb. 28, 2018). For a great more detail on the Xactware approach to data analytics generating a price list, see XACTWARE, *Pricing Research Methodology* (Feb. 6, 2018), <https://www.xactware.com/globalassets/us/pdf/brochures/pricing-research-methodology.pdf>.

¹⁰⁹ VERISK, *supra* note 93, at 3.

¹¹⁰ Whatley, *supra* note 106, at 2.

¹¹¹ See *California Wildfires – Xactware Support*, XACTWARE, <https://www.xactware.com/enus/support/california-wildfires/>.

¹¹² VERISK, *supra* note 93, at 3-6.

¹¹³ VERISK, *supra* note 93, at 3-6.

¹¹⁴ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 1217 ("Many producers generate hundreds of quotes per week.").

¹¹⁵ VERISK, *supra* note 93, at 3.

a quality grade for either the entire property or specific rooms....”¹¹⁶ An insurer can also simply enter an address and 360Value will pre-fill up to 65 characteristics of a home.¹¹⁷

2. RCT

CoreLogic’s product is RCT (“RCT Express” as an ‘app’).¹¹⁸ As CoreLogic describes its product:

We’ve spent the last eight decades perfecting our total component methodology. This unique estimating methodology researches building costs from the ground up, with unparalleled research into local labor, materials and equipment costs in more than 750 independent regions. We research more than 100,000 construction line items; 90 labor trades; and construction crew sizes, productivity, soft costs and code variations to give you consistent and current cost information. We validate our estimates with local and national research, home surveys, contractor estimates, construction samples and insurance loss analysis. In addition, we get inputs from design firms, architects, universities and construction organizations.¹¹⁹

We localize costs at the micro-economic level and score property characteristics for reliability based on age, completeness and accuracy with our proprietary algorithms. Then, we use those property characteristics to provide more accurate risk values to give you a deeper understanding of residential structural risk, building condition and contents.¹²⁰

Benefits include: One-step estimating and risk assessment.¹²¹

RCT sounds a lot like 360Value, and in the largest sense – a price list, data base, component-based estimating system – it is. There is one significant difference, however. RCT is not primarily using claims adjusted

¹¹⁶ VERISK, *supra* note 93, at 3

¹¹⁷ VERISK, *supra* note 93, at 5.

¹¹⁸ *See generally* CoreLogic, *supra* note 77.

¹¹⁹ *Structural Risk and Valuation*, CORELOGIC, <https://www.corelogic.com/solutions/structural-risk-andvaluation-solutions.aspx> (last visited April 2, 2018).

¹²⁰ *Id.*

¹²¹ *RCT Express*, CORELOGIC, <http://www.corelogic.com/downloadable-docs/rct-express.pdf> (last visited Apr. 2, 2018).

contracts and prices in its data; rather, RCT primarily is using retail price data.¹²²

3. Pronto

As alluded to above, in some ways Pronto is a horse of a different color. Pronto draws upon “public and private data sources” including the company’s “own deep data” “to ensure...property estimates are as accurate as possible.”¹²³

e2Value starts from a different premise than Verisk or CoreLogic. e2Value believes that the predominant drivers of replacement cost are where a house will be built and what the quality/prestige expectations of builders for that neighborhood are.¹²⁴ Stated differently, the cost of building the same house in Flint, Michigan, in Detroit, Michigan, and in Grosse Pointe, Michigan will vastly differ even though all three builders have access to the same labor and materials markets. Pronto is based on algorithms that analyze data on the premise that this dimension is far more predictive of accurate costs than detailed component-based price lists.¹²⁵

Like 360Value and RCT, “Pronto allows...customers to access a comprehensive valuation report instantly, after inputting only the property’s address.”¹²⁶

B. THE PROBLEMS WITH THE COVERAGE ESTIMATING TOOLS

360Value, RCT, and Pronto are very sophisticated tools for estimating replacement costs of homes when underwriting insurance, and yet unwitting underinsurance persists. Why does it happen? The short answer is that fundamentally it is impossible to precisely predict a future rebuild cost. The longer answer looks at the architecture of replacement cost estimating tools, and the human factors of the people using those tools. The software designs make understating of risk possible and the human factors make understating risk likely.

¹²² E-mail from Guy Kopperud to Ken Klein, Professor of L., Cal.W. Sch. of L. (Apr. 5, 2018).

¹²³ *About Us*, E2VALUE, <http://e2Value.com/us/> (last visited Mar. 1, 2018).

¹²⁴ Email from Todd Rissel to Ken Klein, Professor of L., Cal.W. Sch. of L. (Mar. 3, 2018).

¹²⁵ *Id.*

¹²⁶ e2Value, *supra* note 123.

But before detailing of these systemic and human factors, there is a caveat: As to any of these systemic or human factors, one could posit that they are unlikely or purely theoretical, or that the impact of them is small or not at all. But if all of these factors were of little influence then certainly extended replacement coverage creating a 25%, 50%, 100%, or even 150% fudge factor or buffer would be sufficient to prevent underinsurance, and yet time and again it is not.¹²⁷ The CDOI's market conduct examinations of insurers found that the tools used by insurers were "inadequate for formulating a realistic dwelling rebuilding cost."¹²⁸ In other words, the estimates often did not come close.

1. Systemic Architecture of Replacement Cost Estimating

a. *shortcuts*

As described above, all three estimating tools – 360Value, RCT, and Pronto – allow estimating to be done with very little information, sometimes just a street address, or an address plus the age of home and its square footage. But in estimating, shortcuts are a problem.

As two Assistant Vice-Presidents of Xactware describe, if the goal is accuracy:

Estimates are calculated by entering all known property-specific building attributes.... The property-specific building attributes drive all system assumptions and the subsequent components used to calculate the estimate. The quantity and quality of this information will influence reliability of the estimate.... The more building attributes used, the more reliable the replacement-cost estimate.¹²⁹

For component-based programs (RCT and 360Value), "Replacement-cost estimators depend on the underlying labor and material component costs that serve as building blocks for the estimate. To ensure

¹²⁷ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 1027-30.

¹²⁸ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 1030.

¹²⁹ Scott Amussen & Mike Fulton, *A Balancing Act: Homeowners writers strive for underwriting efficiency without sacrificing reliable replacement-cost estimates*, BEST'S REV. 1, 2 (Nov. 2010) <https://www.xactware.com/globalassets/us/pdf/360value/bests-review-nov2010-property-attributes.pdf>.

accuracy, these components must be comprehensive, accounting for all permutations and combinations of features possible in a given structure.”¹³⁰

The following language from the ‘303 patent (the patent underlying Pronto) is instructive:

Attempts have been made to simplify the methodology for estimating construction costs. U.S. Pat. No. 5,546,564 to Horie proposes a construction cost estimating system in which a database of completed construction projects is maintained with cost data for each project and other data for sorting the projects for relevance to a particular proposed new project.... This technique, however, is subject to substantial inaccuracy due to the effects of its simplifying assumptions. ...there are a great many cost influences that will vary from project to project, thus making it impractical to assess the relevance of any given project to another.¹³¹

But Pronto is not immune from the problem either. As Todd Rissel (one of the two founders of e2Value) describes, while Pronto strives for and claims to achieve accurate estimating within 2.5% of actual cost to replace, failure to put in the detail of a property as actually built – for example, whether the roof cover is clay tile vs. asphalt shingle – can cause discrepancies (per Rissel) of up to 15%.¹³²

What is odd and difficult to explain is that shortcuts seem to lead disproportionately to understating valuation. In the wake of the 2003 Cedar Fire, the allegation was made that the shortcut function in the MSB software led to dramatic underinsurance.¹³³ The same seems to be the experience today with 360Value.¹³⁴ And while of course it is difficult to draw too much from these data points because there is no reason to hear complaints when the estimate either is accurate or high, the natural experiments described

¹³⁰ *Id.*

¹³¹ U.S. Patent Application No. 10/013,428, Publication No. 2008/0103991 A1 (published May 1, 2008) (George C. Moore & Todd Rissel, applicants).

¹³² Email from Todd Rissel to Ken Klein dated March 2, 2018.

¹³³ *See, e.g.*, Jeanette Steele, *Coverage gap in rebuilding linked to cost calculators*, SAN DIEGO UNION TRIBUNE (Aug. 22, 2004), http://www.carehelp.org/files/News/20040822_Coverage_gap_in_rebuilding_linked_to_cost_calculators.pdf.

¹³⁴ *See, e.g.*, Complaint & Demand for Jury Trial, *Bivin v. United Services Automobile Association*, No. SCV-261717 (Super. Ct. of the State of Cal. For the Cty. of Sonoma Dec. 21, 2017).

below suggest that in fact, shortcuts tend disproportionately to lead to low estimates.

Finally, it bears noting that while the shortcut function presumably could be removed from the software, it is not.¹³⁵

b. *timing*

As the Insurance Information Institute recognizes, “If the limits of your policy haven’t changed since you bought your home, then you’re probably underinsured.”¹³⁶ There are at least two potential causes – in the absence of extraordinary events – of coverage adequacy deterioration even in a single policy year – inflating building costs and building code changes.

Even in the absence of ordinary inflation “materials prices and labor rates change constantly.”¹³⁷ Historically, the change is in only one direction – up. As Verisk explains about 360Value, “To incorporate the most current changes in reconstruction material and labor costs, the Xactware team updates reconstruction cost data quarterly.”¹³⁸ Verisk then publishes every fiscal quarter a “360Value Quarterly Cost Update” on construction costs.¹³⁹ The Verisk library of quarterly reports begins with Q3 2011 (which reports on Q2 2011)¹⁴⁰ and thus far runs through Q1 2018 (which does not give a quarterly figure for Q4 2017;¹⁴¹ the last reported quarterly figure thus far is for Q3 2017).¹⁴² For all but one of these 26 of these reported quarters, each

¹³⁵ A company designing the software might hesitate to remove the shortcut feature for fear that it would be economically unsustainable for an insurer or producer to do full, detailed cost estimates.

¹³⁶ INS. INFO. INST., *supra* note, 72 at 4.

¹³⁷ Amussen & Fulton, *supra* note 129, at 1-2.

¹³⁸ VERISK, *supra* note 92, at 3.

¹³⁹ VERISK, *360Value Quarterly Cost Updates*, <https://www.verisk.com/insurance/campaigns/360value-quarterly-cost-updates/>, (last visited Mar. 7, 2018).

¹⁴⁰ VERISK, *360Value Overview of Property Reconstruction Cost Changes Q3 2011*, <https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/360value-cost-update-us-2011-q3.pdf> (last visited Mar. 7, 2018).

¹⁴¹ VERISK, *360Value Quarterly Cost Update Q1 2018*, https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/q1_2018_usa.pdf (last visited Mar. 7, 2018).

¹⁴² VERISK, *360Value Quarterly Cost Update Q4 2017*, https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/360value_quarterly_cost_update_q4_2017.pdf (last visited Mar.

and every quarter, construction costs have increased. The one exception – Q1 2014 – costs are reported as “virtually unchanged.”¹⁴³ Costs never fall. And annually, costs are reported as rising 1.09% in 2011,¹⁴⁴ 2.02% in 2012,¹⁴⁵ 3% in 2013,¹⁴⁶ 4.3% in 2014,¹⁴⁷ 2.2% in 2015,¹⁴⁸ 2.4% in 2016,¹⁴⁹ and 5% in 2017.¹⁵⁰ Put another way, for every year since 2012, the rate of construction cost increase has exceeded the annual rate of general inflation.¹⁵¹ As a consequence, the coverage limit to rebuild a home is fixed

7, 2018).

¹⁴³ VERISK, *360Value Overview of Property Reconstruction Cost Changes Q2 2017*, https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/360value_cost-update_q2_2014_usa.pdf (last visited Mar. 7, 2018).

¹⁴⁴ VERISK, *360Value Overview of Property Reconstruction Cost Changes Q1 2012*, <https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/360value-cost-update-us-2012-q1.pdf> (last visited Mar. 7, 2018).

¹⁴⁵ VERISK, *360Value Overview of Property Reconstruction Cost Changes Q1 2013*, https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/360value_cost_update_q1_2013_usa.pdf (last visited Mar. 7, 2018).

¹⁴⁶ VERISK, *360Value Overview of Property Reconstruction Cost Changes Q1 2014*, https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/360value_cost-update_q1_2014_usa.pdf (last visited Mar. 7, 2018).

¹⁴⁷ VERISK, *360Value Overview of Property Reconstruction Cost Changes Q1 2015*, https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/360value_cost-update_q1_2015_usa.pdf (last visited Mar. 7, 2018).

¹⁴⁸ VERISK, *360Value Overview of Property Reconstruction Cost Changes Q1 2016*, https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/360value-q1-2016_usa.pdf (last visited Mar. 7, 2018).

¹⁴⁹ VERISK, *360Value Quarterly Cost Update Q1 2017*, https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/360value-q1-2017_usa.pdf (last visited Mar. 7, 2018).

¹⁵⁰ VERISK, *360Value Quarterly Cost Update Q1 2018*, https://www.verisk.com/siteassets/media/underwriting-v/resources/360value-quarterly/q1_2018_usa.pdf (last visited Mar. 7, 2018).

¹⁵¹ *Historical Inflation Rates: 1914-2018*, US INFLATION CALCULATOR, <http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>

for the entire coverage year, but the actual rebuild cost goes up every day of the coverage year.

A similar problem arises with changing building codes. As I.I.I. explains, “In the event of damage, you may be required to rebuild your home to the new codes...”¹⁵² Changes to the building codes making construction costs rise are so ubiquitous, in fact, that the I.I.I. recommends a rider to insurance for these costs.¹⁵³

For both of these reasons – building codes and building costs – even within a single policy year and certainly over the span of several years, the accuracy and adequacy of estimated replacement cost erodes.

Insurers could adjust annually for these factors. They often do not.

c. *predicting catastrophe*

Catastrophes raise costs. The mechanics of this are simple – the construction trades build to expected capacity, and a mass loss in the wake of a natural disaster causes a demand surge.¹⁵⁴

(last visited Mar. 7, 2018); accord Whatley, *supra* note 106, at 2.

¹⁵² INS. INFO. INST., *supra* note 71. See also John Caulfield, *Are Building Codes Revised Too Often?*, BUILDER MAGAZINE (Oct. 1, 2013), http://www.builderonline.com/building/code/are-building-codes-revised-to-o-often_o (“In many states, building codes are reviewed and revised every three years.”). See also *Do’s And Don’ts When Insuring Your Home*, UNITED POLICYHOLDERS <https://www.uphelp.org/pubs/dos-and-donts-when-insuring-your-home> (“Make sure your offers adequate coverage for building code upgrades. The safest bet is full building code upgrade coverage, which is available from companies such as Fireman’s Fund, Safeco, Chubb, and Allied. Most other insurers offer either an extra 10% for building coverage or a flat \$25,000.”). See also *Why You Need Building Code Upgrade Coverage*, GALLI INSURANCE AGENCY, <http://www.galliinsurance.com/why-you-need-building-code-upgrade-coverage/>.

¹⁵³ *Id.*

¹⁵⁴ Amussen & Fulton, *supra* note 129, at 1–2 (“Many factors influence [rebuild] costs, including...demand surge following a catastrophe...”). See also *Will multiple catastrophes impact costs?*, E2VALUE (Nov. 22, 2017), <http://e2value.com/blog/insurance/will-multiple-catastrophes-impact-costs/>; *Labor shortages still a concern for builders*, E2VALUE (Dec. 5, 2017), <http://e2value.com/blog/general-information/labor-shortages-still-a-concern-for-builders/>; Michael Gannon, *Hurricane Sandy Demand Surge Influences Replacement Cost Estimates in the Northeast*, VERISK (Feb. 13, 2013), <https://www.verisk.com/blog/hurricane-sandy-demand-surge-influences->

Demand surge is a complex economic consequence to model, but accurately doing so is of immense importance to insurers.¹⁵⁵ To simply illustrate the issue more concretely, consider concrete. The industry populates inventory, labor, and schedule capacity to anticipated normal construction demand supply – there are not trucks and workers and concrete just lying around waiting for the next hurricane or fire or flood. So, when those weather events do happen, demand spikes, and in turn prices spike too.¹⁵⁶

The insurance industry is well aware of the importance of tracking and understanding the potential impact of natural disasters.¹⁵⁷ More to the point, however, is that Verisk, CoreLogic, and e2Value all recognize the importance of accounting for natural catastrophe and attendant demand surge in order to properly estimate needed coverage to rebuild a lost home.¹⁵⁸

replacement-cost-estimates-in-the-northeast/.

¹⁵⁵ See David Döhrmann, Marc Gürtler & Martin Hibbeln, *Insured Loss Inflation: How Natural Catastrophes Affect Reconstruction Costs*, 84 J. RISK & INS. 851 (2017).

¹⁵⁶ E-mail from Sean Scott to Kenneth S. Klein, Professor of Law, Louis & Hermione Brown Professor in Preventative Law, (April 09, 2018, 19:15 PST) (on file with author). (“To meet the demand, some contractors may bring in or construct their own ‘batch plants’, which are miniature concrete plants that can be set up on a small plot of ground to produce concrete for a tract of homes or larger construction projects. These are not cheap to set up or operate but are often used to help meet demand. Another example of demand surge wreaking havoc was when drywall was imported by the United States from China during the construction boom between 2004 and 2007. This was spurred by a shortage of American-made drywall due to the rebuilding demand of nine hurricanes that hit Florida from 2004 to 2005, and widespread damage caused along the Gulf Coast by Hurricane Katrina in 2005.... [I]t is safe to say that all construction related materials and labor are affected by disasters, especially in and around the immediate affected areas.”) And this assumes, of course, that there are architects and general contractors who are available, and that they do not have to depend upon unlicensed, pirate subs, and trades to do work.

¹⁵⁷ See, e.g., *Background on: Wildfires*, INS. INFO. INST., (Apr. 4, 2018), <https://www.iii.org/issue-update/background-on-wildfires>; Arindam Samanta, *Key Findings From the 2017 Verisk Wildfire Risk Analysis*, VERISK (July 12, 2017), https://www.verisk.com/insurance/visualize/key-findings-from-the-2017-verisk-wildfire-risk-analysis/?utm_source=Social&utm_medium=Twitter&utm_campaign=VeriskSM&utm_content=842017.

¹⁵⁸ See, e.g., VERISK, *supra* note 93, at 6 (“Because many of the data

Improperly accounted for demand surge causes massive underinsurance in the event of total loss.

d. *feedback loops*

360Value and RCT are “component-based” estimating tools. The essence of component-based estimating is in its name – line item components. As Verisk asserts, 360Value “accounts for all labor and material costs down to the screws and nails.”¹⁵⁹ Feedback loops create averages, and averages will often be low.

Consider, for example, the approach of 360Value, which estimates by reference to contracts adjusted in the claims process.¹⁶⁰ In claims

elements needed for replacement cost estimates are the same elements needed for catastrophe modeling, 360Value is ideally suited to capture the detailed, property-specific data needed for effective catastrophe analysis. The point in the underwriting process when replacement cost is reviewed may also be an ideal opportunity to check on catastrophe risk.”); Trish Hopkinson, *Hurricanes Drive Demand Surge in Reconstruction Costs* (Nov. 7, 2017), <https://www.verisk.com/insurance/visualize/hurricanes-drive-demand-surge-in-reconstruction-costs/>; *Store-Specific Demand Surge from Severe Weather*, VERISK, <https://www.verisk.com/insurance/products/respond-weather-analytics-to-predict-demand/store-specific-demand-surge-algorithms/> (last visited April 2, 2018); Anthony Hanson, *What Demand Surge Might Look Like in This Year’s Hurricane Season*, VERISK, (Aug. 7, 2017), <https://www.verisk.com/insurance/visualize/what-demand-surge-might-look-like-in-this-year-s-hurricane-season/>; *Will multiple catastrophes impact costs?* E2VALUE, (Nov. 22, 2017), <http://e2value.com/blog/insurance/will-multiple-catastrophes-impact-costs/>; *CoreLogic Introduces New Desktop Platform for Insurance Providers to Pinpoint Natural Hazard Risk and Tax Data*, CORELOGIC, (Nov. 1, 2011), <https://www.corelogic.com/news/corelogic-introduces-new-desktop-platform-for-insurance-providers-to-pinpoint-natural-hazard-risk-and-tax-data.aspx>; *Assess Natural Hazard Risk n RCT Express*, CORELOGIC, <https://www.corelogic.com/products/natural-hazards-rct-express.aspx> (last visited April 2, 2018); *Hazard HQ*, CORELOGIC, https://www.corelogic.com/landing-pages/hazard-hq.aspx?WT.mc_id=crlg_180813_yVEsA (last visited Aug. 14, 2018). While all the software claim to account for demand surge, there is no disclosure of *how* this is done.

¹⁵⁹ VERISK, *360Value*, <https://www.verisk.com/insurance/products/360-value-residential/> (last visited April 2, 2018).

¹⁶⁰ See Whatley, *supra* note 106, at 5 (“More than 400,000 estimates are returned to Xactware every day....”), 13 (“Xactware’s Pricing Data Service

adjusting Xactware functions as a cost containment tool.¹⁶¹ If functioning *properly*, Xactware will materially ‘contain’ line item prices. That, per force, depresses the price list used in underwriting estimating.

As an illustration, assume a homeowner has lost their home and is trying to rebuild. They have a contractor who has made a detailed bid. One line-item of the bid is 1000 widgets. A widget is priced in the database price for \$1.00. But the actual price of a widget is \$1.05. The insurance adjuster will challenge the line item of any contractor bid that prices the 1000 widgets above \$1000.

Because the contractor is unlikely to complete the work at a loss, they have some choices: They can walk away; they can turn to the homeowner for the difference; they perhaps can find some other line item – let’s say 50 zoobles – that they have a source to get for under list price and thus make up the loss on the widgets; or they can negotiate to try to get more for widgets.¹⁶² In all likelihood, the contractor will do some combination of more than one of these strategies.

But under any scenario, the contractor has an incentive to have the line item for the 1000 widgets be at or as close as possible to \$1000.¹⁶³

...reports cost information based upon actual prices and transactions (completed bids) that have occurred recently in the given market.”); Xactware, *supra* note 108, at 7 (“Xactware’s role is to report a market price based upon recent transactions that have occurred.”).

¹⁶¹Whatley, *supra* note 106, at 3 (“[O]ver the last decade, there has been a substantial increase in the frequency with which independent and Staff Adjusters write their own estimates.... [T]his change in policy has likely had a significant impact as it relates to stagnant pricing within the Xactimate price lists.... Why? Those that are operating under the direction of...insurance executives are trained to...(B) Apply a carrier centric custom price list that is comprised of suppressed pricing and a limited number of items.... In...Scenario “B”, the custom carrier centric price list actually actively works to suppress reimbursement rates for policyholders.”), 4 (“Staff adjusters submitted 63.1 percent of estimates processed by XactAnalysis in 2016.”).

¹⁶²In the event that the contractor engages in negotiation, there is the additional problem of asymmetrical expertise and bargaining power between the contractor and the insurer. *Id.* at 8-10.

¹⁶³The contractor views the adjuster as a volume buyer and so faces immense pressure to “give” in the negotiation. SEAN M. SCOTT, SECRETS OF THE INSURANCE GAME: WHAT YOU NEED TO KNOW ABOUT PROPERTY DAMAGE CLAIMS 47-48 (Heritage 2017) (“...there are too many contractors out there who are willing to drop their pants to get on an approved vendor

Indeed, it may ultimately be exactly \$1000 – the data base price.¹⁶⁴

Let's assume that the adjuster ultimately agrees to a price of widgets at \$1.01 a widget. That becomes the next real-time entry for a widget in the database. And the algorithm of the database will not simply adopt the most recent entry as controlling – it will incorporate the new entry with other entries, so the price now listed in the data base may move only somewhat up – let's say it moves to \$1.005 per widget. Remember – in our example the *actual* current price of a widget is \$1.05.¹⁶⁵

The point here is simple. Feedback loops will average together *all* prices -- including actual prices, stale prices, and below-market prices -- thus creating the risk both of understating prices and price stagnation.¹⁶⁶ And using Xactware in particular as the core of 360Value amplifies the problem because there also are many inevitable soft line item costs to actual reconstruction – such as supervisor and project management time – that adjusters “often claim they don't pay for,”¹⁶⁷ and each time that assertion succeeds it may yet further depress any 360Value estimate that relies in part on that adjusted contract.

2. Human Factors Leading to Software Misuse

Software with all of the above-described features and challenges will function no better than the people who use it. And in cost-estimating, that's a problem.

program with an insurance company. Many become mesmerized with the idea that doing so will be the key to fame and fortune and a larger volume of work. This mindset is similar to the lure of gambling where you get a taste of winning a couple of hands, but in the end, the odds of beating the house are always stacked against you.”).

¹⁶⁴ See Whatley, *supra* note 106, at 3 (“It is incredibly easy for ... major insurance institutions to exercise their will against the boilerplate price list (either intentionally or unintentionally)... Contractors are rarely taking the time to determine their own individual cost, and subsequently create a custom price list that reflects their unique cost of doing business.”).

¹⁶⁵ See Kabir Shaal, *Job Estimating Programs*, LINKEDIN, (April 23, 2015), <https://www.linkedin.com/pulse/job-estimating-programs-kabir-shaal/> (“The software providers are very, very clear on one thing: Their calculated pricelists are *indicators*, not absolute. They do not claim to offer the ‘right’ price.”).

¹⁶⁶ Whatley, *supra* note 106, at 3-5.

¹⁶⁷ Whatley, *supra* note 106, at 14.

a. *point of sale incentives*

According to Verisk's people, "Insurers strive for reliable estimates but are mindful of the time required to calculate them."¹⁶⁸ A Texas insurance agent candidly disagrees:

One way an agent can keep the price down is aim low [sic] in valuing houses. The goal, they say, is to keep premiums down to keep customers from going to competitors, and sometimes even a few dollars can make a difference. Sadly, many agents are just plain lazy! Too lazy to gather all the necessary information to accurately determine the cost to rebuild a home.¹⁶⁹

Perhaps laziness is a real problem. But more likely it is simple economics. Only about five percent of homes change hands in any given year.¹⁷⁰ Put another way, homeowner insurance is a relatively mature market – there may be little gain to investing time and effort into placing new business. Yet, correctly calculating coverage limits accurately takes time¹⁷¹ – time that producers have little incentive to invest:

Insurers face competitive pressures to underwrite policies, requiring companies to increase the speed and ease of doing business with agents and streamline underwriting.... This poses a challenge for insurers: How much data should be collected to ensure properties are adequately insured and policyholders are protected, while remaining sensitive to the time investment of the insurance representative and policyholder?¹⁷²

¹⁶⁸ Amussen & Fulton, *supra* note 129, at 1; *accord* Papa, *supra* note 76, at 10.

¹⁶⁹ Rahim Virani, *Under-Insured? – Part 3*, TEXAN INSURANCE (Jan. 23, 2012), <http://www.texaninsurance.com/client-service/blog/entryid/2860/under-insured-part-3> (last visited Apr. 2, 2018); *see also* Jerry Ramsey & Brian Heffernan, *Underinsurance: A Consumer Fraud, Not an Agent Error or Omission*, UNITED POLICYHOLDERS, 8-10, <http://uphelp.org/sites/default/files/underinsurancelaws.pdf>.

¹⁷⁰ Klein, *supra* note 3, at 356.

¹⁷¹ *See generally* Amussen & Fulton, *supra* note 129.

¹⁷² *Id.* at 1-2; *accord* Tom Smith, *The Value of Insurance-to-Value Often Overlooked*, INS. J. (Feb. 20, 2006), <https://www.insurancejournal.com/magazines/mag-features/2006/02/20/67985.htm> ([T]here often are not many

b. *expertise*

Estimating accurately is technical¹⁷³ – Xactimate, for example, has four levels of user certification describing a spectrum of proficiency.¹⁷⁴ As an analogy, think of the difference between a competent store clerk deploying basic arithmetic to sum up a bill versus a mechanical engineer who has mastered higher level mathematics to make sure the bridge doesn't fall. Both are doing math, but there's a big difference in proficiency with complexity. Whatley describes the following example: Xactimate is excellent at assigning fair reimbursement for granite countertops, *provided* that the detail is given as to “the proper grade of granite and all of the other related costs are accounted for,” such as the work involved with light switches embedded in the back splash or the inset of the sink or the mitering of the corners.¹⁷⁵ Lack of proficiency, lack of rigor, and lack of detail all cause the claims adjustment to be low.¹⁷⁶

There is no reason to expect that either RCT or Pronto, used correctly, is materially easier. Indeed, both CoreLogic and e2Value provide extensive resources to train insurance personnel to use their tools accurately.¹⁷⁷

Producers, even with training, may lack the expertise to properly use cost estimators. But proper training is of little value if the producer does not personally visit the property and do a several hour inspection.

In the absence of a visual inspection by a producer with time and expertise, the adequacy of the estimate erodes. When getting estimated

incentives for agents and brokers to calculate accurate property and business interruption (BI) values. As higher insurance values can mean higher premiums, agents and brokers are obviously looking to keep premiums as low as possible for their clients, which can affect their assessment of ITV.”).

¹⁷³ See Amicus Brief of United Policyholders, et al., *supra* note 81, at *15.

¹⁷⁴ Whatley, *supra* note 106, at 8.

¹⁷⁵ Whatley, *supra* note 106, at 16-17.

¹⁷⁶ Whatley, *supra* note 106, at 9; Hassani, *supra* note 2, at 63-66. Insurers as well as producers support the notion that training is necessary to get estimation right. See, e.g., Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 1129-30, 1147, 1156, 1186, 1198-99.

¹⁷⁷ See CORELOGIC, *RCT Express: Platform Overview*, <https://www.corelogic.com/products/rct-express.aspx> (touting online videos and materials, private training, and on-site training); E2VALUE, *Help Center*, <https://evs.e2value.com/evs/est/InteractiveHelpAdmin/Glossary.aspx?>; E2VALUE, *Online University*, <http://www.e2valueuniversity.com>.

replacement cost quotes questions should be asked on a variety of matters such as are finishes above average or expensive; or is the exterior style Spanish Modern or California Ranch; or the angle of slope of one's roof; or whether the slope of one's land is mild or moderate. Often these questions are asked directly to the homeowner. These are judgment calls for which there is not always an objectively correct answer, and/or for which the homeowner is insufficiently knowledgeable to answer accurately. Differences in the answers to these questions, however, can profoundly change the estimated replacement cost. That is particularly troublesome because there is subtle psychological pressure on a homeowner to answer questions in a way that results in lower-priced insurance.

c. *renewal incentives*

All of the factors described above can cause the estimated replacement cost to be understated even in a single policy year. But the reality is that most insurance is in place as a renewed policy, not a new policy, and so the challenges of underinsurance exacerbate.

For producers paid in commissions on premiums written, the lion's share of the money to be made is on renewals, not on selling new policies. Renewals should be easy, because customers have inertia, and so are less price elastic.¹⁷⁸ But a producer nonetheless may hesitate to cause that customer to wonder if the customer might be able to get the product cheaper -- and thus to price shop it -- by getting a renewal notice significantly raising the premium.¹⁷⁹

Now for these purposes it does not matter if the customer *is* price elastic; all that matters is that the producer is *concerned* that the customer might be price elastic. This is sufficient to incentivize the producer to not refresh or revisit the estimate of replacement cost, because if the cost has gone up (and remember, as Verisk's data documents, the cost *always* is going up), then the premium for the renewed policy will go up, and the producer

¹⁷⁸ See Sydnor, *supra* note 63, at 184; accord Benjamin R. Handel & Jonathan T. Kolstad, *Health Insurance for "Humans": Information Frictions, Plan Choice, and Consumer Welfare*, 105 AM. ECON. REV. 2449 (2015) (confirming the influence on hassle and inertia on insurance decisions).

¹⁷⁹ Caitlin Johnson, *Most Homeowners Are Underinsured*, CBS NEWS (Aug. 31, 2006, 11:44 AM), <https://www.cbsnews.com/news/most-homeowners-are-underinsured/> ("In the competitive marketplace, the last thing an agent wants is for the customer to run down the street to a competitor because they got a quote for \$50 a year less.").

will be at risk of losing the customer (and the commission). So, whatever price stagnation exists at the outset, it will worsen over time. Every year that a policy renews without revisiting the estimated replacement cost of the dwelling, the worse underinsurance gets.

A final observation bears noting about underwriting – all of this assumes internal insurance personnel are acting in good faith, yet in auto insurance there is at least one prominently reported example of an insurer quite intentionally setting up systems to increase its profits to the derogation of its policyholders.¹⁸⁰ And in the aftermath of Hurricane Katrina, State Farm was found guilty of falsifying engineering reports in an attempt to evade coverage.¹⁸¹ This Article does not seek to account for this sort of ‘cheating,’ but is not blind to its possibility.¹⁸²

¹⁸⁰ See, e.g., Steven Gursten, *Allstate Confesses to Using Computer Program to Reduce Settlements for Auto Accident Victims in Michigan*, Michigan Auto Law (Mar. 24, 2011), <https://www.michiganautolaw.com/blog/2011/03/24/allstate-confesses-to-using-computer-program-to-reduce-settlements-for-auto-accident-victims-in-michigan/>.

¹⁸¹ *State Farm Fire & Cas. Co. v. United States ex rel. Rigsby*, 137 S. Ct. 436, 441 (2016) (“Respondents Cori and Kerri Rigsby are former claims adjusters for one of petitioner’s contractors, E.A. Renfroe & Co. Together with other adjusters, they were responsible for visiting the damaged homes of petitioner’s customers to determine the extent to which a homeowner was entitled to an insurance payout. According to respondents, petitioner instructed them and other adjusters to misclassify wind damage as flood damage in order to shift petitioner’s insurance liability to the Government.”) and Associated Press, *Jury Finds State Farm Committed Fraud*, JACKSON FREE PRESS (Apr. 9, 2013, 10:46 A.M), <http://www.jacksonfreepress.com/news/2013/apr/09/jury-finds-state-farm-committed-fraud/>.

¹⁸² See Whatley, *supra* note 106, at 3 (“It is incredibly easy for ... major insurance institutions to exercise their will against the boilerplate price list (either intentionally or unintentionally).”), 8 (“Xactimate is a tool – a tool that can be used for good or evil.”), & 11 (“A paradigm shift occurred in 1992 when Allstate and other major carriers hired McKinsey & Company to develop strategies for managing claim cost. McKinsey referred to the claims settlement process as a ‘zero-sum game’ - essentially the carrier and the policyholder are competing for the same resources. The idea that an Adjuster’s primary objective was to fairly distribute claims benefits was an archaic notion, and the McKinsey report advised that claims be settled on a take-it-or-litigate-it basis. As a result, Allstate moved from ‘Good Hands’ to ‘Boxing Gloves.’”).

IV. TWO NATURAL EXPERIMENTS (COLLECTED ANECDOTES) ON ESTIMATING FULL REPLACEMENT COSTS

What the foregoing all predicts is that a homeowner buying standard insurance will be quoted ‘full’ RCV coverage calculated through either 360Value or RCT, and that the quoted coverage limit will be profoundly inadequate. To test this prediction, the Author ran two experiments on his own house – several major insurers were contacted seeking a quote for homeowner insurance on the house and the three estimating tools were run to see what replacement costs each tool generated.

For context, here is a brief relevant history of the house: The house was built in 1979. The Author purchased the house in 1998. In October 2003, the house burned to the ground in the 2003 Cedar Fire. The house was rebuilt and re-occupied in November 2004 (the total rebuild cost was approximately \$450,000). In the last five years the house had a roof leak – this was a covered claim. The house also had some drywall cracks – an inquiry was made to the insurer about whether repair work would be covered by insurance, an adjuster performed an inspection, and the insurer reported that this was not a covered event.

A. TEST 1 – QUOTING INSURANCE ON THE AUTHOR’S HOUSE

One way to know how coverage limits are calculated, and what producers represent (or not) about the adequacy of coverage estimates, is to actually gather insurance premium quotes and estimates of adequate coverage. What follows is the results of doing just that on the Author’s house, contacting the author’s present insurer, an insurer the Author was transferred to in the course of a call, and otherwise the largest homeowner insurers in the United States as identified by the Insurance Information Institute (citing the data collected by the National Association of Insurance Commissioners).¹⁸³ Here are the results (the identity of each insurer is masked in order to avoid any suggestion that this experiment is intended to be derogatory of a particular insurer):

Insurer A: The estimate was done by filling out a form on-line. The website described it was estimating using 360Value. The estimate required input of details concerning the property taking approximately 15 minutes. Estimated Replacement Cost: \$595,000.¹⁸⁴ The written quote states,

¹⁸³ INS. INFO. INST., FACT & STATISTICS: HOMEOWNER AND RENTERS INSURANCE, HOMEOWNER INSURANCE LOSSES 2011-2015, <https://www.iii.org/table-archive/21296>.

¹⁸⁴ E-mail from Insurer A to author (Mar. 22, 2018) (on file with author).

“Estimated replacement cost is the estimated dollar amount of what it will cost to rebuild your home today.... Please review the 360Value Report if you think you may have entered information in error.... You can then use the 360Value Tool again to recalculate your estimated replacement cost.”¹⁸⁵ By a follow-up email, in response to the question, “I want enough insurance to be confident that if my home was lost, I have enough coverage to rebuild it. Is this enough? If not then how much should that be?,” a new quote was sent estimating replacement cost at \$607,050, and extensions of that coverage raising the total dwelling coverage to \$789,165.¹⁸⁶

Insurer B (and Insurer C): The insurer has the applicant fill out a form online, and then place a follow-up call to the insurer. The form took about five minutes to complete. In the telephone call, the insurer said it was not writing at present (a moratorium) on the address because of wildfire risk. Per the insurer, the insurer “partners” with Insurer C and the insurer transferred the call to a representative of Insurer C. Insurer C quoted Full Replacement Coverage (described as binding), with an Estimated Replacement Cost of \$582,000. The quote included a 50% extension of this replacement cost, if necessary. Also, in the conversation, the following exchange occurred: “Q: You are confident that this is sufficient coverage to rebuild our home should it burn down? A: Yes.”¹⁸⁷ By email Insurer C gave an estimated replacement coverage limit (including a 50% extension) totaling \$873,000, in response to the email inquiry: “I want enough insurance to be confident that if my home was lost, I had enough coverage to rebuild it. Is this enough? If not then how much should that be?”¹⁸⁸

Insurers D and G: Both had a moratorium on the address because of wildfire risk.¹⁸⁹

Insurer E (telephone quote): The agent said Insurer E likely wouldn’t differ much from the others because they all use the same software, and that if the applicant could stay with their current insurer (who wrote Guaranteed Replacement Coverage) then the applicant should. The agent said the replacement cost estimates the other insurers were quoting were “silly” low.¹⁹⁰

¹⁸⁵ *Id.*

¹⁸⁶ E-mail to author (Mar. 28, 2018) (on file with author).

¹⁸⁷ E-mail from insurer to Author (Mar. 12, 2018) (on file with author); Telephone conversation with agent for insurer (Mar. 12, 2018) (on file with author).

¹⁸⁸ E-mail from insurer to Author (Mar. 26, 2018) (on file with author).

¹⁸⁹ Telephone conversations with insurers D and G (Mar. 12, 2018) (on file with author).

¹⁹⁰ Telephone conversation with insurer E (Mar. 12, 2018) (on file with

Insurer F (telephone quote): The agent said Insurer F uses 360Value, which Insurer F referred to as the ‘industry standard.’ Because of the Fireline code of 8 – insurance would require two policies, one from Insurer F and one from the California FAIR Plan, and for this reason recommended the applicant stay with their current insurer. Nonetheless the agent quoted Full Replacement Coverage (at \$237 per square feet) with a 25% extension. The agent said they were “comfortable” this was adequate. The written quote (sent by email) explicitly references 360Value, but also says the policyholder should pick a different replacement coverage in order to “feel” they have enough. Estimated Replacement Cost: \$512,000.¹⁹¹

Insurer H (on-line and clarified through a transcribed on-line chat): The chat representative described Estimated Replacement Coverage was using 360Value. The chat representative also confirmed that if the website inputs were conservative, that this “essentially” guaranteed replacement coverage because the applicant would “have all the coverage [they] need.” Estimated Replacement Cost: \$554,000.¹⁹²

Insurer I (on-line and by telephone): Insurer I writes through independent agents. The agent suggested that to have confidence that there was enough coverage to fully replace the home, there should be full replacement coverage plus a 200% extension.¹⁹³ Ultimately, no coverage was quoted because of “claims history” in the previous three years.

Insurer J (in-person and by telephone): This is the Author’s present insurer, through which the Author has Guaranteed Replacement Coverage. This has been the author’s insurer for 20 years, and this was the first and only in-person inspection (of approximately 15 minutes) of the home in 20 years, and the only inspection by any of the contacted insurers. The inspection was not prompted by this research but was coincidental.¹⁹⁴ The estimate of replacement cost was done using software from “Marshall & Swift/Boeckh.”¹⁹⁵ The estimated replacement cost from this inspection is

author).

¹⁹¹ Telephone conversation with insurer E (Mar. 12, 2018) (on file with author).

¹⁹² E-mail from insurer H to author (Mar. 12, 2018) (on file with author); Transcript of chat with insurer H (Mar. 12, 2018) (on file with author).

¹⁹³ Telephone conversation with insurer I (Mar. 12, 2018) (on file with author).

¹⁹⁴ Telephone conversation with insurer J (Mar. 12, 2018) (on file with author).

¹⁹⁵ Voicemail message from Allegra Christian (Mar. 21, 2018) (on file with author).

\$672,000, and the policy has been renewed as guaranteed replacement coverage.¹⁹⁶

B. TEST 2 – REPLACEMENT COST ESTIMATING THE AUTHOR’S HOUSE

In the wake of the 2003 San Diego wildfires it was widely reported that with a disturbing frequency, shortcuts cut deeply low.¹⁹⁷ But that was a forensic *post hac* explanation of “what happened.”

To test what actually happens in cost estimating (and the possibility that a lot has changed in the intervening fifteen years), the Author of this Article sought to run all three estimating software programs on his own house. Here are the results:

RCT: CoreLogic provided the Author with portal access to the software. Estimate using just the property address: Reconstruction cost without debris removal -- \$565,017; with debris removal -- \$587,235.¹⁹⁸ With input of detail by the homeowner, re-estimate done: Reconstruction cost without debris removal -- \$658,045; with debris removal -- \$683,834.¹⁹⁹

Pronto/Mainstreet: e2Value provided the Author with portal access to the software. Estimate using just the property address: Reconstruction cost without debris removal -- \$646,000; with debris removal -- \$678,000.²⁰⁰ Changing just a few of the assumptions in order to reflect the property more accurately (input by the homeowner) – the style of the house and the materials used for roofing – changed the estimate to \$810,000 and \$850,000

¹⁹⁶*Id.*

¹⁹⁷*See, e.g.,* Elliot Spagat, *Insurance calculator questioned*, WASHINGTON POST (July 24, 2004), http://www.carehelp.org/files/News/20040711_Homeowners_haunted_by_underinsurance.pdf; Joseph B. Treatser, *Homeowners Come Up Short On Insurance*, NEW YORK TIMES (Aug. 31, 2004), <http://www.nytimes.com/2004/08/31/business/homeowners-come-up-short-on-insurance.html>; Jeanette Steele, *Coverage gap in rebuilding linked to cost calculators*, SAN DIEGO TRIBUNE (Aug. 22, 2004), <http://legacy.sandiegouniontribune.com/news/fires/20040822-9999-1n22inssoft.html>; *Company drops insurance calculator amid criticism*, BILLINGS GAZETTE (Nov. 18, 2004), http://billingsgazette.com/business/company-dropsinsurance-calculator-amid-criticism/article_293fc05e-ad31-5001-afea-f5ca544a4c91.html.

¹⁹⁸ CoreLogic, Data entry report (on file with author).

¹⁹⁹ CoreLogic, Data entry report (on file with author).

²⁰⁰ e2Value report (on file with author).

respectively.²⁰¹ Changing the “quality of construction” from “above average/upgraded” to “expensive/custom” (again by the homeowner) changes the numbers to \$902,000 and \$947,000.²⁰² A Mainstreet estimate done using “Residential Full,” meaning inputting the most detail possible (by the homeowner) -- estimated replacement cost with debris removal: \$1,134,000; without debris removal: \$1,080,000.²⁰³

360Value: The quotes from Insurers A, F, and H all were explicitly based on homeowner input into 360Value. An expert on doing valuation using Verisk software was contacted and asked to do a valuation based on his in-person inspection. The expert responded that to generate a defensible, accurate valuation would require at least three separate visits (at an expense of \$195 an hour) and about an additional \$2,000 in costs for technology and support.²⁰⁴ The expert indicated that he would expect the resulting figure to be materially higher than an estimate applying a dozen or so parameters from the homeowner input into Verisk cost estimating software, which routinely omits components and understates components.²⁰⁵

V. RISK ALLOCATION

All of this adds up to pervasive, unintended, inadequate RCV coverage limits. As e2Value recognizes, “any discrepancy between estimated and actual replacement costs can translate into financial risk...”²⁰⁶ The question then becomes, a risk to *whom*?

A. THE CONTRACTUAL LANDSCAPE

An insurance contract is, even from a theoretical economist’s point of view, an unusual contract. An economist would posit that in any contract, both sides bear or retain some risk.²⁰⁷ An insurance contract, however, literally is a contract buying and selling risk.²⁰⁸ So, an insurance contract

²⁰¹ e2Value report (on file with author).

²⁰² e2Value report (on file with author).

²⁰³ e2Value report (on file with author).

²⁰⁴ July 11, 2018 email from Sean Scott to Ken Klein on file with author.

²⁰⁵ July 13, 2018 email from Sean Scott to Ken Klein on file with author.

²⁰⁶ e2Value, *supra* note 122.

²⁰⁷ See Georges Dionne & Scott E. Harrington, *An Introduction to Insurance Economics*, FOUNDATIONS OF INSURANCE ECONOMICS: READINGS IN ECONOMICS AND FINANCE 2 (Georges Dionne & Scott E. Harrington eds., 1992) (“Risk is seldom completely shifted in any market.”).

²⁰⁸ See *id.* at 1-2 (“In the usual insurance example, risk averse individuals

should quite explicitly spell out what risk each side bears or retains. If a homeowner buys what is represented as ‘full’ coverage, then that presents as an agreement that the only risk that the policyholder retains is the amount of the deductible. A policyholder may be oblivious either to a treacherous legal landscape or language within a lengthy and obtuse contract that seeks to reverse this intuitive understanding.²⁰⁹

But even in insurance contracts representing that the insured has full RCV, there often is wiggle language. The CDOI provides a tool that allows a homeowner to see exemplar insurance policies from various insurers.²¹⁰ Using this tool, one can see that within the insurance agreement, “Farmers Smart Plan Home Policy California,” is the language:

The Coverage A (Dwelling) stated limit is the most we will pay if your dwelling sustains a loss. The actual cost to replace the dwelling at the time of loss may be different. We do not guarantee that the stated limit represents the actual cost to replace the dwelling.²¹¹

There are no similar clauses in posted insurance policies from other major home insurers. But similar language is quoted from an Allstate policy in a complaint file of the CDOI.²¹²

And from occasional litigation files it is apparent that there are clauses that are not seen on the CDOI web site, because rather than reside in base insurance policies, they reside in renewal notices. In *Everett v. State Farm Gen. Ins. Co.*,²¹³ for example, the court quoted a clause that State Farm included with its insurance renewal notice:

confronted with risk are willing to pay a fixed price to a less risk averse or more diversified insurer who offers to bear the risk at that price.”).

²⁰⁹ See also Klein, *supra* note 3, at 373-76 (discussing the special challenges of the often-obtuse language of insurance agreements).

²¹⁰ California Dept. Ins., *Homeowners Coverage Comparison Tool*, <https://interactive.web.insurance.ca.gov/apex/f?p=143:16:0::NO> (last visited April 2, 2018).

²¹¹ Farmers Insurance, *Farmers Smart Plan Home Policy California* at 5.

²¹² Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 163, 378-79 (“Allstate’s estimated replacement cost...is...only an estimate.... The decision regarding the limit applicable to Coverage A...is your decision to make....”).

²¹³ *Everett v. State Farm Gen. Ins. Co.*, 162 Cal. App. 4th 649, 653 (2008).

The State Farm replacement cost is an estimate replacement cost based on general information about your home. It is developed from models that use cost of construction materials and rates for homes like homes in the area. The actual cost to replace your home may be significantly different. State Farm does not guarantee that this figure will represent the actual cost to replace your home. You are responsible for selecting the appropriate amount of coverage and you may obtain an appraisal or contractor estimate which State Farm will consider and accept, if reasonable. Higher coverage amounts may be selected and will result in higher premiums.²¹⁴

Additionally, a Complaint filed in California attached as an exhibit a form USAA sent to its insured at time of renewal stating:

Our mission at USAA is to help protect your financial security. One way we do this is by helping you determine if you're adequately covered in the event of a loss. We can calculate the minimum rebuilding cost of your home based on your home characteristics, but only you can decide if this is enough coverage.²¹⁵

There is no known compilation of renewal notice language (as opposed to base policies). It may be that variations of this contractual text are *very* prevalent in the industry, but primarily *only* in renewal notices. But that is speculation. What can be said with clarity is that just these four companies – Farmers, State Farm, Allstate, and USAA – measured by direct premium, represent 39.77% of all homeowner multi-peril insurance written in 2016.²¹⁶

There also are 'meeting of the minds' challenges. No matter how clearly these clauses are written, there is some likelihood that policyholders are unaware of them. As one author of an insurance law treatise describes, "an insured relies not upon the text of the policies but upon the general description of the coverage provided by the insurer and its agents."²¹⁷ The

²¹⁴ *Id.* at 816. Nearly identical language is found in a 2004 State Farm estimate now lodged in the public record. *See* Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 624. *Accord id.* at vol. III, p. 799.

²¹⁵ Exh. A to Complaint and Demand for Jury Trial, *supra* note 134.

²¹⁶ National Association of Insurance Commissioners, *2016 Market Share Reports for Property/Casualty Groups and Companies by State and Countrywide*, 139 (2017), http://www.naic.org/prod_serv/MSR-PB-17.pdf.

²¹⁷ ROBERT H. JERRY, II, UNDERSTANDING INSURANCE LAW §32[b]

insurance industry self-describes that homeowner are “fuzzy on the details” of their insurance policies.²¹⁸ In insurance-commissioned surveys, the point is confirmed -- according to “the results of a survey by Zogby International for MetLife Auto & Home,” “[m]ore than two thirds (71 percent) of those surveyed believe insurance pays for the full cost to rebuild their property in the event of a major loss, such as a fire or other natural disaster.”²¹⁹

And then there are the possible parol evidence problems. As referenced earlier, State Departments of Insurance across the country advise homeowners to ask their insurer or agent for the amount of coverage necessary to replace a home.²²⁰ Similarly, the National Association of Insurance Commissioners advises consumers, “Your insurance agent usually will help you decide how much dwelling coverage to buy when you get homeowners insurance,” adding, “Your coverage should equal the full replacement cost of your home.”²²¹

These parol conversations occur with an indeterminable frequency. The CDOI asserts it has sometimes been “flooded” with homeowners reporting agents/brokers told them they had adequate coverage,²²² while the

(Mathew Bender, 2d ed. 1996); *accord* 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. 37, 42 (2018).

²¹⁸ INS. INFO. INST., *supra* note 24, at 7. *Accord* Hassani, *supra* note 2, at 109-10.

²¹⁹ *Homeowner Coverage Knowledge Gap Wide Among Consumers*, INSURANCE JOURNAL (Aug. 24, 2010), <https://www.insurancejournal.com/news/national/2010/08/24/112704.htm>.

²²⁰ Texas Department of Insurance et al., *supra* note 69.

²²¹ National Association Insurance Commissioners, *A Consumer’s Guide to Home Insurance*, 4 (2010), www.naic.org/documents/consumer_guide_home.pdf. *Accord* Collier & Ragin, *supra* note 62, at 1, 3.

²²² Appellant’s Opening Brief, *Ass’n. Cal. Ins. Cos. v. Jones*, 2 Cal. 5th 376 (2017) (No. S226529) 2014 WL 508598, at *1; *see also* Appellant’s Opening Brief on the Merits, *Ass’n. Cal. Ins. Cos. v. Jones*, 2 Cal. 5th 376 (2017) (No. S226529) 2015 WL 6114253, at *10. For an example of such a homeowner assertion, see what one homeowner wrote to the CDOI on September 2009: “We had a conversation with our agent ... just after we completed a major remodel of our home. ... The meeting took place at our home and our policy limits were reset as a result. During this conversation I made it clear that one of the reasons we were doing this was to ensure we were not in the position of the Cedar Fire people that ended up short on insurance. When I asked [the agent] if the amount he was recommending

insurance industry calls those claims “hyperbole.”²²³ One example from the anecdotal work described above, however, may explain how these differing perceptions persist. In a transcribed chat, Insurer H – in response to the question, “Okay. I know you do not write Guaranteed Replacement Coverage (my old insurer did but I fear that I may no longer be able to renew in that form), but am I correct that if I do as you recommend then that is essentially what I have because I have all the coverage I need?” – answered: “Yes, that is correct.”²²⁴ Yet Insurer H – in a footnote to its written quote generated simultaneously with that transcribed chat – states:

This represents an estimated minimum rebuilding cost.... Please keep this in mind when you determine sufficient coverage for your home. [Insurer H] cannot guarantee the rebuilding cost estimate will be sufficient in the event of a loss. Please remember it is your responsibility to...make sure your coverage is adequate to rebuild your home.²²⁵

In a telephone call seeking to clarify this discrepancy, the insurer acknowledged that as to accurately estimating replacement cost, a homeowner is “not a builder, you’re not gonna [sic] know that;” reassured that the insurer’s estimates were “accurate over 90% of the time;” but noted the language was added to the written quote because it “was not a guarantee.”²²⁶

Chubb Insurance’s website provides another example of how insureds and insurers might come away with differing perceptions. The website says, “Chubb’s in-house Risk Consultants can help determine the amount of coverage you need. ...Using the information gathered during an in-home visit and incorporating the knowledge and experience Chubb has gained through thousands of interviews with building contractors each year, a Risk Consultant will estimate the replacement cost for your home.”²²⁷ Is that a representation that the homeowner can rely on the Chubb estimate, or is it not?

was sufficient to replace our house, he said yes.” Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 906.

²²³ Respondent’s Brief, *supra* note 53, at *4-5.

²²⁴ Transcript of chat with insurer H, *supra* note 192.

²²⁵ Transcript of chat with insurer H, *supra* note 192.

²²⁶ Telephone conversation with insurer H (Apr. 5, 2018) (on file with author).

²²⁷ Chubb, *supra* note 13.

Similarly, the CDOI's Administrative Rulemaking File contains a document from 2004 where one insurance agency distributed to policyholders a 'FAQ' sheet that led with the question, "How do we know that the stated insurance amount is enough to cover our home or building?", and answered, "The dwelling amount is based on a current estimate of the replacement cost of the structure. It is not necessary to insure the land, the market value of the property, or the loan amount."²²⁸ The document is silent on *whose* estimate is referred to.²²⁹

Based on compiling numerous anecdotal parol reports such as these, the CDOI survey concluded:

In general, each insurer had its own replacement cost estimating tool and the value generated by this tool was considered (from the insurer's perspective) to be the minimum Coverage A limit for which the policy could be issued. Each insurer stated that the insured was responsible for making the limit selection based on his or her knowledge regarding the home, but was able to make use of the insurer's tool to assist with this selection. There were varying degrees of communication and disclosure to the insured regarding what the estimate generated by the insurer's tool represented, and regarding the insured's duty to determine the amount of coverage he or she determined to be appropriate.²³⁰

Then there are timing issues. As one academic center studying insurance notes, "Insurance is the only product for which consumers do not know what they are buying before they buy it. Insurance companies almost never provide copies of policy language or complete summaries of policy terms to prospective policyholders."²³¹

Nonetheless, insurers still sometimes blame the policyholder for underinsurance.²³² Indeed, the first public comment offered in the "Homeowners Insurance Hearing" held by the CDOI in 2009 was: "In general, ACIC members believe that the responsibility for determining the

²²⁸ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 329.

²²⁹ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 329.

²³⁰ *Id.* at 1029.

²³¹ Rutgers Center for Risk and Responsibility, *Essential Protections for Policyholders*, 10 (2016), http://uphelp.org/sites/default/files/guides/epp_10-18-2016.pdf (last visited April 2, 2018).

²³² *See, e.g., Klein, supra* note 3, at 364-65.

level of coverage provided in a homeowners insurance policy must be a decision that rests with the insured.”²³³

If one were to posit that the homeowner bears the primary responsibility for selecting adequate coverage limits, then the next question would be to ask precisely *how* the homeowner could discharge that responsibility? Because generally the homeowner does not *actually* have the knowledge or expertise to calculate the cost of rebuilding their home, and is almost never the one being asked to determine that cost.²³⁴ Much more typically, as one homeowner wrote after losing her home to fire in 2007:

When my agent wrote our policy, he asked me only a few questions I answered each every [sic] question that he asked of me. The fact that some characteristics were not included is because I was not asked. Since I am not in the business of insuring a home’s replacement value, I had no idea what questions or what characteristics should be included.²³⁵

²³³ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 424-26, 1114. Similarly, a document Farmers Insurance Group sent to insureds entitled, “Make sure you’re not under-insured”, that says among other things: We want to help you choose the amount of coverage that is right for you....The information we have on record about your home is important because with each renewal offer, we use it to calculate a reconstruction cost estimate. You can use the estimate as a guide to help you choose the amount of coverage you want for your home. If you don’t have enough coverage, you could be under-insured. If you don’t have enough coverage, you could be under-insured. And if your house were totally destroyed, that could mean being unable to pay for complete reconstruction.... The reconstruction cost estimate can serve as a guide, but it is your responsibility to choose the Coverage A limit that is right for you.... You may choose Coverage A limit higher than the estimate, or you have the option to reduce the limit to an amount equal to the estimate.

²³⁴ See Appellant’s Opening Brief on the Merits, *supra* note 222, at *8 (“The Senate Banking, Finance and Insurance Committee...noted that homeowner’ lack of knowledge about construction costs, and improperly trained insurance industry personnel estimating replacement costs, contributed to underinsurance. The Committee declared that it is “critical that initial policy limits be set accurately and updated regularly.”). *Accord* note 226 *supra* and accompanying text. See also note 220.

²³⁵ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 105. *Accord id.* at 218 (“Not being experts about

As another wrote:

I lost my cabin in the 2007 Slide Fire. I am [sic] underinsured because State Farm not doing their job [sic]. They denied my claim, with some nebulous nonsense. According to them, they do not insure for an amount, just an estimate. I am suppose [sic] to know what and how to insure? I'm suppose [sic] to be the expert? Are they or are they not in the insurance business? Do they know or know what they are doing? They advertise that they are the professionals and behind you, but you couldn't prove it my [sic] me after this past year.²³⁶

Yet producers also lack the time or expertise. Producers simply use the cost estimators given to them, and often apply shortcuts (doomed to understate coverage) embedded and promoted in the software (and which the compensation structures incentivize the agents to apply).²³⁷

There is little a homeowner can do to remedy this problem. Per I.I.I. literature written to homeowners, other than relying on an insurance agent, a homeowner could “call your local real estate agent [or] builders association”²³⁸ This recommendation is incongruous with other advice from I.I.I. Real estate agents are experts on home values. The I.I.I. emphasizes that there is a difference between the price of a home and the cost to rebuild a home.²³⁹ Market value and replacement cost simply are distinct conceptually.²⁴⁰ It seems fantastical to suppose that a real estate agent would

either the cost of new home building or home insurance, we accepted the policy as written by USAA.”), at 723 (“My husband and I have no experience or expertise in any phase of construction of homes or costs and did not question the amounts [comprising the estimated replacement cost].”).

²³⁶ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 822.

²³⁷ See *infra* sections III.B.1.a & III.B.2.a, fns. 33 & 34 and accompanying text.

²³⁸ INS. INFO. INST., *supra* note 71. See also Barry Zalma, *Uncovered: Who's Responsible for Setting Policy Limits?*, CLAIMS MAG., June 2017 at 22, 23.

²³⁹ INS. INFO. INST., *supra* note 72, at 2 (“The amount of insurance you buy should be based on rebuilding costs, not the price of your home. The cost of rebuilding your house may be higher (or lower) than the price you paid for it or the price you could sell it for today.”).

²⁴⁰ See, e.g., *Replacement Cost vs. Market Value*, STATE FARM MUT. AUTOMOBILE INS. CO., <https://www.statefarm.com/simple-insights/planning/replacement-cost-vs-market-value>. (last visited Jan. 8, 2019); James

– in a context where there are potential legal liability consequences to error – estimate rebuild costs of a home. It simply is not their core competency or expertise.

Builders similarly are a misfit to supporting a policyholder’s need to determine of adequate coverage. The entire business model of Verisk is that they can sell that expertise to, among others, building contractors because builders too lack the knowledge, inclination, or expertise.²⁴¹ As one amici wrote to the California Supreme Court, “contractors are not in the business of providing free estimates for hypothetical construction projects.” And if they were, they likely would do it poorly.²⁴²

The homeowner simply is not positioned to determine the adequacy of coverage. Nonetheless, the legal landscape often reaches a different conclusion.

B. THE REGULATORY LANDSCAPE

One former state Deputy Director of Insurance suggests that state Insurance Commissioners have the power to collect the data necessary to address underinsurance, have collected the information, but largely have done nothing with it.²⁴³

It is possible for insurance regulators to put a thumb on the scales of risk shifting. California regulators have done so. Effective June 27, 2011, the CDOI adopted a new regulation standardizing the components of an insurer’s replacement cost estimate.²⁴⁴ The regulation requires insurers write RCV

Siebers, *Market Value vs. Replacement Cost*, CORELOGIC <https://www.corelogic.com/blog/2016/03/market-value-vs-replacement-cost.aspx>.

²⁴¹See, e.g., Xactware, *Xactware Webcast.: Introducing Restoration Manager: Helping Contractors Get a Read on Their Business*, <https://www.xactware.com/en-us/resources/webcasts/upcoming-webcasts/introducing-restoration-manager---helping-contractors-get-a-read-on-their-business/> (last visited Apr. 8, 2018); 360Value, *supra* note 93, at 8 (“Xactimate...is used by...80 percent of insurance repair contractors”); *Accord* Appellant’s Reply Brief, Ass’n. of Cal. Ins. Cos., 235 Cal. App. 4th 1009 (2015) (No. S226529) 2014 WL 3014611, at *8 (“A contractor can bill the homeowner for cost overruns during construction, but the homeowner cannot receive coverage over the limits of a replacement cost policy.”).

²⁴² Amicus Brief of United Policy Holders, *supra* note 81, at *16-17; Whatley, *supra* note 106, at 5, 7-8.

²⁴³ Berry, *supra* note 15.

²⁴⁴ CAL. CODE REGS. tit. 10, § 2695.183 (2011).

utilizing cost estimating to account for several delineated features of the insured home:

- (1) Cost of labor, building materials and supplies;
- (2) Overhead and profit;
- (3) Cost of demolition and debris removal;
- (4) Cost of permits and architect's plans; and
- (5) Consideration of components and features of the insured structure, including at least the following:
 - (A) Type of foundation;
 - (B) Type of frame;
 - (C) Roofing materials and type of roof;
 - (D) Siding materials and type of siding;
 - (E) Whether the structure is located on a slope;
 - (F) The square footage of the living space;
 - (G) Geographic location of property;
 - (H) Number of stories and any nonstandard wall heights;
 - (I) Materials used in, and generic types of, interior features and finishes, such as, where applicable, the type of heating and air conditioning system, walls, flooring, ceiling, fireplaces, kitchen, and bath(s);
 - (J) Age of the structure or the year it was built; and
 - (K) Size and type of attached garage.²⁴⁵

Importantly, the regulation distinguishes between insurers and producers. One of the changes that insurance agents successfully lobbied for in the California regulations was to clarify that when producers were using tools that were provided to them by insurers, if the tools estimated in error, then that was on the insurer, not on the producer.²⁴⁶

But California's intervention by regulation may not be a panacea. Just as tobacco companies relied on the government-mandated health warnings on a package of cigarettes as a defense to a charge that smokers were not adequately warned, compliance with the insurance regulation might provide a defense to insurers if the resulting estimate is still too low.²⁴⁷

²⁴⁵ § 2695.183.

²⁴⁶ Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 1489-96.

²⁴⁷ *See* Cipollone v. Liggett Grp., Inc., 505 U.S. 504, 520-21 (1992).

C. THE LEGISLATIVE LANDSCAPE

It is, of course, possible for a state to legislatively step into the underwriting landscape, rather than leaving the matter to courts or regulators. Fourteen states affirmatively prohibit the policyholder, an insurer, and/or an agent from knowingly agreeing to over-insure.²⁴⁸ For example, Minnesota law provides, “No company shall knowingly issue any policy upon property in this state for an amount which ... exceeds the replacement cost of the buildings”²⁴⁹

Colorado law provides that before issuance or renewal of full replacement cost homeowner insurance (defined as the dwelling limit is equal to or greater than the estimated replacement cost of the residence) the insurer shall make available at least ten percent extended replacement cost coverage.²⁵⁰

Florida law provides, “prior to issuing a homeowner’s insurance policy, the insurer must offer ... a policy or endorsement providing ... replacement costs to the dwelling....”²⁵¹

Conversely, while it is an ever-changing landscape, roughly twenty states have valued policy laws requiring that in the event of a total loss an insurer must pay the coverage limit of the policy whether the actual replacement cost reaches (or exceeds) this value or not.²⁵²

D. THE JURISPRUDENTIAL LANDSCAPE

A comprehensive review of caselaw broadly addressing coverage adequacy in contract and tort law is beyond the scope of a subsection within an article.²⁵³ But there is a somewhat discrete set of published cases

²⁴⁸ ALASKA STAT. § 21.60.010 (2014); GA. CODE ANN. § 33-6-5(6)(A) (West 2011); HAW. REV. STAT. ANN. § 431:10E-102 (West 2005); KY. REV. STAT. ANN. § 304.20-260 (West 2006); MINN. STAT. ANN. § 65A.09 (West 2005); MISS. CODE ANN. § 83-13-5 (West 1999); NEB. REV. STAT. ANN. § 44-603 (West 2010); N.J. REV. STAT. ANN. § 17:36-5.19 (West 1994); N.C. GEN. STAT. ANN. § 58-43-5 (West 2009); OR. REV. STAT. ANN. § 742.200 (West 2015); S.C. CODE ANN. § 38-75-20 (2002); TENN. CODE ANN. § 56-7-801 (West 2000); WASH. REV. CODE ANN. § 48.27.010 (West 2010); WYO. STAT. ANN. § 26-23-101 (West 2011).

²⁴⁹ MINN. STAT. ANN. § 65A.09(1) West (2005).

²⁵⁰ COLO. REV. STAT. ANN. § 10-4-1108(6)(a) (West 2013).

²⁵¹ FLA. STAT. ANN. § 627.7011 (West 2011).

²⁵² See Molk, *supra* note 11, at 362, 364, 386.

²⁵³ See Joshua Fox, Comment, *Softening the Short Shrift: Regulating*

addressing the argument that coverage is ultimately the homeowner's responsibility.²⁵⁴

In *Everett v. State Farm Gen. Ins. Co.*,²⁵⁵ Ms. Everett – whose San Bernardino, California home initially was insured with a stated dwelling replacement cost but had guaranteed replacement (read: unlimited) coverage – had for several years had full replacement (read: limited) coverage annually renewed with notices reminding her it was “her responsibility to insure her home with adequate coverage.”²⁵⁶ After her home burned down in 2003, she sued State Farm both in contract and tort alleging that even with a coverage limit extension she was underinsured.²⁵⁷ The appellate court affirmed the trial court's entry of summary judgment for State Farm, holding the policy had limited dwelling replacement coverage in clear and unambiguous language, “nothing in the record suggests that the original policy limits were insufficient,” and it was not State Farm's duty to maintain adequate limits.²⁵⁸

In *Bryce v. Unitrin Preferred Ins. Co.*,²⁵⁹ after a 2006 fire destroyed the Bryce's home in Georgetown, Texas, the Bryces learned their ‘replacement cost’ insurance was “grossly inadequate.”²⁶⁰ For several years, the Bryces had been involved in a series of conversations about coverage and policy renewal, beginning when the Bryces changed insurers and opted to keep the prior insurer's coverage limits in place;²⁶¹ of these most notably the agent recalled recommending the Bryces consult with a builder on determining replacement cost, while the Bryces recalled being told by the agent that the insurance was adequate.²⁶² “After hearing the evidence, the jury returned a unanimous verdict that the Bryces' negligence alone proximately caused their home to be underinsured.”²⁶³ The appellate court

Homeowners Insurance Limits as Causes of Underinsurance, 46 CAL. W. L. REV. 369 (2010) (providing a broad summary of the case law).

²⁵⁴ Hassani, *supra* note 2, at 81-83; accord Ramsay & Heffernan, *supra* note 169, at 2-4.

²⁵⁵ *Everett v. State Farm Gen. Ins. Co.*, 162 Cal. App. 4th 649 (2008).

²⁵⁶ *Id.* at 652-53.

²⁵⁷ *Id.* at 653-54.

²⁵⁸ *Id.* at 657-61.

²⁵⁹ *Bryce v. Unitrin Preferred Ins. Co.*, No. 03-08-00670-CV, 2010 WL 01253579 (Tex. Ct. App. Apr. 1, 2010).

²⁶⁰ *Id.* at *1.

²⁶¹ *Id.* at *1-*3.

²⁶² *Id.* at *2-*3.

²⁶³ *Id.* at *4.

affirmed.²⁶⁴ The appellate court noted Texas law, “does not, as the Bryces contend, create a duty on the part of either an agent or an insurance carrier to monitor an insured’s policy in order to ensure that the requested coverage is adequate.”²⁶⁵ Further, an insurer inspection of a home – per the Texas court – is for the benefit of the insurer, not the insured.²⁶⁶

In *Furtak v. Moffett*,²⁶⁷ after a 1992 fire destroyed the Furtaks’ Highland Park, Illinois home, the Furtaks found themselves with insurance of roughly 1/6th the appraised value of their home.²⁶⁸ The Furtaks claimed that in 1975 when they purchased the home, they requested insurance agent “Moffett provide insurance that would fully cover their home against all loss, and Moffett offered them a policy that would fully cover their home even in the worst case scenario.”²⁶⁹ There was no home inspection and there was a notation that the home was being completely renovated and remodeled.²⁷⁰ The insurance was renewed for the next 15 years, without inquiry from the agent or notice from the homeowner about the outcome of the renovations and remodeling.²⁷¹ At trial, the Furtaks conceded that under Illinois law it was their burden to know the contents of their policy, to draw any discrepancies to the insurer’s attention, and that the insurer had no duty to review the adequacy of coverage; nonetheless, the Furtaks contended that the insurer – Farmers – had voluntarily undertaken a duty to determine adequacy of coverage of its insureds through a series of actions, but had failed to do so for the Furtaks.²⁷² The appellate court held, “The fact that defendants instituted procedures to determine whether their insureds were underinsured and Farmers encouraged their agents to inform their insureds that they should evaluate the adequacy of their coverage does not impose upon them a duty to warn plaintiffs of their inadequate insurance.”²⁷³ As to any breach of oral contract claim, the appellate court rejected it as contrary to the Illinois statute of frauds.²⁷⁴

²⁶⁴ *Id.* at *10.

²⁶⁵ *Id.* at *5.

²⁶⁶ *Id.* at *7-*8.

²⁶⁷ *Furtak v. Moffett*, 671 N.E. 2d 827 (Ill. 1996).

²⁶⁸ *Id.* at 829.

²⁶⁹ *Id.*

²⁷⁰ *Id.*

²⁷¹ *Id.*

²⁷² *Id.*

²⁷³ *Id.* at 830.

²⁷⁴ *Id.*

In *Schanz v. New Hampshire Ins. Co.*,²⁷⁵ a 1979 fire completely destroyed the plaintiffs' building in Saginaw, Michigan.²⁷⁶ The building owners and their insurance agent agreed that an insurer – Aetna – appraised the building and set the replacement cost of the building.²⁷⁷ The building owners and their insurance agent then used that appraisal to place insurance with the defendant insurer because it came at a cheaper premium than Aetna quoted.²⁷⁸ The defendant insurer then did their own inspection and estimate – a higher replacement coverage was estimated – and plaintiffs insured to that new figure.²⁷⁹ After the fire, the true replacement cost was over double any figure any insurer estimated.²⁸⁰ On these rather dramatic facts, the plaintiffs sued asserting negligence, they won at trial, and the appellate court affirmed.²⁸¹ The appellate court affirmed the trial court's ruling that the defendant – having voluntarily undertaken to inspect the property knowing the plaintiffs would rely on the findings of that inspection – negligently caused the property to be underinsured.²⁸² In contrast to *Schanz*, in *Chemical Technology, Inc. v. Berkshire Agency, Inc.*,²⁸³ the court confirmed that in Michigan, unless something changes the usual situation of agents taking orders from customers, generally, “insurance agents have no duty to advise the insured regarding the adequacy of insurance coverage.”²⁸⁴

In *Peterson v. Big Bend Ins. Agency, Inc.*,²⁸⁵ when the Petersons purchased homeowner insurance they “explained their desire to have their home insured for the full replacement value.”²⁸⁶ “The Petersons indicated they did not know what the cost of this coverage would be or how such a figure would be determined.”²⁸⁷ Their insurance agent used software identified as the “Boeckh Cost Guide” (per the court, “this software, or a

²⁷⁵ *Schanz v. New Hampshire Ins. Co.*, 418 N.W.2d 478 (Mich. 1988).

²⁷⁶ *Id.* at 479.

²⁷⁷ *Id.* at 480.

²⁷⁸ *Id.*

²⁷⁹ *Id.*

²⁸⁰ *Id.*

²⁸¹ *Id.* at 481, 484.

²⁸² *Id.* at 482-83.

²⁸³ *Chemical Technology, Inc. v. Berkshire Agency, Inc.*, No. 326394, 2016 WL 4008455, at *1 (Mich. Ct. App. July 26, 2016).

²⁸⁴ *Id.* at *2 (quoting *Harts v. Farmers Ins. Exch.*, 597 N.W.2d 47, 50 (1999)).

²⁸⁵ *Peterson v. Big Bend Ins. Agency, Inc.*, 202 P.3d 372 (Wash. Ct. App. 2009).

²⁸⁶ *Id.* at 374.

²⁸⁷ *Id.* at 375.

similar program, is a standard in the insurance industry”) to estimate the cost to replace the home in the event of a total loss.²⁸⁸ This involved personal inspections of the exterior, as well as drawn diagrams of the home (and later describing some of the information in writing to the homeowner, but actually calculating replacement value differently than as described).²⁸⁹ When their home was destroyed by fire, their coverage was less than 2/3rds of the true replacement value.²⁹⁰ On these facts, the trial court found the defendant negligent for providing an estimate represented as calculated one way when in fact it was calculated another way.²⁹¹ The appellate court affirmed, but only because the agent did not use the Boeckh calculator – the court found that if the agent had done so then there would be no liability.²⁹²

No wonder, as one California lawyer and insurance consultant wrote in 2017:

[...]it is incumbent on the agent or broker to remind the applicant for insurance to set appropriate limits to avoid underinsurance.... When an insured loses everything in a catastrophe, he or she calls an insurance agent, insurance broker or insurance company to make a claim. When the claim is made, the insured is reminded of the limit of liability chosen, only to find it is inadequate to replace the house.... The insured will be angry and unwilling to accept the fact that the inadequate policy limit is due to his or her error. Suits are filed...only to find that the court will not cure the insured's mistake.²⁹³

Or as Professor Tom Baker writes, “insurance coverage litigation is simultaneously about abandonment and greed.”²⁹⁴

²⁸⁸ *Id.*

²⁸⁹ *Id.*

²⁹⁰ *Id.* at 374.

²⁹¹ *Id.* at 376.

²⁹² *Id.* at 377-78 (quoting, *Gates v. Logan*, 862 P.2d 134, 136 (Wash. Ct. App. 1993) (“Ordinarily the insured knows the extent of his personal assets and ability to pay increased premiums better than the insurance agent.”) and *Virgil R. Lee & Son, Inc.*, 754 P.2d 155, 157 (Wash. Ct. App. 1988) (“[I]t is the insured’s responsibility to advise the agent of the insurance he wants, including the limits of the policy to be issued.”)).

²⁹³ *Zalma supra* note 238, at 23; accord Michael J. Geiger & Gregory J. Schwartz, *Phantom Insurance Coverage in the New Underinsurance Gambit*, 10 ENVTL. CL. J. 5 (1998).

²⁹⁴ Tom Baker, *Sales Stories, Claims Stories, and Insurance Contract*

So where does this leave the question of who bears the financial risk of any discrepancy between estimated and actual replacement costs? The answer is that it is mixed. But that with some frequency, the policyholder bears the risk.

An example from litigation concretely illustrates the matter. When – in the wake of the 2017 Northern California wildfires – a group of USAA insureds sued USAA and Xactware, USAA demurred (the California procedural device for a pre-answer attack on the basis of the failure to state a claim) asserting it was only responsible for the contracted for policy limits, while Xactware demurred asserting it had no legal privity with individual policyholders.²⁹⁵ Both entities looked at the legal landscape and saw they could assert a plausible, possible safe harbor *even if* each knowingly understated the replacement cost of the insured homes.²⁹⁶

This is why a 2011 article concludes:

Homeowner insurance policyholders are ill-equipped to determine the appropriate limits for their insurance policies. The current legal framework defining insurers' obligations to their insureds does not effectively account for this reality, in turn providing an incentive for insurers to sustain ambiguity and confusion regarding a duty to accurately assess replacement costs.²⁹⁷

VI. MORAL HAZARD-LIKE PROBLEMS ENCOURAGING PERVASIVE, UNWITTING UNDERINSURANCE

Insurers are neither charities nor churches. Insurers do not pay claims because insureds need the money, or because it is the 'right' thing to

Damages, 72 TEX. L. REV. 1395, 1396 (1994).

²⁹⁵ Defendant United Services Automobile Association's Notice of Demurrer and Demurrer to Plaintiffs' Second Amended Complaint; Memorandum of Pints and Authorities in Support of Thereof, *Bivin et al. v. United Services Auto. Ass'n et al.*, No. SCV261717 (Super. Ct. Cal. County of Sonoma, Apr. 5, 2018); Defendant Xactware Solutions, Inc.'s Notice of Demurrer and Demurrer to Plaintiffs' Second Amended Complaint; Memorandum of Pints and Authorities in Support Thereof, *Bivin et al. v. United Services Auto. Ass'n et al.*, No. SCV261717 (Super. Ct. Cal. County of Sonoma, June 6, 2018).

²⁹⁶ *Id.*

²⁹⁷ Fox, *supra* note 253, at 394.

do.²⁹⁸ Insurers pay claims because they legally are obligated to do so. And as for-profit businesses, if regulators, legislators, and courts permit insurers to increase profits by precisely navigating the intersection of coverage limits and replacement cost estimating, then one should expect insurers to do so.

But that still leaves hanging out there the question: If homeowners are willing to pay for full and adequate RCV and producers have incentives to sell full and adequate RCV, then why would an insurer either want to or knowingly tolerate the sale of nominally full but actually inadequate RCV? The short answer is an insurer may be rewarded for underinsuring and may be punished for over-insuring. Put another way, because the legal landscape protects insurers from the consequence of inadequate coverage, the aspects of cost estimating that result in nominally full but actually inadequate coverage turn out to be features rather than glitches.

A. UNDERINSURING CAN BE PROFITABLE FOR INSURERS

Altered incentives analogous to moral hazard concerns encourage an insurer to underinsure. There is no single, accepted definition of “moral hazard.”²⁹⁹ Krugman’s definition – “any situation in which one person makes the decision about how much risk to take, while someone else bears the cost of things going badly”³⁰⁰ – is a quite workable big tent to encapsulate the many iterations of the concept.

In insurance, there is much contemporary work on moral hazard.³⁰¹ In the context of predicting behaviors of insureds, simply stated, “Moral

²⁹⁸ See Tom Baker, *Insuring Morality*, 29 ECON. & SOC’Y. 559 (2010) (discussing the narratives and counter-narratives of morality in insurance).

²⁹⁹ David Rowell & Luke B. Connelly, *A History of the Term “Moral Hazard”*, 79 J. RISK & INS. 1051 (2012); accord Tom Baker, *On the Genealogy of Moral Hazard*, 75 TEX. L. REV. 237 (1996).

³⁰⁰ See KRUGMAN, *supra* note 10, at 63; *Definition of ‘Moral Hazard’*, *supra* note 10, (“Moral hazard is a situation in which one party gets involved in a risky event knowing that it is protected against the risk and the other party will incur the cost.”).

³⁰¹ See, e.g., Kenneth J. Arrow, *The Economics of Moral Hazard: Further Comment*, in *ESSAYS IN THE THEORY OF RISK BEARING* (Julius Margolis, ed.) (Markham 1971); Ralph A. Winter, *Optimal Insurance Under Moral Hazard*, reprinted in *GEORGES DIONNE, HANDBOOK OF INSURANCE* 155-183 (Georges Dionne ed., 2000) (describing how moral hazard leads to less than full insurance); Baker, *supra* note 293; Tom Baker, *Containing the Promise of Insurance: Adverse Selection and Risk Classification*, 9 CONN. INS. L.J. 371 (2003); Baker, *supra* note 298; John M. Marshall, *Moral*

hazard refers...to the tendency of insurance protection to alter an individual's motive to prevent loss."³⁰² Molk writes, "Moral hazard is a dominant concern of insurance companies...."³⁰³ But as Molk shows, at least in the context of homeowner insurance, there is considerable question whether the predictions the theory of moral hazard makes about policyholder behavior are confirmed by actual behavior.³⁰⁴

The theory of moral hazard actually seems to fare better in explaining actual behaviors of insurers.³⁰⁵ For example, when a state guarantees life insurance proceeds in the event of insurer insolvency, life insurers more frequently hold highly leveraged portfolios composed of risky assets.³⁰⁶ The same effect can be seen by banks in response to FDIC insurance: "It has been demonstrated both theoretically and empirically that deposit insurance for commercial banks and savings and loan associations (S&Ls) creates a moral hazard problem by shielding creditors from the consequences of risk taking."³⁰⁷ Economists see similar behavior by property-casualty insurers in response to the likelihood of state and federal

Hazard, 66 AM. ECON. REV. 880 (1976); J.A. Mirreles, *The Theory of Moral Hazard and Unobservable Behaviour: Part I*, 66 REV. ECON. STUDIES 3 (1999); Mark V. Pauly, *The Economics of Moral Hazard*, 58 AM. ECON. REV. 531 (1968); Steven Shavell, *On Moral Hazard and Insurance*, 92 QUART. J. ECON. 541 (1979).

³⁰² Shavell, *supra* note 301, at 541. Under this definition, the general presumption is that full insurance coverage encourages risky behavior and so an insurer should not offer full coverage, but that if the cost of monitoring insured's behavior is minimal, then coverage approaching full insurance is optimal. *Id.* at 541-42.

³⁰³ Molk, *supra* note 11, at 349.

³⁰⁴ *Id.* at 350-51, 392-93.

³⁰⁵ See, e.g., Neil Bhutta & Benjamin J. Keys, *Eyes Wide Shut? The Moral Hazard of Mortgage Insurers During the Housing Boom*, (Nat'l. Bureau of Econ. Research, Working Paper No. 24844, 2018), <http://www.nber.org/papers/w24844> (documenting moral hazard behavior of private mortgage insurers).

³⁰⁶ Elijah Brewer III, Thomas S. Mondschean, & Philip E. Strahan, *The Role of Monitoring in Reducing the Moral Hazard Problem Associated with Government Guarantees: Evidence From the Life Insurance Industry*, 64 J. RISK & INS. 301, 304, 320 (1997); Brian J. Hall & James G. Bohn, *The Moral Hazard of Insuring the Insurers* (Nat'l Bureau of Econ. Research, Working Paper No. 5911, 1997), <https://ssrn.com/abstract=225693>.

³⁰⁷ Brewer, Mondschean, Strahan, *supra* note 306, at 301-04.

disaster recovery resources.³⁰⁸ As Tom Baker has explored and explained, one should fully expect that an insurer will be the economically, ruthlessly opportunistic actor predicted by the theory of moral hazard.³⁰⁹

Replacement cost estimators do not give insurers control over the quantity of risk they underwrite, nor do they lead to insurers mis-pricing the risk. Rather, replacement cost estimators create an asymmetry of understanding between an insurer and a policyholder of quantity of risk being sold. Policyholders think they are buying truly full replacement coverage while insurers know the likelihood that the coverage limits could be inadequate. Economists might differ about whether this is a classic ‘moral hazard problem.’ But it unquestionably is an opportunity for an opportunistic, profit-maximizing motivated actor.

An insurer knows – through years of accreted experience – that costs estimators pervasively calculate full replacement cost profoundly low. Insurers perceive that the customer is a low-information, price elastic customer; i.e., a customer likely to be attracted to a low premium and unlikely to be sensitive to the risk attendant to it.³¹⁰ Most “underinsureds” will not ever sustain a total loss exposing the risk.³¹¹ Should that risk materialize, some insureds will be litigation averse (for any host of reasons including, perhaps, learning of the uncertain legal landscape) and thus not challenge the claims adjustment; of those who do, many either will settle at below the uninsured portion of the loss or will simply lack the resources to see the dispute through; and of the subset who do see the dispute through,

³⁰⁸ See, e.g., Paul Hudson, W.J. Wouter Botzen, Jeffrey Czajkowski, & Heidi Kreibich, *Moral Hazard in Natural Disaster Insurance Markets: Empirical Evidence from Germany and the United States*, 93 LAND ECON. 179 (2017); Carolyn Kousky & Leonard Shabman, *The Hazard of the Moral Hazard – or Not*, NAT. HAZARDS OBSERVER (May 2013), https://hazards.colorado.edu/uploads/observer/2013/may13_observerweb.pdf; George L. Priest, *The Government, the Market, and the Problem of Catastrophic Loss*, 12 J. RISK & UNCERTAINTY 219 (1996).

³⁰⁹ See Baker, *supra* note 298.

³¹⁰ See Ramsay & Heffernan, *supra* note 169, at 10-11; accord Insurance Brokers and Agents of the West, *supra* note 68.

³¹¹ See, e.g., INS. INFO. INST., *supra* note 183 (“About one in 290 insured homes has a property damage claim related to fire and lightning.”); *id.* at 183 (“In 2014, 5.46% of insured homes had a claim, according to ISO. Property damage, including theft, accounted for 95.9% of those claims.” The average insurance claim is for less than \$10,000); Klein, *supra* note 3, at 353-54 (in 2007, one-twentieth of one percent of U.S. homes had a disaster loss forcing relocation from the home).

only some will recover the entirety of the uninsured portion of the loss.³¹² Thus, if an insurer believes the net amount ultimately paid over stated coverage limits (including marginal additional Loss Adjusting Expenses) will be exceeded by the additional net premium captured by lowering full RCV coverage limits, then the insurer should underestimate replacement cost.³¹³ Or put another way, an insurer who thought that the insured bore the

³¹² See generally Baker, *supra* note 294, at 1430-31 (describing some of the strategic behaviors of insurers to minimize the claims experience); Feinman, *supra* note 3, at 31-33, 80-85; Rutgers Center for Risk and Responsibility, *supra* note 231, at 37-44; accord Molk, *supra* note 11, at 46 (positing that one explanation of his data on valued policies is that “insurers understand the legal playing field and price their policies accordingly”).

³¹³ Howard Kunreuther, *The Role of Insurance in Reducing Losses from Extreme Events: The Need for Public-Private Partnerships*, 40 GENEVA PAPERS ON RISK & INS. 741, 750-51 (2015) (“Insurance premiums should be based on risk to provide individuals with accurate signals as to the nature of the hazards they face and to encourage them to engage in cost-effective mitigation measures to reduce their vulnerability. Risk-based premiums should also reflect the cost of capital that insurers need to integrate into their pricing to assure an adequate return to their investors.”). The premise of insurance is risk-spreading among the pool of insureds –moral hazard as a theory of reducing insurance coverage should be inconsistent with this premise –but that is assuming that the premium has been calculated in an actuarially sound manner. Marshall, *supra* note 295, at 880. Premium priced accurately is loss risk plus underwriting and other transactions costs and profit. See, e.g., Paul L. Joskow, *Cartels, Competition and Regulation in the Property-Liability Insurance Industry*, 4 BELL J. ECON. & MGMT. 375, 377-78 (1973), reprinted IN FOUNDATIONS OF INSURANCE ECONOMICS: READINGS IN ECONOMICS AND FINANCE 469, 470-71 (Georges Dionne & Scott E. Harrington, eds., Kluwer 1991) (Georges Dionne & Scott E. Harrington, eds., Kluwer 1991) (“Insurance is generally a ‘bad bet.’ That is to say, the premium is generally greater than the expected property loss without insurance. The difference between premiums and losses over time is made up of underwriting and transaction costs and the profit of the insurance firms.”). Accord Insurance Services Office, *supra* note 63, at 4 (“An insurer willing to pay the price of sufficient catastrophe insurance could have trouble competing for business.”); “Documents for which print copy is practically available.” Whitepaper, e2Value, *How to Buy Data and Why Buy Data 2*, http://e2value.com/wp-content/uploads/2015/03/E2Value_WP.pdf. (“Discrepancies between the estimation in a home valuation and the ultimate cost of rebuilding can present financial risk to firms who don’t get it right.”);

risk of understated coverage limits and who thought that this would capture more gross premium would not be troubled by, and indeed might be enthused by, an underwriting tool and process that understated full replacement cost.³¹⁴

Indeed, the Commissioner of the CDOI defended its RCV regulation (requiring RCV calculations, if done, to include at least twelve delineated components) to the California Supreme Court, at least in part, on the assertion that insurers were affirmatively misleading homeowners into believing that homeowners had adequate replacement coverage:

We must bear in mind that the estimate here is of *replacement cost*, which is defined to mean “the amount that it would cost the insured to repair, rebuild, or replace the thing lost or injured, without a deduction for physical depreciation, or the policy limit, whichever is less.” ...A consumer would reasonably believe that an estimate would have considered basic cost components, she would rely on that estimate to set the limit of liability on the policy, and she would be bound by that limit in the event of a loss. An incomplete estimate would result in a low estimate for the primary dwelling (Coverage A) and would mislead a consumer into believing that the coverage limit selected as a result of the incomplete estimate is sufficient when in fact it is not sufficient to rebuild a home. ...an insurer would or should know that an estimate based on incomplete data is misleading.³¹⁵

The California Supreme Court found, “The Commissioner could reasonably conclude that replacement cost estimates are likely to mislead the public about the actual cost of repair or replacement when they willfully omit

Roman Inderst & Marco Ottaviani, *Misselling through Agents*, 99 AM. ECON. REV. 883 (2009). *See also* Collier & Ragin, *supra* note 62, at 1 (“sellers have incentives to overstate a contract’s benefits or to recommend suboptimal products”), citing Inderst and Ottaviani. *See also* Howard C. Mahler, *An Introduction to Underwriting Profit Models* (1987), <https://www.casact.org/pubs/proceed/proceed85/85239.pdf>.

³¹⁴ *See* Feinman, *supra* note 3, at 136-38; *accord* Bhutta & Keys, *supra* note 305, at 11.

³¹⁵ Appellant’s Opening Brief, *supra* note 222, at *12-13 (internal footnote omitted).

cost components essential to repairing or rebuilding a dwelling.”³¹⁶ The Court rejected the challenge to the regulation.³¹⁷

One might find implausible this explanation of why an insurer might want to underinsure. But the fact remains that insurers routinely *do* underinsure, underinsure by very large margins, and have been doing so now for decades. The standard in the industry used to be guaranteed replacement coverage, but for the last almost thirty years it has been RCV with coverage limits.³¹⁸ And it bears keeping in mind that the RCV estimation tools claim to already price in inflation, building cost changes, local market cost variability, catastrophe risk, and demand surge. If full replacement coverage limits nonetheless *still* routinely are materially below actual, accurately estimated, full replacement costs (they are), then insurers know it and have known it for a while.³¹⁹

A bit more needs to be said about one price inflator in particular – natural disaster. One might posit that what is occurring is the unanticipated consequence of natural catastrophes. But the insurance industry asserts it has solved this challenge: “Catastrophe models have been developed and improved over the past 25 years to more accurately assess the likelihood and damages resulting from disasters of different magnitudes and intensities. Today, insurers and reinsurers utilize the estimates from these models to determine risk-based premiums and how much coverage to offer in hazard-prone areas.”³²⁰ Today, the insurance industry in general, and Verisk and CoreLogic in particular, deeply study wildfire and other catastrophe risk,³²¹ and claim they now can expertly underwrite such risk even at the granularity

³¹⁶ Ass’n of Cal. Ins. Cos. v. Jones, 386 P.3d 1188, 1203 (Cal. 2017).

³¹⁷ *Id.* at 401.

³¹⁸ See *supra* Klein, note 3, at 364; Feinman, *supra* note 3, at 135-36.

³¹⁹ In the public record of underinsurance complaints after wildfires in California in 2007, there are repeated references to insurers using Xactware, RCT, MSB, or generic ‘cost estimators’ – each of these is an instance where the resulting estimated RCV led to underinsurance. See, e.g., Administrative Rulemaking File for CAL. CODE REGS., tit.10, § 2695.183, *supra* note 4, at 74, 146, 154, 186, 196, 227, 371, 417, 442, 464, 520, 620, 624, 678, 689, 699, 717, 745, 769, 834-35, 969, 974, 993. Guaranteed replacement coverage stopped being the ‘norm’ roughly twenty-five years ago. See *supra* Klein, note 3, at 364; Feinman, *supra* note 3, at 135-36. Insurers have had two and a half decades of experience with understated replacement costs from cost estimators.

³²⁰ Kunreuther, *supra* note 313, at 750.

³²¹ See INS. INFO. INST., *supra* note 157; VERISK, *supra* note 157.

forecasting risk to an individual house.³²² And indeed, contrary to intuitive expectations, catastrophic events do not, on average, have statistically significant relationships to homeowner insurance market outcomes.³²³ Simply put, catastrophe loss already is priced into the premium, or at least so it is claimed. But more to the point, even if demand surge was inadequately accounted for in the algorithms, then ‘extended’ coverage riders would be sufficient to cover the additional risk, yet the CDOI found most of the time even then coverage was inadequate.

B. AN INSURER MAY BE PUNISHED FOR OVER-INSURING

While an insurer may be rewarded for underinsuring, an insurer also may be punished for over-insuring. Collier & Ragin found 11.7% of insureds chose to over-insure.³²⁴

Over-insurance is a valid concern for insurers. In valued policy states, in the event of a total loss an insurer is required to pay the full coverage limit even if that coverage limit exceeds the actual full replacement cost.³²⁵ An insurer thus may (perhaps should) be worried that a policyholder

³²²See, e.g., Scott G. Stephenson, *Resilience: Higher Ground in the Face of Disaster*, VERISK (2018), <https://www.verisk.com/verisk-review/fall-2017/resilience-higher-ground-in-the-face-of-disaster/> (“advanced computer models can offer a view into scenarios for different perils—the major ones might include wind, flood, earthquake, and wildfire. Such models can give [insurers, emergency managers, and government officials] a basic understanding of potential losses they could experience or are likely to experience.”); VERISK, *supra* note 93, at 6 (“Because many of the data elements needed for replacement cost estimates are the same elements needed for catastrophe modeling, 360Value is ideally suited to capture the detailed, property-specific data needed for effective catastrophe analysis. The point in the underwriting process when replacement cost is reviewed may also be an ideal opportunity to check on catastrophe risk. 360Value, the only replacement cost estimator that fully supports catastrophe risk management programs, can...assess catastrophe risk on individual properties before the policy is underwritten using a built-in connection to AIR Worldwide catastrophe models.”).

³²³ Patricia Born & Robert W. Klein, *Catastrophe Risk and the Regulation of Property Insurance Markets*, 35 J. INS. REG. 1, 31 (2016).

³²⁴ Collier & Ragin, *supra* note 19, at 12, Table 3.

³²⁵ See Molk, *supra* note 11, at 17, 19.

would buy excessive insurance as a hedge to escape a financially perilous position in the wake depreciating home values.³²⁶

This is analogous to an “adverse selection problem.”³²⁷ “Adverse selection occurs in insurance markets when information is asymmetric; i.e., when an insurer cannot observe an individual’s risk at the time policies are issued and the individual has superior information about his or her risk.”³²⁸ An example of adverse selection in insurance is when the highest risk individuals disproportionately purchase coverage, thereby raising everyone’s premiums and pricing the general population out of the market (a market failure); or put another way, “we tend to trust the people we shouldn’t!”³²⁹

Perhaps because of valued policy states, a lot of work has focused on insured adverse selection problems.³³⁰ And whether in a valued policy state or not, insurers have a variety of tools to address the concern. An insurer will engage in *ex ante* screening of applicants to raise premiums or deny coverage to an applicant who they expect to have a high claims experience (an insured apparently adversely selecting the insurer).³³¹ An insurer may,

³²⁶ See Molk, *supra* note 11 (analyzing the theoretical concerns with valued policies and how the concerns are not borne out by actual behavior).

³²⁷ See generally Georges Dionne, Neil Doherty, & Nathalie Fombaron, *Adverse Selection in Insurance Markets*, reprinted in GEORGES DIONNE, HANDBOOK OF INS. 225 (Georges Dionne et al. eds, 2000) (“Although in many situations principals face adverse selection and moral hazard problems simultaneously when they design contracts, these types of asymmetrical information have been given separate treatments so far in the economic literature on risk-sharing agreements... More recently, some authors have attempted to integrate both information problems into a single model ... Such an integration of both information problems is warranted on empirical grounds.”).

³²⁸ Dionne & Harrington, *supra* note 207, at 18.

³²⁹ *Information Economics – Moral Hazard and Adverse Selection*, TUTOR2U, <https://www.tutor2u.net/economics/reference/information-economics-moral-hazard-and-adverse-selection> (last visited Sep. 7, 2018).

³³⁰ See, e.g., Alma Cohen & Peter Siegelman, *Testing for Adverse Selection in Insurance Markets*, 77 J. RISK & INS. 39, 39-43 (2010).

³³¹ See, e.g., Dionne & Harrington, *supra* note 207, at 20 (“Experience rating can be viewed as either a substitute or a compliment to both risk categorization and sorting contracts with self-selection constraints when adverse selection is present.”); Robert Puelz & Arthur Snow, *Evidence on Adverse Selection: Equilibrium Signaling and Cross-Subsidization in the Insurance Market*, 102 J. POL. ECON. 236, 237, 255 (1994) (“firms engage in

when permitted by state law, have an insurable interest requirement capping payouts at the actual loss.³³² Or an insurer may simply intentionally resist high coverage limits.³³³ Regardless of the approach an insurer takes, however, an insurer's passivity in refining cost estimators in ways that would raise RCV coverage limits may be a predictable and understandable response to the pressures on an insurer to not over-insure.³³⁴

C. REPUTATIONAL CONCERNS AND MARKET MECHANISMS

A brief word needs to be said about reputational interests and market mechanisms. One could posit that because of concerns of harm to reputation, an insurer would not knowingly permit inadequate, unwitting coverage limits. This conjecture, however, is called into question by e2Value's market positioning strategy, and that strategy's lack of resulting market penetration, at least so far. The e2Value patent explicitly asserts that it is a cost estimating innovation that cures the prevalent inaccuracy problems of other estimators. This is the core of e2Value's marketing pitch to insurers. Thus far, e2Value has yet to achieve much of a beachhead in the cost estimating market. Apparently, the prevalence and depth of inaccurate and inadequate coverage limits has yet to be a dominating reputational concern among insurers.³³⁵ Further, the prevalence of underinsurance is a recurrent news story in the

screening activities by assigning each insurance applicant to a particular risk category"); *Home buyers haunted by past owners' claims*, INSURE.COM (July 6, 2017), <https://www.insure.com/home-insurance/past-claims.html> ("loss history reports alert insurers to properties that carry potentially more risk than they are willing to assume"). See generally Keith J. Crocker & Arthur Snow, *The Efficiency Effects of Categorical Discrimination in the Insurance Industry*, 94 J. POL ECON. 321 (1986), reprinted in FOUNDATIONS OF INSURANCE ECONOMICS: READINGS IN ECONOMICS AND FINANCE 444 (Georges Dionne & Scott E. Harrington eds., 1991). Accord Rutgers Center for Risk and Responsibility, *supra* note 231, at 22-23.

³³² See Molk, *supra* note 11, at 363.

³³³ See Molk, *supra* note 11, at 391. See also *Definition of moral hazard*, FT.COM/LEXICON, <http://lexicon.ft.com/Term?term=moral-hazard> ("There are concerns that some individuals that take out large insurance policies to cover specific risks are likely to claim against such policies.... Insurance firms...use screening techniques to try and identify such customers and monitor their behavior.").

³³⁴ Molk, *supra* note 11, at 386 n.140.

³³⁵ Bhutta & Keys, *supra* note 305, at 33, 36.

wake of natural disaster, often punctuated by homeowners calling out insurers by name. But underinsurance persists unabated.

Similarly, one might expect a properly functioning competitive market to adjust through normal market mechanisms to punish an insurer who persistently set coverage limits materially inadequately. The most that can be said about this expectation is that while explanations as to why may vary, thus far the market has *not* evidenced any adjustment.

VII. A PROPOSED REGULATORY RESOLUTION OF PERVASIVE UNDERINSURANCE

Homeowner insurance is an interesting market. It is dominated by low information, largely unengaged, nonetheless arguably highly price elastic customers, buying coverage that is complex to accurately underwrite and challenging to price shop.³³⁶ In other words, most customers are to some degree or another apathetic about buying insurance, and to whatever degree a customer is price sensitive, they often are ill-positioned to do anything about it.

Simultaneously, insurers face their own challenge. Building a house is a complex problem. And precisely projecting a replacement cost at an indeterminate point in the future is an impossibility. If an insurer can shift risk of error, then one would expect insurers to do so.³³⁷ And capping replacement coverage limits has indeed become a common and effective insurance strategy for insurers to shift risk to a homeowner and/or government authority.³³⁸ That strategy works because the insurer is working within a legal landscape that separates risk from responsibility. Companies

³³⁶ Contrast this, for example, with automobile insurance – pricing the actual or replacement value of a car is straightforward, the likelihood of material error is small, and price comparison tools are ubiquitous.

³³⁷ Santosh Anagol, Shawn Cole, & Shayak Sarkar, *Understanding the Advice of Commissions- Motivated Agents: Evidence from the Indian Life Insurance Market*, 99 REV. ECON. & STAT. 1 (2017) (commission structures caused agents to sell inappropriate life insurance to low information customers.).

³³⁸ See, e.g., J. Robert Hunter, *The Insurance Industry's Incredible Disappearing Weather Catastrophe Risk: How Insurers Have Shifted Risk and Costs Associated with Weather Catastrophes to Consumers and Taxpayers*, CONSUMER FEDERATION OF AMERICA, Feb. 17, 2012, at 4-6, 9-11.

pursue business strategies that the laws (as interpreted) and regulations reward.³³⁹

And yet consider the resulting dilemma consumers of homeowner insurance finds themselves in: The ubiquitous consumer information of state insurance commissioners advises homeowners to be cautious and seek full replacement coverage, and further advises that if the homeowner is unsure how much that is, then the homeowner should ask their insurer or agent.³⁴⁰ Many insurers or agents, however, will only describe an amount as a ‘minimum’ and will assert that the ultimate responsibility for adequate insurance is on the homeowner. The legal landscape frequently enforces this language. The problem is dizzying.

But there is a solution. Fundamentally what is occurring is that the information and expertise that form the basis of an informed, estimated replacement cost is remote from the responsibility if that estimate is profoundly in error.

There are a host of ways one might modify the legal landscape to close the resulting protection gap.³⁴¹ But fundamentally, any solution will fail that assumes either that adequate coverage is susceptible of consistent, accurate calculation, or that broadly and ubiquitously consumers will become informed buyers. Facts on the ground repeatedly expose those approaches as overly Pollyannaish.

Indeed, the CDOI – in defending its regulation defining how to estimate replacement cost – detailed (albeit inadvertently) many of the reasons that its solution could fail to remedy the problem of underinsurance:

The Regulation does not affect underwriting. It does not specify, require, or otherwise mandate...which risks they decide to insure against, what policy limits they wish to insure, or what price to charge for a policy. It does not require insurers to estimate replacement cost or recommend a policy limit, does not prevent insurers from including additional factors in determining the estimate, does not prohibit an insurer from setting a minimum or maximum amount of coverage or any amount of coverage that is

³³⁹ *Accord Baker, supra* note 294, at 1401 (“All that an insurance company has to sell is its promise to pay...the better an insurance company is at avoiding that promise, the more money it makes.”).

³⁴⁰ *See supra* text accompanying note 69.

³⁴¹ *See, e.g., Holzheu & Turner, supra* note 217, at 56-62.

different from the estimate of replacement cost, and does not prohibit a consumer from obtaining his or her own estimate.³⁴²

A more likely to succeed solution would re-couple risk and responsibility by requiring an insurer essentially to quote guaranteed replacement coverage and allowing the insurer to underwrite and price that coverage in anyway it chooses, so long as the rate is approved by the DOI. If the policyholder chooses to reject that coverage, then the policyholder bears the risk of underinsurance. If the policyholder accepts that coverage, then the insurer bears the risk of underinsurance. That legislation might read something like this:

- (a) For every policy of residential property insurance that is newly issued or renewed in this state, an insurer shall offer insurance for the full replacement of the insured property.
- (b) If the insured purchases the policy or renewal described in section (a), then in the event that the policy coverage limit is not sufficient to replace the insured property, the insurer shall be liable for the actual replacement cost.
- (c) If the insured does not purchase the policy or renewal described in section (a), then in the event that the policy coverage limit is not sufficient to replace the insured property, the insurer shall not be liable for the actual replacement cost.
- (d) This section shall not be deemed to limit or preclude an insurer and insured from agreeing to provide coverage for a policy limit that is greater or lesser than the estimate of replacement value provided in accordance with subdivision (a).

The advantages to a policyholder of this approach are patent. But there are advantages to insurers as well. This approach allows each insurer to model confidence levels and margins of error, and then decide what business strategy makes most sense to it. One insurer might be aggressive in pricing premium and calculating limits, determining that the realized volume of market share justifies the risk exposure of understated limits. Another insurer might come to a more conservative solution. And both approaches would be permitted without exposing policyholders or government resources.

Further, this will reconnect risk creation and risk allocation. The core challenge is that replacement cost estimators, as with any predictive tool, have margins of error. It is the seller of the software who sets the parameters

³⁴² Appellant's Reply Brief, Ass'n. of Cal. Ins. Cos., 235 Cal. App. 4th 1009 (internal citations omitted).

and algorithms, and thus can make the estimator neutral, biased to a conservative estimate, or biased to an aggressive estimate. That is a matter of negotiation with an insurer and a marketing strategy by the software company. But the risk of error should be allocated between those two entities, rather than passed through to an unwitting consumer.

If this solution is adopted, then premiums may rise. And yet, one must query, why? The providers of replacement cost estimators claim their tools *already* precisely underwrite total replacement coverage, accounting appropriately for general inflation, historical trends in building costs, localized market idiosyncrasies, demand surge pricing in the wake of mass loss, and the risk to a particular address of being part of a mass loss. If so, then prices should not move at all. Frankly, however, recent claims history in the wake of wildfire suggests that these product claims – at least at present – range more toward aspirations than descriptions.

If these are (at least for now) hollow promises, then yes, prices will rise, as they should. It is important to accurately price risk so long as this does not equate to price gouging. It is a core competency of Departments of Insurance. And the constant political debate surrounding flood insurance demonstrates the challenges of trying to artificially suppress price.³⁴³ If the last 30 years stands for nothing else, it serves as stark proof that a world of unwitting underinsurance carries real and unnecessary cost.³⁴⁴

There will be a concern, of course, that a price elastic, ill-informed and/or disengaged consumer will decline (to their disadvantage) full replacement coverage. The experience of consumer buying decisions to date, however, suggests to the contrary – homeowners largely want full insurance and largely are willing to pay for it.

³⁴³ See generally Molk, *supra* note 11, at 5 n.16; Anthony Cappelletti, *National Flood Insurance Program: Reauthorization 2017*, SOCIETY OF ACTUARIES (June 2017), <https://www.soa.org/News-and-Publications/Newsletters/General-Insurance/2017/june/National-Flood-Insurance-Program--Reauthorization-2017.aspx>; Carolyn Kousky & Leonard Shabman, *How and Why the NFIP Differs from a Private Insurance Company*, RESOURCES FOR THE FUTURE (2014), <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-14-37.pdf>.

³⁴⁴ A separate and perhaps more profound concern is that some areas will have such high fire risk that insurers will refuse to write insurance quotes at all. See, e.g., Jackie Botts, *As Fire Seasons Intensify, California Homeowners Struggle to Stay Insured*, PAC. STANDARD (Aug. 15, 2018), <https://psmag.com/environment/as-fire-seasons-intensify-california-homeowners-struggle-to-stay-insured>.

CONCLUSION

Natural disasters have exposed that literally millions of Americans, are unknowingly, profoundly, inadequately insured. This is not only a private problem, but a public one, as government frequently is the resource of last resort when homeowners become homeless. The problem of unintended, significant, widespread underinsurance has been ongoing for decades. But it is solvable. The solution is to combine the known product of guaranteed replacement coverage, on the one hand, with preserving the business flexibility of insurers to idiosyncratically tailor products to consumers, on the other hand. To paraphrase an apocryphal old advice column, this solution falls into that special category of appropriate called “high time.”