



---

# **JOURNAL OF INSURANCE REGULATION**

---

Cassandra Cole and Kathleen McCullough  
Co-Editors

Vol. 34, No. 2

## **A Public Policy Evaluation of Florida's Citizens Property Insurance Corporation**

*Jessica Weinkle*



*The NAIC is the authoritative source for insurance industry information. Our expert solutions support the efforts of regulators, insurers and researchers by providing detailed and comprehensive insurance information. The NAIC offers a wide range of publications in the following categories:*

**Accounting & Reporting**

Information about statutory accounting principles and the procedures necessary for filing financial annual statements and conducting risk-based capital calculations.

**Consumer Information**

Important answers to common questions about auto, home, health and life insurance — as well as buyer's guides on annuities, long-term care insurance and Medicare supplement plans.

**Financial Regulation**

Useful handbooks, compliance guides and reports on financial analysis, company licensing, state audit requirements and receiverships.

**Legal**

Comprehensive collection of NAIC model laws, regulations and guidelines; state laws on insurance topics; and other regulatory guidance on antifraud and consumer privacy.

**Market Regulation**

Regulatory and industry guidance on market-related issues, including antifraud, product filing requirements, producer licensing and market analysis.

**NAIC Activities**

NAIC member directories, in-depth reporting of state regulatory activities and official historical records of NAIC national meetings and other activities.

**Special Studies**

Studies, reports, handbooks and regulatory research conducted by NAIC members on a variety of insurance-related topics.

**Statistical Reports**

Valuable and in-demand insurance industry-wide statistical data for various lines of business, including auto, home, health and life insurance.

**Supplementary Products**

Guidance manuals, handbooks, surveys and research on a wide variety of issues.

**Capital Markets & Investment Analysis**

Information regarding portfolio values and procedures for complying with NAIC reporting requirements.

**White Papers**

Relevant studies, guidance and NAIC policy positions on a variety of insurance topics.

**For more information about NAIC publications, view our online catalog at:**

 <http://store.naic.org>

© 2015 National Association of Insurance Commissioners. All rights reserved.

Printed in the United States of America

No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any storage or retrieval system, without written permission from the NAIC.

NAIC Executive Office  
444 North Capitol Street, NW  
Suite 700  
Washington, DC 20001  
202.471.3990

NAIC Central Office  
1100 Walnut Street  
Suite 1500  
Kansas City, MO 64106  
816.842.3600

NAIC Capital Markets  
& Investment Analysis Office  
One New York Plaza, Suite 4210  
New York, NY 10004  
212.398.9000

# Editorial Staff of the *Journal of Insurance Regulation*

## *Co-Editors*

Cassandra Cole and Kathleen McCullough  
Florida State University  
Tallahassee, FL

## *Case Law Review Editor*

Jennifer McAdam, J.D.  
NAIC Legal Counsel

## Editorial Review Board

Cassandra Cole, Florida State University, Tallahassee, FL  
Lee Covington, Insured Retirement Institute, Arlington, VA  
Brenda Cude, University of Georgia, Athens, GA  
Robert Detlefsen, National Association of Mutual Insurance Companies,  
Indianapolis, IN  
Bruce Ferguson, American Council of Life Insurers, Washington, DC  
Stephen Fier, University of Mississippi, University, MS  
Kevin Fitzgerald, Foley & Lardner, Milwaukee, WI  
Robert Hoyt, University of Georgia, Athens, GA  
Alessandro Iuppa, Zurich North America, Washington, DC  
Robert Klein, Georgia State University, Atlanta, GA  
J. Tyler Leverty, University of Iowa, Iowa City, IA  
Andre Liebenberg, University of Mississippi, Oxford, MS  
David Marlett, Appalachian State University, Boone, NC  
Kathleen McCullough, Florida State University, Tallahassee, FL  
Charles Nyce, Florida State University, Tallahassee, FL  
Mike Pickens, The Goldwater Taplin Group, Little Rock, AR  
David Sommer, St. Mary's University, San Antonio, TX  
Sharon Tennyson, Cornell University, Ithaca, NY

## Purpose

The *Journal of Insurance Regulation* is sponsored by the National Association of Insurance Commissioners. The objectives of the NAIC in sponsoring the *Journal of Insurance Regulation* are:

1. To provide a forum for opinion and discussion on major insurance regulatory issues;
2. To provide wide distribution of rigorous, high-quality research regarding insurance regulatory issues;
3. To make state insurance departments more aware of insurance regulatory research efforts;
4. To increase the rigor, quality and quantity of the research efforts on insurance regulatory issues; and
5. To be an important force for the overall improvement of insurance regulation.

To meet these objectives, the NAIC will provide an open forum for the discussion of a broad spectrum of ideas. However, the ideas expressed in the *Journal* are not endorsed by the NAIC, the *Journal's* editorial staff, or the *Journal's* board.

# A Public Policy Evaluation of Florida's Citizens Property Insurance Corporation

---

Jessica Weinkle\*

## Abstract

This article presents a public policy evaluation of Florida's residual insurance market for catastrophic hurricane risk, Citizens Property Insurance Corporation (Citizens), in respect to its legislative mandate to provide "affordable property insurance." Following in the academic tradition of the policy sciences, this work draws from multiple disciplines such as sociology, political science, climate science and actuarial science, and the technological and social contexts for decision-making about insurance rates to better understand outcomes of the Citizens public policy. Citizens has difficulty meeting its mandate due to four main factors: 1) the use of Citizens as a means to deflect market judgments of risk when they threaten the state's economy; 2) the practical difficulty of an actuarially sound residual market; 3) the politicization of the hurricane risk; and 4) the conflict between Florida's economic and property insurance public policies. The struggle between political interests for control over the characterization of hurricane risk that Florida insures against reflects a lack of consensus on desired outcomes of a residual market. In order to reconcile the conflict between insurer economic sustainability and insurance affordability a public dialogue needs to develop for guiding policymaking for Florida's future economy.

\* Center for Science and Technology Policy Research, University of Colorado Boulder, 1333 Grandview Ave., UCB 488, Boulder CO 30309; ICAT, 385 Interlocken Crescent, Suite 1100, Broomfield CO 80021; [jessica.weinkle@colorado.edu](mailto:jessica.weinkle@colorado.edu).

## Introduction

In 2002, under the administration of Gov. Jeb Bush, the Florida Legislature passed Senate Bill 1418, known as the “Windstorm Bill.” The bill responded to a perceived lack of private market catastrophic windstorm coverage<sup>1</sup> and merged two existing residual market facilities, the Florida Windstorm Underwriting Association (FWUA) with the Florida Residential Property and Casualty Joint Underwriting Association (JUA), to create Citizens Property Insurance Corporation (Citizens). Citizens inherited much of its ancestral legislation, including the FWUA mandate that rates be “actuarially sound and not competitive with approved rates charged by authorized insurers<sup>2</sup>” (Deffenbaugh, 2002). Several years later, the legislature changed Citizen’s guiding mandate from “provide property insurance” to “increase the availability of affordable property insurance”<sup>3</sup> (Garcia and Posey, 2007).

---

1. Typically, insurance for the single peril, hurricane, is not offered. The hurricane peril is one of several wind-related perils included in windstorm coverage. However, this article focuses on windstorm issues in Florida where the primary catastrophic wind peril of concern is hurricane. As such, for the purposes of this article, the terms “windstorm insurance” and “hurricane insurance” are used interchangeably.

2. FL STAT 627.351(2)5b; I was not able to determine if this wording appeared in the original 1970 FWUA legislation. However, based on the analysis in Gorrie (1998), I believe the requirement appeared in 1997. Also, Florida legislators had at one time mandated the JUA have actuarially sound rates (Mittler, 1997).

3. The full text of FL STAT 627.351(6)(a)1 (2007) read as follows:

It is the public purpose of this subsection to ensure the existence of an orderly market for property insurance for Floridians and Florida businesses. The Legislature finds that private insurers are unwilling or unable to provide affordable property insurance coverage in this state to the extent sought and needed. The absence of affordable property insurance threatens the public health, safety, and welfare and likewise threatens the economic health of the state. The state therefore has a compelling public interest and a public purpose to assist in assuring that property in the state is insured and that it is insured at affordable rates so as to facilitate the remediation, reconstruction, and replacement of damaged or destroyed property in order to reduce or avoid the negative effects otherwise resulting to the public health, safety, and welfare, to the economy of the state, and to the revenues of the state and local governments which are needed to provide for the public welfare. It is necessary, therefore, to provide affordable property insurance to applicants who are in good faith entitled to procure insurance through the voluntary market but are unable to do so. The Legislature intends by this subsection that affordable property insurance be provided and that it continue to be provided, as long as necessary, through Citizens Property Insurance Corporation, a government entity that is an integral part of the state, and that is not a private insurance company. To that end, Citizens Property Insurance Corporation shall strive to increase the availability of affordable property insurance in this state, while achieving efficiencies and economies, and while providing service to policyholders, applicants, and agents which is no less than the quality generally provided in the voluntary market, for the achievement of the foregoing public purposes. Because it is essential for this government entity to have the maximum financial resources to pay claims following a catastrophic hurricane, it is the intent of

Private insurers, political interest groups and the public have criticized Citizens since its creation. North Florida residents and politicians express concern that their cost of insurance subsidizes South Florida's comparatively greater hurricane risk (Newman, 2009). Some policymakers argue that, in the wake of a catastrophic loss, North Florida businesses and residents may move across the state line to Georgia or elsewhere to avoid burdensome assessments (Musulin, 2013). Private market insurers consider the program as unfairly competitive (Olorunnipa, 2012a). Florida Sen. Alan Hayes (R-Umatilla) went so far to claim that Citizens is "nothing more than socialism, and we need to stamp out socialism in this country as soon as we can" (Channel 7 – WJHG 2011). Moreover, some see decisions about Citizens policies as determinants of Florida's future economy. For example, David Hart, vice president of the Florida Chamber of Commerce, has argued that higher insurance rates are needed "[t]o secure Florida's future" (Hart, 2012). In contrast, Florida Sen. Mike Fasano (R-New Port Richey) has argued that Florida's "economy just can't withstand" increasing rates (Olorunnipa, 2012b). For Hart and Sen. Fasano, Florida's future rests on decisions about Citizens' rates.

The political controversy surrounding Citizens gives reason for its evaluation in relation to the goals policymakers intend for it to achieve. Additionally, improved understanding of Citizens provides insight into Florida's implementation of the democratic process and the role of residual markets in society. This article applies a classic form of policy evaluation in the tradition of the policy sciences in respect to Citizens' legislative mandate to provide "affordable property insurance" (Lasswell, 1971). A public policy evaluation seeks to answer the question, "Is it working?" (Schneider, 1986) and follows a standard format of identifying stated policy goals, evaluation of goal metrics and attribution of responsibility for success and failure. By first beginning with authoritative goals, public policy evaluation distinctly differs from advocacy by differentiating what is "functionally" important to the public and civic order from that which is of only "conventional" importance (Lasswell, 1971, p. 2).

Many have contributed to the thoughtful consideration of the complex discussion surrounding Citizens and its ratemaking practices. However, to the author's knowledge, scholars have yet to produce a public policy analysis of Citizens specifically in respect to its legislative mandate of affordable property insurance. While prominent works have conducted analysis similar to public policy evaluation, they have not related analysis and conclusions to the stated policy objective of affordable property insurance. For example, Klein (2009) provides a review of U.S. wind related residual markets, including Citizens. Although the review discusses public concerns of insurance costs as the incentive

---

the Legislature that Citizens Property Insurance Corporation continue to be an integral part of the state and that the income of the corporation be exempt from federal income taxation and that interest on the debt obligations issued by the corporation be exempt from federal income taxation.

for legislative changes in 2007, Klein does not discuss the mandate of affordable property insurance explicitly. Second, Klein writes from a conventional perspective that residual markets “were not intended to serve as long-term sources of coverage for a substantial portion of a state’s property exposures” (2009, p. 1). History and stated public policy in Florida do not support this assertion. Florida has maintained some form of a residual market for wind exposure since the creation of the FWUA in 1970. Moreover, the original and current Citizens legislation includes an explicit directive to maintain access of residual market to a broad population for “as long as necessary.”<sup>4</sup>

Other prominent examples include Lehrer (2011) and Medders et al. (2012). Neither work provides a public policy evaluation in regard to the legislative mandate of affordable property insurance. Lehrer identifies four public policy goals and means for achieving them. However, these goals are unrelated to stated objectives found in the Citizens legislation. The work by Medders et al. provides an economic analysis of Florida insurance market conditions. The authors analyze market trends in respect to economic theory of market failures with an explicit focus on academic literature that supports concluding that government regulation has negative impacts on market conditions (e.g., Medders et al., 2012, pp. 6–8).

This article continues in six sections. The first section gives a review of the literature that provides the theoretical underpinnings to this work. The second section identifies two idealized, contrasting perspectives on the proper role of a residual market in society, technocratic and democratic, as a framework for understanding conflicting ideas on how Citizens should function. The third section provides information on the data and methodology used to identify trends in meeting the goal of affordable property insurance. The fourth section provides a potential interpretation of the data and attribution of responsibility for policy success or failure from the two idealized perspectives. The fifth section considers the data from the perspective of public policy analysis and attributes responsibility for performance to four main factors. In the sixth section, I draw lessons about Florida’s struggle to maintain democratic accountability in its management of Citizens. The article closes with a brief conclusion.

## Literature Review

A problem is a “perceived discrepancy between goals and an actual or anticipated state of affairs” (Lasswell, 1971, p. 56). Defining a public policy problem is not straightforward; it is a social processes whereby interested groups

---

4. Ibid. (2002). As of 2014, the language reads as follows: “It is necessary, therefore, to provide affordable property insurance to applicants who are in good faith entitled to procure insurance through the voluntary market but are unable to do so. The Legislature intends, therefore, that affordable property insurance be provided and that it continue to be provided, as long as necessary, through Citizens Property Insurance Corporation, a government entity that is an integral part of the state, and that is not a private insurance company.”

form “strategic representation of situations” (Stone, 1988, p. 106). The process requires reflection on cultural values, interest group advocacy, scientific information and professional advice (Rocherfort and Cobb, 1994). How an issue comes to be defined as a problem has importance for the issue’s political standing and potential solutions available to decision-makers (Rocherfort and Cobb, 1994; Kingdon, 1984; Baumgartner and Jones, 1993; Dery, 2000).

Decision-making about risk is a process whereby the decision-maker chooses risk(s) to respond to and how best to respond in order to maximize the likelihood of a favorable future. Knowledge about risk has cultural dependence whereby “choice of risks and the choice of how to live are taken together” and, therefore, “common values lead to common fears” (Douglas and Wildavsky, 1982, p. 8). Naturally, then, risk assessment by experts and laymen alike requires a blending of science and judgment, facts and values (Jasanoff, 1986; Wynne, 1992; Slovic, 1999; Loewenstein et al., 2001; Freudenburg, 1988; de Groot et al., 2013). In this way, defining risk is a political act of problem definition revealing (explicitly or implicitly) the definer’s values and power relationships in society (Fischhoff et al., 1984b; Slovic, 1999).

Insurance ratemaking is a specific decision process whereby insurers compile social and scientific information to characterize risk and determine an insurance rate, the primary basis for the cost of an insurance policy (McClenahan, 1987). However, in complex, open systems, “knowledge of the future is fluctuating, vague and uncertain” (Keynes, 1937, p. 213). Indeed, knowledge is dependent upon social context (Kuhn, 1996; Rayner, 2012; Jasanoff, 2004). In turn, insurance ratemaking also requires decision-making about the state of knowledge about risk. Because knowledge is malleable, so, too, is the characterization of risk for insurance ratemaking.

Ratemaking for catastrophic risk relies heavily on scientific information through the use of catastrophe modeling (Grossi and Kunreuther, 2005; Musulin, 1997). Catastrophe models, a specific type of computer simulation model, are useful in the process of negotiating a shared understanding of risk amongst different perspectives because one need not understand the underlying science in order to make use of the model output (for discussion, see Carlile, 2004; Star and Griesemer, 1989; Star, 2010). Still, to the extent that models differ in their construction, they represent select perspectives on knowledge about risk and can mask scientific conflict (Latour, 1987). The process of choice in building the model is often justified on the grounds that the model produces estimates of risk that are reasonable and consistent with the builder’s or user’s view of the risk (Boumans, 1999). If groups have different perspectives of the risk or conflicting objectives, they may disagree on the model appropriate for use in decision-making (Sarewitz et al., 2000).

Information and decisions about its use can alter power dynamics in society (National Science Board, 1988; Sarewitz, 2004; Slovic, 1999; Jasanoff, 2004) and pose difficulty in an insurance regime and, more generally, economic markets (Arrow, 1963; Rothschild and Stiglitz, 1976; Akerlof, 1970). As characterizations of a risk change, perceived insurability may fluctuate and, at times, conflict

(Berliner, 1982, 1985). Disagreement or controversy regarding how to best characterize risk can limit the availability of insurance (Musulin, 1997; Charpentier, 2008). Ambiguity in risk characterization limits the willingness of insurers to make insurance available or increase the cost at which insurers are willing to provide coverage (Kunreuther et al., 1995; Hogarth and Kunreuther, 1989). Changes in information may also prompt changes in insurance risk classification, resulting in normative impacts on society and concerns about social equity that call for government regulation of the information used by insurers to characterize societal risk (Hoy, 1984; Baker, 2003; Worham, 1985).

## **Technocratic and Democratic Residual Market Perspectives**

A useful framework for understanding conflicting opinions in regulatory decision-making comes from the work by science and technology studies scholar, Sheila Jasanoff (1990), on contrasting technocratic and democratic perspectives of decision-making. These perspectives are theoretical and idealized, but helpful for understanding regulatory controversy. A technocratic perspective approaches decision-making as a technical exercise, uses scientific expertise to validate policy decisions and generally seeks more or better science as solutions to policy problems. A democratic perspective approaches decision-making as an exercise in public policymaking, uses broad participation by multiple interests beyond those of technological expertise and may seek political solutions to policy problems. In practice, decision-making is always a mixture of facts and values, but the technocratic/democratic dichotomy emphasizes that different perspectives (e.g., actuaries and politicians) weight different sources or types of information more heavily at the time a decision must be made. Legal scholars have also applied the technocratic and democratic dichotomy to decision process analysis in the risk regulatory law literature (e.g., Fine and Owen, 2005; Fraiberg and Trebilcock, 1997).

Here, I use this contrasting, idealized perspective as a means to develop a discussion and more in-depth understanding of the social aspects underlying disagreement about how Citizens ought to function. That is, from the idealized technocratic and democratic perspectives two distinctly different ideas arise about the role of a residual market, when one ought to be created and the information most pertinent to decisions about rates. As a form of shorthand, these two different perspectives are dubbed technocratic residual market (TRM) and democratic residual market (DRM). Although both technocratic and democratic perspectives agree that a residual market should exist where consumers cannot obtain insurance on the private market, the perspectives differ on acceptable limiting factors for determining availability.

The TRM holds that residual markets provide coverage when conventional insurance practices view a risk as extremely challenging to insure because of

knowledge limits leading to risk aversion, perhaps due to ambiguity (Hogarth and Kunreuther, 1989) or inadequate characterization of a risk-limiting satisfaction of insurability criteria (Berliner, 1982). In this way, power to define the risk society insures against resides with the private market. For example, the Insurance Information Institute (III), an organization providing data and information about the insurance industry (III, 2013a), explains that residual markets provide coverage for applicants who the private market views as too “high risk” (III, 2013b). The International Risk Management Institute (IRMI), an organization providing risk management education, explains that a residual market serves to provide “coverage of last resort for firms and individuals who have been rejected by voluntary market insurers” (IRMI, 2014). From the TRM perspective, a residual market provides coverage where private market coverage does not exist.

The DRM holds that residual markets provide coverage when consumers have a real or perceived inability to access the coverage available on the private market. Technological and scientific knowledge may not act as a restraint for decisions on providing coverage, nor may it serve as the sole basis for characterizing risk. In this way, the power to define the risk that society insures against is negotiable among a range of interests. The DRM perspective enables a wider range of issues to act as limiting factors for determining availability. For example, Frank Nutter, president of the Reinsurance Association of America, explains that “[s]tates view their role as one of assuring access to insurance protection on an affordable basis” and, therefore, residual markets provide a place for business to “flow” when the public views the cost of insurance as unaffordable (Nutter, 2002). While Nutter does not discuss the idealized DRM perspective described in this work, his description of the state’s view of a residual market is distinct from a perspective holding that residual markets function only in the periphery of the private market.

From a practical standpoint, issues of availability and affordability interrelate. The amount an insurer can charge for coverage is a limiting factor for its willingness to accept risk. Likewise, to the extent that consumers cannot afford to purchase coverage, it is unavailable to them (cf. Newman, 2010). In turn, unaffordable coverage renders a risk uninsurable by limiting or eliminating the potential customer base (Berliner, 1982). From a DRM perspective, a residual market provides coverage where private market conditions are politically unacceptable.

### *Is Citizens Property Insurance Corporation Insurance?*

Scholarly opinions abound regarding the insurability of risks (Faure, 1995; Kunreuther and Michel-Kerjan, 2004; Babbel, 2006; Cummins, 2006; Schmit, 1986; Charpentier, 2008). Although I do not go into a detailed discussion of the criteria of insurability, this article uses the nine criteria of insurability defined by Baruch Berliner (1982) as a reference point for the work presented in this article.<sup>5</sup> Berliner’s work focuses on how the characterization of risk affects determination

---

5. For a broader discussion of insurability criteria, see Weinkle (2013).

of insurability (see also Berliner, 1985). Likewise, the interest here lies with how contextual information and changes in characterization impact the understanding of risk and the successful implementation of insurance.

However, residual markets differ from private insurance markets in two key ways that make it inappropriate to judge their success solely along conventional criteria. First, legislators create residual markets when society has a need to insure against a risk that conventional insurance practices views as uninsurable, perhaps due to regulatory constraints on price. Second, residual markets, as government entities, have the ability to spread risk over time so that a large loss becomes managed through available resources into the future and several layers of public institutions (King, 2009). A residual market does not “go out of business” in the traditional sense of the phrase. For example, when Citizens has a loss exceeding its ability to pay, it can incur debt through the sale of government bonds and pay back that debt into the future by collecting assessments from policyholders.<sup>6</sup> At least one rating agency views Citizens’ ability to levy assessments as a virtue improving its credit rating (S&P, 2012). However, incurring debt is inconsistent with the insurability criterion of charging a premium that covers all costs associated with loss (Berliner 1982). The difference in the ability to respond to deficit between private market insurers and a residual market causes different social experiences for the two groups in regard to catastrophic risk and may trigger different demands for action by each (Slovic, 1999; Renn et al., 1992; Loewenstein et al., 2001).

## Methods

### *Social Context*

Discourse, such as interviews and congressional records, is an important source of data in the social sciences (Baumgartner and Jones, 1993; Dryzek and Niemeyer, 2008; Krippendorff, 2012; Lasswell and McDougal, 1992; Phillips and Hardy, 2002). This type of data provides relevant context for the decisions made regarding Citizens’ rates. I gained a better appreciation for the complexity of the issues underlying Citizens and Florida hurricane risk through extensive review of

---

6. The topic of assessments, while complementary to the topic of ratemaking, falls under the separate risk-management tactic of retention (e.g., Hubbard, 2009, p. 27). Moreover, historical events in Florida suggest that, when assessments are realized, policymakers seek alternatives for mitigating their economic impact on the public. For example, after 2004 and 2005 deficits, policymakers sought to use the sales tax “windfall” from rebuilding activity to reduce assessments or homeowners’ costs (Ryan, 2006; Tuckey, 2006). Also, the Florida Legislature recently decided early termination of existing assessments (Adams, 2014). The topic of assessments may well serve to provide a broader discussion about how the public negotiates how much risk to insure and retain. Yet, the topic is beyond the scope of this particular article.

U.S. and Florida legislative hearings, media reporting, so-called “gray literature”<sup>7</sup> and interviews with key decision-makers during a visit to Florida in 2012. Due to the sensitive political nature of the topic, the names of those interviewed remain confidential.<sup>8</sup>

### *Affordability Data*

No official metric of affordability exists for Citizens’ policies because the Citizens mandate does not define “affordable.” Common measures of insurance affordability include comparison to household income, household purchase choice and housing burden guidelines established by the U.S. Department of Housing and Urban Development (HUD; Grossi et al., 2005). Other econometric approaches to affordability compare prices per unit of total insured valued (TIV) to some other unit of analysis, such as the TIV in other states for the same line of business. These situations (explicitly or implicitly) require the researcher to make choices about what is of value to compare. Choice inherently involves criteria based on preferences (Wildavsky, 1985; Simons, 1990). Thus, just as defining a policy problem is a political act, “choice of a method is a political decision with a distinct message about who should rule and what should matter” (Douglas and Wildavsky, 1982, p. 4). Without official criteria of affordability, the metric of evaluation chosen by the researcher imposes the researcher’s preferred measurement of affordability onto the public and may introduce bias.<sup>9</sup> This can have real-world knock-on effects because the use of different metrics can create different “winners” and “losers” in society, thereby attracting different sets of supporters and detractors (Hancock, 1993; Hammond, 1996).

Contrary to the more typical metrics discussed above, this work approaches affordability as a multidimensional social value enabling public involvement in the political process of defining the hurricane risk that the state chooses to insure against. From this viewpoint, risk affordability becomes a risk acceptability issue, whereby public debate—informed by technological and scientific expertise—defines the risk society manages (Fischhoff et al., 1984a, 1984b).

---

7. “Gray literature” is a general term referring to texts that are not peer-reviewed and published by a scholarly press. Examples include government reports and industry white papers. For more information, see National Research Council (1997).

8. Politically sensitive topics can present real and perceived risks to individuals close to the subject matter that agree to participate in research studies. Federal regulation requires university affiliates conducting studies involving human subjects to minimize the subjects’ risks by, for example, gaining explicit consent for participation and maintaining the anonymity of interviewees. For more information, see 45 CFR 46.111 or the University of Colorado Institutional Review Board at [www.colorado.edu/vcr/irb](http://www.colorado.edu/vcr/irb).

9. This is a good example of a technocratic approach to decision-making, whereby expert choice of metric to define the political value of affordability attempts to impose scientific and technological solutions to policy problems rooted in social value conflict (see also Brown, 2009).

**Table 1:**  
**Total Number of Articles by Newspaper, Jan. 1, 2002 – Dec. 31, 2012**

Newspaper	Number of Articles Per Year											Total
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
Orlando Sentinel	7	1	57	46	66	32	12	14	4	9	6	254
Miami Herald	35	4	27	91	237	173	140	78	48	18	57	908
Palm Beach Post	17	9	33	80	124	50	27	13	6	12	15	386
Tampa Bay Times <sup>10</sup>	10	5	25	44	97	65	20	30	13	6	9	324
Total	69	19	142	261	524	320	199	135	71	45	87	1,872

Newspapers are a common means of measuring the mood of the public because the journalistic relay of information both shapes and mirrors public concern (Edelman, 1988; Boykoff, 2011). Following from this premise, frequency of reporting on windstorm insurance in Florida’s widely circulated newspapers is used as a metric of affordability. Low frequency of reporting suggests relatively little to no public discontent, public acceptability and an affordable hurricane risk. Likewise, high frequency of reporting indicates heightened public discontent, public unacceptability and an unaffordable hurricane risk.

Reporting frequency was found by using a Boolean search of newspapers with large circulation numbers serving different areas in Florida over the period Jan. 1, 2002, through Dec. 31, 2012, for the phrases, “windstorm insurance” or “hurricane insurance” in either the headline or the story (Table 1). The *Miami Herald*’s reporting frequency is more than two times greater than the next highest resulting newspaper. This likely reflects the Miami area’s high concentration of Citizens policies. Also, several political representatives from the Miami area spearheaded the creation of Citizens (Citizens Property Insurance Corporation, 2002).

### *Context for Affordability*

The rates of change of Citizens’ average policy cost and of average cost as a percentage of median household income provide context of real and relative policy cost to observed changes in perceptions of affordability (Table 2). A combination of Citizens’ publicly available monthly and annual reports for the period 2002–2012 ([www.citizensfla.com](http://www.citizensfla.com)) provides relevant data. The U.S. Census provides historical yearly median household income data for 2002–2012 ([www.census.gov](http://www.census.gov)). All values are adjusted to constant 2013 dollars using the U.S. Bureau of Labor Statistics’ Consumer Price Index for all urban consumers in the South ([www.bls.gov](http://www.bls.gov)).

**Table 2:  
Citizens' Average Policy Cost and Median Household  
Income (\$), 2013**

Year	Direct Written Premium	Policies-In-Force	Cost per Policy	Median Household Income	Policy Cost as % of Income
2002	\$981,050,202	564,107	\$1,739	\$49,738	3.50%
2003	\$1,411,042,338	820,223	\$1,720	\$49,828	3.45%
2004	\$1,539,851,134	873,937	\$1,762	\$50,543	3.49%
2005	\$1,654,168,064	810,017	\$2,042	\$51,754	3.95%
2006	\$3,667,525,424	1,298,922	\$2,824	\$53,180	5.31%
2007	\$3,394,193,481	1,304,949	\$2,601	\$51,811	5.02%
2008	\$2,589,425,784	1,084,237	\$2,388	\$48,728	4.90%
2009	\$2,321,672,727	1,029,214	\$2,256	\$49,768	4.53%
2010	\$2,828,354,136	1,283,538	\$2,204	\$47,267	4.66%
2011	\$3,185,251,388	1,472,391	\$2,163	\$46,770	4.63%
2012	\$2,864,421,927	1,314,811	\$2,179	\$46,782	4.66%

### *Insurability Data*

In collecting interview data for this research, it became clear that insurance experts often consider the issues of risk insurability as one of insurance availability. For example, when I asked Insurance Executive A (2012) about change in risk insurability, Insurance Executive A suggested that I analyze trends in Citizens' market share data, because growth in its market share indicate a lack of availability of private market coverage due to perceived unisurability of the risk, for whatever reason. As a result, this research uses Citizens' market share of written premium from 2002 to 2012 to identify periods of time when the private market perceived the Florida hurricane risk as relatively insurable or uninsurable. Increases (decreases) of Citizens market share indicate decreases (increases) in perceived insurability of the hurricane risk. A combination of reports on the Citizens' website, public records requests and the Florida Office of Insurance Regulation (FLOIR) online reporting database, QUASR, provide market share data. Table 3 provides Citizens' annual market share as a percentage of total direct written premiums.

**Table 3: Citizens' Market Share by Direct Written Premiums**

<b>Year</b>	<b>Market Share (%)</b>
2002	16.6
2003	19.97
2004	19.63
2005	18.81
2006	30.58
2007	29.25
2008	24.10
2009	21.87
2010	25.86
2011	28.81
2012	25.50

### *Assessing Citizens as Insurance*

According to Berliner's (1982) criteria of insurability, an insurer must charge enough in premiums to cover all costs of loss. To assess Citizens' performance as successful insurance, this research uses Citizens' loss ratios (incurred loss/earned premium) from 2002 to 2012 as a metric to judge success as an insurance facility<sup>10</sup> (Table 4). Loss ratios greater (less) than one indicate a company that has experienced a greater (lesser) loss in a year than it has earned in premiums that year. Citizens' statutory financial statements found on the company's website provide relevant data.

Figure 1 compiles the data discussed in this section. All data is depicted as mean adjusted indices.<sup>11</sup> Using an index enables evaluation from a constant reference point. The top graph shows trends in affordability and insurability represented by frequency of newspaper reporting and Citizens' market share. The bottom left graph shows real and relative changes in Citizens' average policy cost. The bottom right graph shows Citizens' loss ratio over time. These graphs are used for the rest of the discussion in this article.

10. Due to limited data, the author is not able to account for other related issues, such as overhead, or calculate a combined ratio for the given period.

11. A mean adjusted index is calculated as the year's value divided by the annual average. The average is used as a reference. For example, the average annual newspaper reporting frequency is 179 and 320 articles were counted for the year 2007. The calculated index value for 2007 is 1.79. This means that, in 2007, reporting frequency was 79% above average.

**Table 4:**  
**Citizens' Incurred Losses and Earned Premiums (\$), 2013**

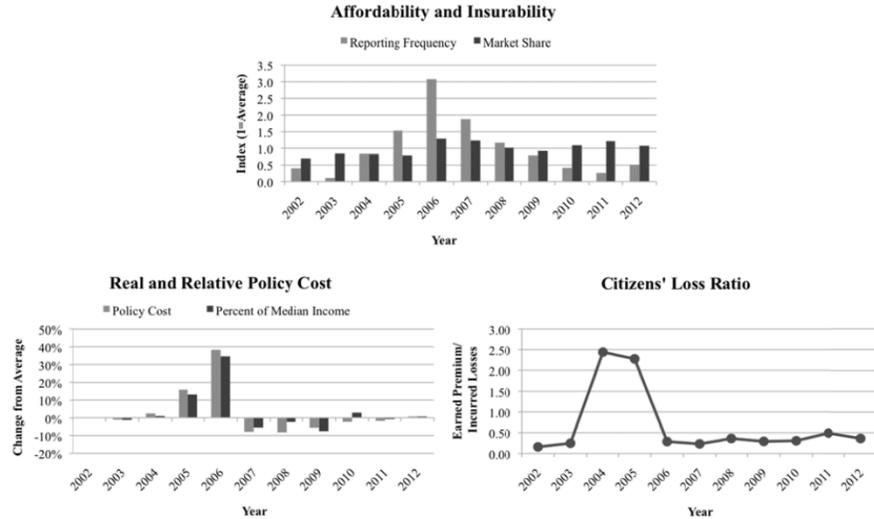
<b>Year</b>	<b>Incurred Loss</b>	<b>Earned Premium</b>	<b>Loss Ratio</b>
2002	\$82,787,119	\$522,624,908	0.16
2003	\$203,559,758	\$823,901,965	0.25
2004	\$2,493,126,425	\$1,022,502,662	2.44
2005	\$2,401,938,689	\$1,055,746,118	2.28
2006	\$589,743,783	\$2,054,284,673	0.29
2007	\$711,238,213	\$3,074,754,430	0.23
2008	\$815,937,717	\$2,256,627,536	0.36
2009	\$498,999,129	\$1,711,428,649	0.29
2010	\$603,911,000	\$1,971,649,000	0.31
2011	\$1,107,600,000	\$2,251,731,000	0.49
2012	\$815,507,000	\$2,248,095,000	0.36

## Evaluating Trends and Judging Responsibility from Contrasting Perspectives

Citizens' performance contrasts with the TRM perspective of an ideal residual market in three ways. First, Citizens' dramatic increase of market share in 2006 suggests that it acts as a competitive force. Second, the stability in the rate of change in policy cost since 2006 suggests that Citizens' pricing of risk does not consistently consider fluctuating private market views (discussed further below). Third, during 2004 and 2005, Citizens' losses exceed premiums by roughly 240%, suggesting that it does not perform successfully as conventional insurance. Based on these data, the idealized TRM perspective would perhaps judge Citizens a policy failure because the company does not work only in the periphery of the private market and does not meet conventional insurance standards.

In three ways, Citizens' performance reflects the DRM perspective of an ideal residual market that responds to political acceptability. First, Citizens' increasing market share suggests that it is meeting the needs of a larger share of the public. Second, the steady decrease in newspaper reporting beginning in 2007 suggests that public views of risk unacceptability have abated. Third, Citizens' ability to spread risk over time has enabled the company to handle back-to-back catastrophic losses while continuing to ensure the availability of property insurance. Based on these data, the idealized DRM perspective would perhaps judge Citizens a policy success because the company has responded to various issues and concerns in society.

**Figure 1:  
Affordability and Insurability; Real and Relative Policy Cost; Citizens'  
Loss Ratio (2002–2012)**



Figures: (Top) Florida hurricane risk affordability and insurability; (bottom left) Real and relative changes in Citizens' policy costs; (bottom right) Citizens' loss ratio.

The idealized TRM or DRM perspectives likely attribute responsibility for performance to different causes.<sup>12</sup> Below, I describe potential views of responsibility from the two idealized perspectives based on experience studying Citizens and research on the use of science in politics and policymaking (e.g., Fischhoff et al., 1984b; Weingart et al., 2000; Sarewitz, 2004; Pielke, 2007).

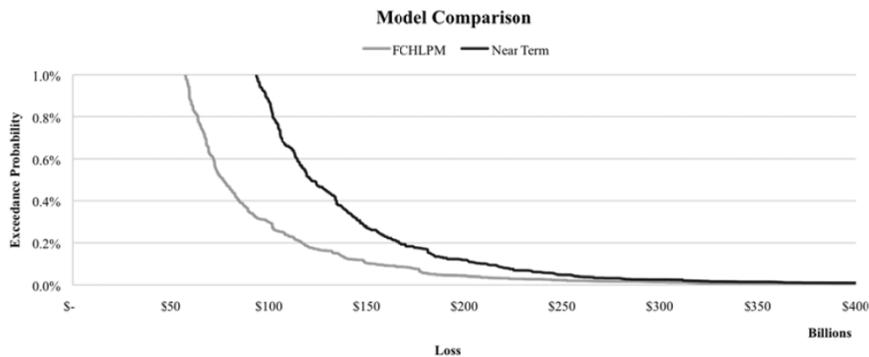
The TRM perspective attributes Citizens' performance to a disregard for market judgments of risk. After the multiple landfalls during the 2004 and 2005 hurricane seasons, the private insurance industry developed a heightened perception of hurricane risk and reinsurers demanded catastrophe model adjustments to account for their new concerns (Munich Re Group, 2006). Risk Management Solutions (RMS), an industry-leading catastrophe modeling firm, responded by developing a "near-term" model that increased annual loss estimates on the order of 30% to 50% (Muir-Wood, 2006). Insurers and reinsurers adopted the near-term model for ratemaking and competition drove other modeling firms to develop similar model types (FLOIR, 2008; St. John, 2010). Florida's model regulating body, the Florida Commission on Hurricane Loss Projection Methodology (FCHLPM), rejected the near-term model for use in the state on the

12. The TRM and DRM perspectives also likely conflict on implementing mitigation to manage the hurricane risk (Musulin, 2013). A full discussion of how these views conflict regarding mitigation and the potential for mitigation to play a more prominent role in the risk-management process is beyond the scope of this article.

basis of unacceptable methodology (Kern, 2007). The FCHLPM rejection resulted in severely inconsistent understandings between Florida and the insurance industry of the hurricane risk because, as one Florida actuary explained, “Only Florida uses Florida’s models” (*Florida Actuary*, 2012).

Figure 2 demonstrates inconsistencies between Florida’s view of risk and the insurance industry’s. The graph compares loss exceedance probabilities for the same portfolio of Florida residential properties. The gray curve reflects a commercial vendor’s FCHLPM-approved model. The black curve shows the same vendor’s model using a near-term catalog of events. The near-term model estimates much higher probabilities for a given loss amount compared to the FCHLPM model.

**Figure 2:**  
**Comparison of Loss Exceedance Curves Using a Commercial**  
**Vendor’s FCHLPM-Approved Model (Gray) and the Same Vendor’s**  
**Near-Term Model (Black)**

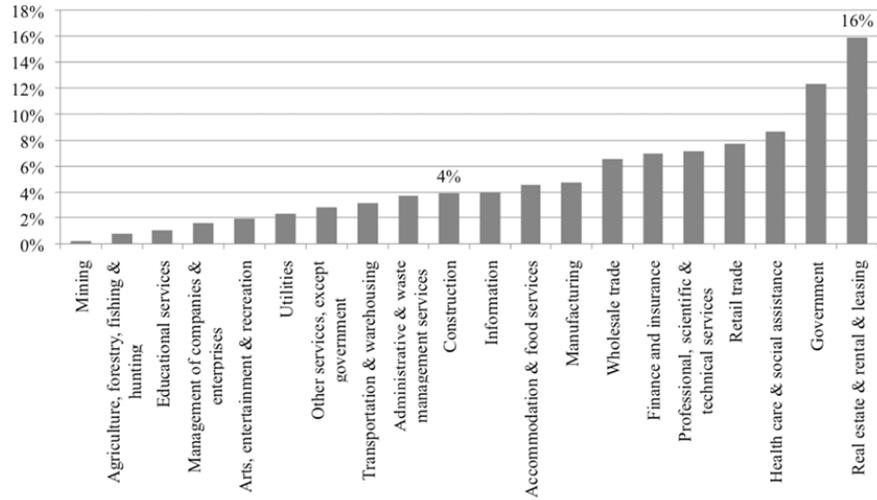


Because Citizens can spread risk over time, it can retain whatever risk it cannot transfer to reinsurance due to limitations presented by the cost of capital. Citizens’ improved ability to manage the conflicting views of risk between FCHLPM-approved models and private industry enables it to offer rates that do not reflect market judgments of risk.

The DRM perspective attributes trends in Citizens’ performance to changes in Florida’s economy. Historically, Florida’s economy has been concentrated in real estate and land development (Cumming, 2006). In 2012, at least 20% of Florida’s economy directly depended upon real estate and land development (Figure 3; [www.bea.gov](http://www.bea.gov)). As indicated by the economic model frequently produced by the Florida Legislature’s Office of Economic and Demographic Research (OEDR), public policymakers will continue to rely on these sectors of the economy at least for the foreseeable future (Figure 4; OEDR, 2010; OEDR, 2011; OEDR, 2012b; OEDR, 2013). Moreover, policymakers understand the availability of affordable property insurance as vital to the real estate sector of both the state and national economies because banks require homeowners to obtain and maintain windstorm

coverage as a mortgage lending requirement (Subcommittee on Consumer Credit and Insurance, 1993; Committee on Banking and Insurance, 1999; Subcommittee on Oversight and Investigations, 2008).

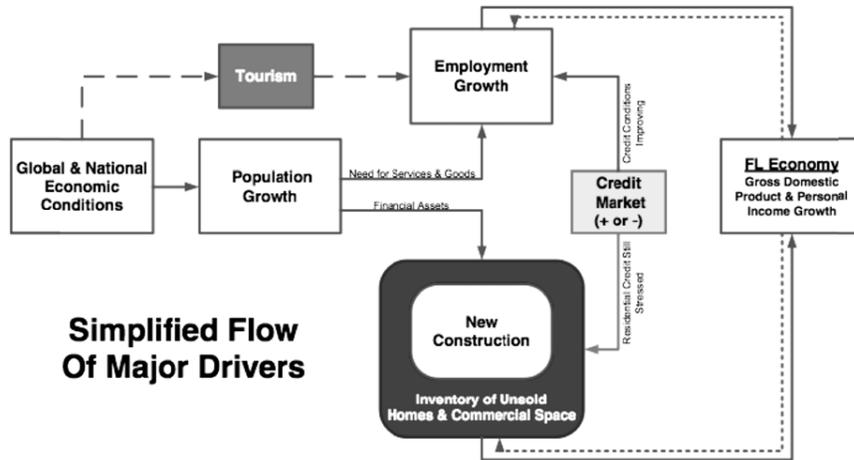
**Figure 3: Percentage of Florida GDP by Industry, 2012**  
**% of Total Florida GDP Derived from Selected Industries, 2012**



Mortgage lending practices in the 1990s and early 2000s fostered a substantial building boom in Florida and the nation (Committee on Oversight and Government Reform 2009; FIU Metropolitan Center, 2012). However, incomes stagnated or declined and disparity between high- and middle-income families grew in Florida (Bernstein et al., 2008). By 2006, Florida developed one of the highest percentages of mortgaged homeowners with housing burden in the nation<sup>13</sup> (Schwartz and Wilson, 2007). In Miami, more than 20% of burdened households were paying 50% or more of household income to housing costs (Schwartz and Wilson, 2007). Concurrently, the U.S. economy declined and Florida's real estate market exhibited a fall in home values, sales and, eventually, an increase in foreclosures (Committee on Oversight and Government Reform, 2009; OEDR, 2008). As a result, the market view of hurricane risk and demand for higher insurance rates after the 2004/2005 hurricane seasons threatened to worsen the health of the state's economy.

13. Housing burden, or housing-cost burden, is defined as a household with housing expenditures (including insurance) that exceed 30% of household income (Schwartz and Wilson, 2007).

**Figure 4: Florida’s Economic Model as Depicted by the OEDR, 2013**



Source: OEDR (2013, p. 2), original in color.

Florida House Bill 1A (HB1A), passed in January 2007, structured Citizens rates so that they were lower than those on the private market. Legislative deliberation of HB1A demonstrated the incompatibility of the rapidly inflating conception of hurricane risk coming from the private market with state’s economy. Rep. David Rivera (R-Miami), a co-sponsor of the bill, assured legislators that the proposed changes to Citizens would assist the company in responding to the highly unstable mortgage market:

**Rep. Rivera (R-Miami):** That is certainly the intent, to make sure that the entire mortgage is covered, when the premiums, when the policy begins whatever point of the year that is.

**Rep. Jack Seiler (D-Fort Lauderdale):** And whether the mortgage goes up or down that’s meaningless of the essences at the date you purchase, pay that premium and purchase that policy, that’s going to be the amount that is paid to the homeowner?

**Rep. Rivera:** Absolutely (Rivera, 2007).

Rivera further emphasized that the legislation's goal to assist financially struggling middle and low-income homeowners:

**Rep. Rivera:** What we need to deal with is allowing the consumer to have options. Making sure that not just affluent consumers that are homeowners have options, but every homeowner irrespective of the value of their home or the amount of their mortgage can have that option voluntarily... to perhaps lower their property insurance (Rivera, 2007).

From a DRM perspective, Citizens' rates may have more to do with the state of the Florida's economy than with actuarial or scientific measures of hurricane risk.

## Evaluating Trends and Assigning Responsibility for Performance from the Perspective of Public Policy Evaluation

From the perspective of public policy evaluation trends in goal metrics indicate that implementation of the Citizens public policy had a mixture of success and failure over the period of analysis. General time frames showing success (2002–2004; i.e., affordability and insurability metrics below average) or failure (2006–2008; i.e., unaffordability and uninsurability metrics above average) indicate the goals of affordability and insurance are not inherently at odds—if they were, then the two metrics would reflect oppositely of one another. The following discussion describes four reasons that Citizens struggles to meet its legislative mandate of affordable property insurance.

### *1. Citizens as Defense Against Market Judgments of Risk*

Florida Sen. Rudy Garcia (R-Hialeah), who is from the Miami area, co-sponsored the Windstorm Bill that created Citizens. He promoted it as a means to streamline the residual market and save on operating expenses by acquiring federal tax-exempt status.<sup>14</sup> However, the original guiding mandate did not state a need for a reduction in operating costs but identified a problem with the perception of hurricane risk and argued that “actual and *threatened* catastrophic losses”<sup>15</sup> limited

---

14. Sen. Garcia stated: “The principal goals of restructuring the Florida property coverage market are to provide homeowners with a residual market that provides one policy, one agent, one adjuster for all the perils of their home. The structure of the residual market entity to be eligible for the tax exemption and IRS authorization to issue tax-exempt debt, assure that the residual market entity provides coverage comparable to private market and streamlines residual market operations to achieve administrative savings” (Garcia, 2002).

<sup>15</sup> SB 1418, 2002 Legislature.

the availability of private market property insurance in the state (emphasis added). Comments made to the press indicated that policymakers intended Citizens not simply as a means to reduce overhead expenses, but as a tool for bounding the market conception of risk imposed upon the public. In signing the law, Gov. Bush announced that the “legislation will help *contain* insurance-related costs” and the company promoted itself as a means of “*capping* windstorm rate increases” (emphases added; Citizens Property Insurance Corporation, 2002). Legislative creation of Citizens responded to the political risk posed by the insurance industry’s measures of hurricane risk.

The sudden surge in the insurance industry’s perceived risk caused by the hurricane events of 2004/2005 led to conflict between reinsurers, primary insurers and the public. Disagreement about the risk after 2004/2005 caused instability in Florida’s insurance market akin to that after Hurricane Andrew in 1992 (see Musulin, 1997). Then attorney general, soon-to-be-elected-governor, Charlie Crist, argued to lower Citizens’ rates because of an obligation to keep the conception of hurricane risk from growing beyond public acceptability:

Citizens Property Insurance Corporation seems to have forgotten that it was created to serve people during their time of great need. It seems to have forgotten that the people of Florida are the boss, and the corporation is there to serve them—not the other way around. It’s time we remind Citizens Property Insurance of its statutory and moral duty to the people of Florida (Crist, 2006).

Faced with the insurance industry’s rapidly evolving conception of the Florida hurricane risk, a slumping real estate market and a disgruntled, financially strained populace, the newly elected Florida Gov. Charlie Crist signed HB1A into law in January 2007. During deliberation of the bill, Rep. Denise Grimsley (R-Sebring), a co-sponsor, argued that HB1A responded to a “competitive disadvantage” policyholders had when dealing with their insurance providers due to information asymmetry and industry folly:

Policyholders have too few options, too few protections, and too little information. Today, policyholders no longer stand on a level playing field with their insurers. The purpose of this legislation is to restore balance and common sense to the market (Grimsley, 2007).

By enabling regulators to set Citizens’ rates well below that of the private market, legislators intended to “place Citizens in more direct competition with the voluntary market” (Deffenbaugh, 2007) and, thereby, in direct conflict with the TRM perspective of a properly functioning residual market.

As the months passed, the economy worsened and the private market’s conception of hurricane risk continued to grow, exacerbated by the new Citizens legislation, its existing debt and the upcoming 2007 hurricane season. In June 2007, the ratification of Senate Bill 2498 expanded eligibility for Citizens even

further (Deffenbaugh, 2007). Deliberation of the bill again focused on the need to increase market competition, yet a brief statement made by Gov. Crist exemplified the underlying power struggle between the insurance industry and the public over definition of the risk:

It does turn things on its head; and that's the whole idea. It gives more power back to the people for them to have the opportunity through Citizens and other competition as a result of this good legislation to be able to get lower rates (Crist, 2007).

Like previous legislation, SB 2498 emphasized the need to control the conception of hurricane risk, stating the legislature found that “private insurers are unwilling or unable to provide *affordable* property insurance coverage in this state to the extent sought and needed” (emphasis added).<sup>16</sup> As such, Citizens’ new goal became to “increase the availability of affordable property insurance.” The legislation directed Citizens to achieve its goal through “affordable rates.”<sup>17</sup> Emphasis on the insurance rate indirectly placed responsibility for policy success on the actuarial and scientific process of characterizing Florida’s hurricane risk.

## *2. The Practical Difficulty of an Actuarially Sound Residual Market*

The American Academy of Actuaries, an actuarial professional group, defines actuarially sound “as a general term, assumed to be understood to mean reasonable and consistent with generally accepted actuarial principles and practices” (American Academy of Actuaries, 2012, p.24). Based on the principles of ratemaking established by the Casualty Actuarial Society (1988), a professional group for the actuarial sciences, a facility with actuarially sound rates is capable of covering all costs associated with loss, signifying that the facility functions soundly as insurance (Table 5).

If the private market is taken as emblematic of generally accepted principles and practices, then under these criteria established by the American Academy of Actuaries and the Casualty Actuarial Society, neither the TRM nor DRM perspectives can achieve an actuarially sound residual market. A TRM cannot have actuarially sound rates for two reasons. First, offering insurance coverage for a risk that the private market views as too high-risk, unable to be characterized or otherwise uninsurable goes against generally accepted practices because the accepted practice is to not offer insurance coverage. Second, if insurers consider the risk as unknown or unmeasurable, then a TRM has no way to judge its ability to cover future losses or to judge the adequacy of its rates. Simply charging higher rates than those on the private market misconstrues the principles underlying the technical practice of ratemaking. While higher rates ensure the residual market does not directly compete with the private market, it does not mean the full cost of

---

16. Florida Senate Bill 2498ER, 627.351(6)(a)1.

17. *Ibid.*

loss has been quantified. Actuarial soundness and noncompetitive are not equivalent concepts.

**Table 5: Principles of Ratemaking (adapted from Casualty Actuarial Society, 1988)**

	<b>A Rate...</b>
Principle 1	is an estimate of the expected value of future costs.
Principle 2	provides for all costs associated with the transfer of risk.
Principle 3	provides for the costs associated with an individual risk transfer.
Principle 4	is reasonable and not excessive, inadequate, or unfairly discriminatory if it is an actuarially sound estimate of the expected value of all future costs associated with an individual risk transfer.

DRM rates necessarily conflict with generally accepted principles and practices because the residual market offers insurance where generally accepted practices result in risk estimates that fall outside of politically acceptable limits. Logically, if decision-makers could set the residual market rates consistent with political acceptability and generally accepted principles and practices, then the legislature would have no reason to create a residual market. Thus, there is a serious practical difficulty in applying the actuarial soundness criteria to ratemaking for residual markets because the residual market view of risk intentionally contradicts with generally accepted principles and practices found on the private market.

### *3. Politicization of the Hurricane Risk*

Some political interests use Florida's hurricane risk as the latest rationale for resolving existing political conflicts in other realms of policymaking. The politicization of the hurricane risk—the weighting of one measure of risk against another based on the political advantage offered—overshadows the opportunity for public debate about moral concerns and values to be maximized with debate over science, technology and correct measures of risk (Weingart, 1999; Pielke, 2007, 2010; see also Robinson, 1992; Fine and Owen, 2005). For example, the James Madison Institute (JMI), a Florida think tank, promoted “comprehensive reform of the state’s dysfunctional property insurance system” to force resolve in other areas of ongoing political debate and “improve the state’s economy and better protect taxpayers, while also helping to preserve Florida’s environment” (Lehrer, 2011). For the JMI, political debate in resolving environmental and fiscal and budget disputes is unnecessary if decision-makers price windstorm insurance in accordance with market judgments of risk. Environmental policy and fiscal and budget policy are two of the more prominent areas of public policy commonly conflated with the politics of Florida windstorm ratemaking.

Environmental groups promote rate policy as a means to address concerns of the environmental impact from “irresponsible” or “reckless” development. The argument holds that affordable insurance has encouraged extensive land development:

Risky coastal development, which we are all underwriting through subsidized insurance and related programs, not only is a burden to taxpayers, but it promotes development in the very areas that are the most prone to storm damage...No reasonable person can conclude that anything but a fundamental change is overdue... (cited in Lehmann, 2012).

Following this argument, pricing the risk appropriately would mean that Citizens should adopt an unaffordable view of risk so that people would be forced to move out of Florida or disinclined to move into it. Yet, recent trends do not suggest that a high cost of risk necessarily discourages development. Consider that, in the early 2000s, building in Florida took place “without regard for actual demand” (FIU Metropolitan Center, 2012). More recently, despite ongoing difficulties with the cost of windstorm insurance in Florida, Florida’s luxury real estate market is experiencing a “boomlet” (Barrionuevo, 2012) along the coast. Current buyers of real estate often pay in cash (OEDR, 2012a) and, therefore, do not have a mortgage and need not purchase windstorm coverage. The high cost of insurance does not appear to limit development but influences the type of development pursued.

Some climate change policy activists use the rise of windstorm insurance costs as an indication that climate change has worsened the impact of hurricanes. In a *Washington Post* opinion piece, Mike Tidwell, a climate change activist in the Washington, D.C., area, reflected on the increase in the cost of windstorm insurance and insurers’ attempts to withdraw from coastal markets and asked, “Why would private insurance companies lie about climate change?” (Tidwell, 2011). From this perspective, the acceptability of hurricane risk estimates depends upon one’s expectations of climate change impacts on hurricane behavior. Others conflate the issue of climate change with ongoing difficulties in managing the Florida windstorm insurance regime. Ceres, a prominent environmental investment company, has used Florida’s difficulties with windstorm insurance as an example of insurance conditions under climate change if rate policy is not changed to incorporate a market view of risk (Mills et al., 2005; Khamayzer, 2012; Ceres, 2012).

Some public policymakers have sought to reduce debate about an acceptable measure of hurricane risk to one of fiscal and budget policy. For example, Gov. Rick Scott has argued that public discourse about Florida’s hurricane risk and Citizens’ rates should be placed in the context of “making sure people understand the risk of hurricane taxes” (i.e., assessments) (Anderson, 2012). John Rollins, a member of Citizens’ board of governors, placed decisions about Citizens’ rates

into the context of ongoing political debate over federal budget policy. If Citizens incurs a deficit, Rollins argues, then:

Florida will be further in debt, future generations can anticipate decades of assessments, and all those property insurance policies must still be renewed using someone's money to back the promises. Sounds like the "plan" right now in Washington, doesn't it? (Rollins, 2012).

For Gov. Scott, Rollins and those who may agree with them, Citizens represents just one example of a national fiscal and budget crisis stemming from the cost of social programs.

#### *4. Florida's Economic Model Demonstrates Conflict in Economic Policy Goals*

Florida's economic model depicts population growth as the main driver of the state's economy by way of stimulating employment and new construction<sup>18</sup> (Figure 5). It also shows credit market conditions as limiting factors to growth in new construction and employment. However, the model does not consider the reciprocal effects of hurricane losses on model drivers. Socioeconomic factors, such as increasing concentrations of wealth and population, account for much of the increases in hurricane economic losses observed over the past several decades<sup>19</sup> (Bouwer, 2011; Pielke et al., 2008; Schmidt et al., 2008; Nutter, 2013). Consequently, the economic model presents an implicit forecast of increasing hurricane losses through growth in population, construction and employment<sup>20</sup>.

The potential for catastrophic loss can have negative consequences for consumer access to credit markets. For example, EQECAT, a leading catastrophe modeling firm, provides a modeling product that specifically predicts the probability of mortgage default as a result of natural catastrophe events. EQECAT

---

18. The use of GDP as a metric of the economic wealth of a state or nation is common practice. However, in recent years, economists have criticized its use for not sufficiently capturing the economic well-being and quality of life of society, families and individuals (Stiglitz et al., 2009). The issue of GDP as a poor indicator of economic well-being and quality of life is important in respect to the debate about affordable insurance, because building activity that contributes to GDP also increases the value at risk and requires the cost of insurance to increase to remain in accordance with the criteria of insurability (Berliner, 1982). However, while GDP may increase, household incomes may not, thereby causing strain on the ability to provide affordable coverage that is also in line with conventional insurance practices.

19. This topic encompasses a rich scientific debate and a great wealth of literature regarding climate, hurricane and other natural-hazard-related losses. Bouwer (2011) provides an extensive review of the literature that analyzes losses in relation to societal changes. However, given the breadth of this literature, an in-depth discussion of the matter is well beyond the scope of this paper.

20. Employment serves as a proxy for tangible assets and personal wealth, because one who is employed earns an income affording one the ability to purchase goods and accumulate economic wealth.

(2013) explains, “Managing the risk of massive mortgage default resulting from natural catastrophes begins with quantifying the likelihood and the amount of exposure and loss.” That EQECAT produces this product gives reason to believe at least some mortgage lending institutions consider catastrophe risk directly in decisions about mortgage lending in hurricane-prone regions (see also Garmaise and Moskowitz, 2009). An inability to access the credit market does little to spur new construction, so long as potential homeowners rely on mortgages to purchase homes.

Legislators working with an understanding of the Florida economy based upon the economic model undermine their own efforts to provide the public with affordable property insurance. Growth in population, wealth and construction will undoubtedly increase losses when hurricane landfalls occur. In accordance with the criteria of insurability, insurance rates increase with increasing loss potential (Berliner, 1982). Increasing rates exacerbate insurance affordability issues. Rate suppression exacerbates insurability issues. The conflict inherent in Florida’s economic models is a root cause to Florida’s difficulty in reconciling insurer economic sustainability and insurance affordability.

## **Responsibility for Citizens’ Performance Demonstrates a Lack of Democratic Accountability**

A healthy democratic process enables broad public engagement in the process of public policy decision-making (Dahl, 1998). Conditions that serve as explanations for difficulties in meeting Citizens’ legislative mandate also represent trends in Florida’s democratic process. Legislative non-consensus for preferable outcomes of the Citizens policy leads to a lack of democratic accountability. Accountability matters because it legitimizes the actions of government officials (Gutmann and Thompson, 1996; Young, 2002). The practical difficulty of applying actuarially sound criteria to a residual market prevents accountability because the public cannot hold legislators accountable to conflicting goals. Moreover, the legislation establishes a conflict over control of how Citizens functions, whereby satisfying the goal of affordable property insurance means establishing rates in accordance with public acceptability of risk and satisfying the goal of actuarial soundness means establishing rates in accordance with generally accepted practices on the private market. Consequently, regardless of how regulators establish Citizens’ rates, they can always support the morality of the decision based on some part of the legislation. Without accountability, implementation of Citizens is vulnerable to the whim of political power (Lasswell, 1971), as demonstrated by gubernatorial candidates’ use of Citizens rate policy advocacy as an integral part of their political platforms (e.g., Anderson, 2012; *South Florida Sun-Sentinel*, 2010).

Without policymaker accountability, the measure of hurricane risk chosen—not public policy objectives—determines societal outcomes. Severe politicization of risk threatens the democratic process by reducing the ability of political power to make decisions that effectively address public policy problems and reducing the opportunity for public participation in policymaking (Pielke, 2007). While policymakers occupy public attention with debate about Citizens' rates, they neglect the conflict between economic wealth creation policies and policies to ensure affordable property insurance. In order to reconcile the conflict between efforts to provide affordable property insurance and policies of economic wealth creation, a public discourse needs to develop about the future of Florida's economy. The politicization of the hurricane risk hides the need for this discussion and perpetuates advancement of a subset of economic interests, while removing the opportunity for public participation in deciding the desirability of future economic policy.

## Conclusion

The analysis presented here demonstrates that social and scientific understandings of the hurricane risk are variable according to context. For this reason, Citizens rates are subject to negotiation among a broad set of interests and valued outcomes well beyond market judgments of risk. State economic policy goals of increasing population, wealth and construction may conflict with the goals of affordable property insurance. A public discourse that highlights trade-offs in different economic policies may help move the context of the debate about Citizens away from one centered on choosing a technologically correct measure of risk for ratemaking (of which there are many) toward a more constructive dialogue about the values the public wishes to maximize in planning for Florida's future economy. Such a dialogue may also help with the perceived tension between insurance affordability and the economic sustainability of insurers.

Throughout the negotiation process about hurricane risk and insurance rates, political power shifts between the insurance industry and the public. With shifts in power, Citizens may move from falling in line with technocratic ideals of a residual market with rates reflecting market judgments of risk to democratic ideals of a residual market that acts less like conventional insurance. For policyholders, a Citizens policy has no practical difference from an insurance policy purchased from a private company. From a technical standpoint, however, given that Citizens is not bound to conventional insurability criteria and insurance practices, one may question if policymakers ought to expect that it perform in the same way as a traditional insurer. Acknowledging residual markets as something different from conventional insurance may relieve pressure on Citizens to meet conventional insurance standards, such as actuarial soundness, and enable improved accountability for public policy outcomes.

## References

- Adams, M., 2014. "Florida 1.3% Hurricane Tax to End in January." *Insurance Journal*. July 30. [www.insurancejournal.com](http://www.insurancejournal.com). Accessed Aug. 1, 2014.
- Akerlof, G.A., 1970. "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism." *The Quarterly Journal of Economics*. 84 (3): 488–500.
- American Academy of Actuaries. 2012. "Public Policy Special Report: Actuarial Soundness."
- Anderson, Z., 2012. "Rick Scott Softens Stance on Changes to Citizens Insurance." *Herald Tribune*, Nov. 30.
- Arrow, K.J., 1963. "Uncertainty and the Welfare Economics of Medical Care." *The American Economic Review*. 53 (5): 941–973.
- Babbel, D.F., 2006. "Institute Outlook: Insuring the Uninsurable II." Barbon Institute.
- Baker, T., 2003. "Containing the Promise of Insurance: Adverse Selection and Risk Classification." In *Risk and Morality*, edited by Richard V. Ericson and Aaron Doyle, 258–283. University of Toronto Press.
- Barrionuevo, A., 2012. "In Miami, Wondering About a Bubble." *The New York Times*, Oct. 11.
- Baumgartner, F.R. and B.D. Jones, 1993. *Agendas and Instability in American Politics*. University of Chicago Press.
- Berliner, B., 1982. *Limits of Insurability of Risks*. Englewood Cliffs, N.J.: Prentice-Hall, Inc.
- , 1985. "Large Risks and Limits of Insurability." *The Geneva Papers on Risk and Insurance* 10 (37): 313–29.
- Bernstein, J., E. McNichol and A. Nicholas, 2008. "Pulling Apart: A State-by-State Analysis of Income Trends." Washington, D.C.: Center on Budget and Policy Priorities.
- Boumans, M., 1999. "Built-in Justification." In *Models as Mediators: Perspectives on Natural and Social Science*, edited by Margaret Morrison and Mary S. Morgan. United Kingdom: Cambridge University Press.
- Bouwer, L.M., 2011. "Have Disaster Losses Increased Due to Anthropogenic Climate Change?" *Bulletin of the American Meteorological Society*, 92(1), 39–46.
- Boykoff, M.T., 2011. *Who Speaks for the Climate? Making Sense of Media Reporting on Climate Change*. Cambridge: Cambridge University Press.
- Brown, M.B., 2009. *Science in Democracy: Expertise, Institutions, and Representation*. Cambridge: MIT Press.
- Casualty Actuarial Society, 1988. "Statement of Principles Regarding Property and Casualty Insurance Ratemaking." [www.casact.org](http://www.casact.org).
- Carlile, P.R., 2004. "Transferring, Translating, and Transforming: An Integrative Framework for Managing Knowledge Across Boundaries." *Organizational Science* 15 (5): 555–568.

- Ceres, 2012. "GreenBiz Press Release: Climate Risks, Insurance and the Next Financial Meltdown." *www.ceres.org*.
- Channel 7 – WJHG, 2011. "Citizens, Florida's Insurer of Last Resort, Is Under Attack." April 25. *www.wjhg.com*.
- Charpentier, A., 2008. "Insurability of Climate Risks." *The Geneva Papers* 33: 91–109.
- Citizens Property Insurance Corporation, 2002. "Press Release: Governor Signs Bill." *www.citizensfla.com*. Accessed Nov. 11, 2011.
- Committee on Banking and Insurance, 1999. "Availability and Cost of Residential Hurricane Coverage." Florida Senate.
- Committee on Public Works, 1965. *Southeast Hurricane Disaster (Hurricane Betsy)*. U.S. House of Representatives. Oct. 13.
- Committee on Oversight and Government Reform, 2009. "The Role of Government Affordable Housing Policy in Creating the Global Financial Crisis of 2008." Staff Report. U.S. House of Representatives.
- Crist, C., 2006. "News Release: Crist Cabinet Orders Citizens Property Insurance to Develop Consumer-Friendly Plan." Sept. 19. *www.myfloridalegal.com*.
- Crist, C., 2007. *Senate Hearing Bill 2498*. Committee on Banking and Insurance. Florida Senate. April 9.
- Cumming, Jr., J.B., 2006. "A Brief Florida Real Estate History." Appraisal Institute.
- Cummins, D.J., 2006. "Should the Government Provide Insurance for Catastrophes?" *Federal Reserve Bank of St. Louis Review* 88 (4): 337–379.
- Dahl, R.A., 1998. *On Democracy*. New Haven: Yale University Press.
- Deffenbaugh, E., 2002. "Senate Staff Analysis and Economic Impact Statement SB 1418." Banking and Insurance Committee and Senators Garcia and Campbell.
- , 2007. "Professional Staff Analysis and Economic Impact Statement SB 2498." Banking and Insurance Committee and Senator Garcia.
- De Groot, J.I.M., L. Steg and W. Poortinga, 2013. "Values, Perceived Risks and Benefits, and Acceptability of Nuclear Energy." *Risk Analysis* 33 (2): 307–17.
- Dery, D., 2000. "Agenda Setting and Problem Definition." *Policy Studies* 21 (1): 37–47. doi:10.1080/014428700114008.
- Douglas, M. and A. Wildavsky, 1982. *Risk and Culture: An Essay on the Selection of Technical and Environmental Dangers*. Berkeley: University of California Press.
- Dryzek, John S. and Simon Niemeyer, 2008. "Discursive Representation." *American Political Science Review* 102 (4): 481–493.
- Edelman, M.J., 1988. *Constructing the Political Spectacle*. Chicago: University of Chicago Press.
- EQECAT, 2013. "Mortgage Impairment Risk Analysis." *www.eqecat.com*.
- Faure, M.G., 1995. "The Limits to Insurability from a Law and Economics Perspective." *Geneva Papers on Risk and Insurance – Issues and Practices* 20 (76): 454–462.

- Fine, J.D. and D. Owen, 2005. "Technocracy and Democracy: Conflicts Between Models and Participation in Environmental Law and Planning." *Hastings Law Journal* 56 (5): 901–982.
- Fischhoff, B., S. Lichtenstein, P. Slovic, S.L. Derby and R. Keeney, 1984. *Acceptable Risk*. Cambridge: Cambridge University Press.
- , S.R. Watson and C. Hope, 1984. "Defining Risk." *Policy Sciences* 17: 123–139.
- FIU Metropolitan Center, 2012. "South Florida's Decade of Uneven Growth and Development." Accessed Oct. 24, 2014. [casgroup.fiu.edu](http://casgroup.fiu.edu).
- FLOIR, 2008. Press Release: "Florida Insurance Commissioner Stops Allstate Hearing," Jan. 15. [www.floir.com](http://www.floir.com).
- Florida Actuary*, 2012. "Interview with Author." Dec. 14.
- Fraiberg, J.D. and M.J. Trebilcock, 1997. "Risk Regulation: Technocratic and Democratic Tools for Regulatory Reform." *McGill Law Journal* 43: 835–887.
- Freudenburg, W.R., 1988. "Perceived Risk, Real Risk: Social Science and the Art of Probabilistic Risk Assessment." *Science* 242: 44–49.
- Garcia, R., 2002. *Senate Bill 1418*. Hearing of the Banking and Insurance Committee. Florida Senate. Feb. 25.
- Garcia, R. and B. Posey, 2007. *Hurricane Preparedness & Insurance*. Florida Statutes.
- Garmaise, M.J. and T.J. Moskowitz, 2009. "Catastrophic Risk and Credit Markets." *The Journal of Finance* 64 (2): 657–707.
- Gorrie, J., 1998. "Property Insurance in Florida: The 1997 Legislative Reform Package." *Florida State University Law Review* 25 (2): 351–364.
- Grimsley, D., 2007. *House Bill 1A*. House Policy & Budget Council. Florida House of Representatives. Jan. 17.
- Grossi, P., H. Kunreuther and D. Windeler, 2005. "An Introduction to Catastrophe Models and Insurance." In *Catastrophe Modeling: A New Approach to Managing Risk*, Eds. Patricia Grossi and Howard Kunreuther, 241. Hiebner International Series on Risk, Insurance, and Economic Security. Springer.
- Gutmann, A. and D.F. Thompson, 1996. "The Scope of Accountability." In *Democracy and Disagreement*. Harvard University Press.
- Hammond, K.R., 1996. *Human Judgment and Social Policy: Irreducible Uncertainty, Inevitable Error, Unavoidable Injustice*. New York, NY: Oxford University Press.
- Hancock, K.E., 1993. "'Can Pay? Won't Pay?' Or Economic Principles of 'Affordability.'" *Urban Studies*. 30: 127–145.
- Hart, D., 2012. "Citizens Is Subsidized by Private Insurance Holders." *The Miami Herald*, Aug. 20.
- Hogarth, R.M. and H. Kunreuther, 1989. "Risk, Ambiguity, and Insurance." *Journal of Risk and Uncertainty*. 2: 5–35.
- Hoy, Michael, 1984. "The Impact of Imperfectly Categorizing Risks on Income Inequality and Social Welfare." *The Canadian Journal of Economics / Revue Canadienne d'Economique*. 17 (3): 557–68.

- Hubbard, D.W., 2009. *The Failure of Risk Management: Why It's Broken and How to Fix It*. Hoboken, NJ: John Wiley and Sons.
- III, 2013a. "Insurance Information Institute." *About Us*. [www2.iii.org](http://www2.iii.org).
- , 2013b. "Residual Markets." *Insurance Information Institute*. July. [www.iii.org](http://www.iii.org).
- Insurance Executive A, 2012. "Personal Correspondence," via telephone.
- IRMI, 2014. "Residual Market." *IRMI: Glossary of Insurance and Risk Management Terms*. [www.irmi.com](http://www.irmi.com).
- Jasanoff, S., 1990. *The Fifth Branch: Science Advisers as Policymakers*. Harvard University Press.
- Kern, B.H., 2007. "RMS Withdraws Five-Year Hurricane Model from Florida." *Insurance Journal*, May 18. [www.insurancejournal.com](http://www.insurancejournal.com).
- Keynes, J.M., 1937. "The General Theory of Employment." *The Quarterly Journal of Economics*. 51(2): 209–223.
- Khalamayzer, A., 2012. "Insurance Industry Ground Zero for Economic Impact of Climate Change." *Property Casualty 360*. [www.propertycasualty360.com](http://www.propertycasualty360.com).
- King, R.O., 2009. "Financing Recovery from Large-Scale Natural Disasters." CRS Report for Congress.
- Kingdon, J.W., 1984. *Agendas, Alternatives, and Public Policies*. Boston: HarperCollins.
- Klein, R., 2009. "Hurricanes and Residual Market Mechanisms." Center for RIM Research, Georgia State University.
- Krippendorff, K., 2012. *Content Analysis: An Introduction to Its Methodology*. Sage Publications.
- Kuhn, T.S., 1996. *The Structure of Scientific Revolutions*. 3<sup>rd</sup>. Chicago: The University of Chicago Press.
- Kunreuther, H. and E. Michel-Kerjan, 2004. "Insurability of (Mega)-Terrorism Risk: Challenges and Perspectives." Paris: The OECD Task Force on Terrorism Insurance.
- Lasswell, H., 1971. *A Pre-view of Policy Sciences*. New York: American Elsevier Publishing Co.
- and M.S. McDougal, 1992. "The Social Process as a Whole." In *Jurisprudence for a Free Society*. New Haven: New Haven Press.
- Latour, B., 1987. *Science in Action: How to Follow Scientists and Engineers Through Society*. Harvard University Press.
- Lehmann, E., 2012. "Insurance: City Destroyed by Hurricane Andrew Doubles in Size, and Risk." *ClimateWire*, Aug. 21. [www.eenews.net](http://www.eenews.net).
- Lehrer, E., 2011. "Solutions to Restore Florida's Property Insurance Marketplace to Protect Taxpayers and the Insured." The James Madison Institute. [www.jamesmadison.org](http://www.jamesmadison.org).
- Loewenstein, G.F., E.U. Weber, C.K. Hsee and N. Welch, 2001. "Risk as Feelings." *Psychological Bulletin* 127 (2): 267–86.
- McClenahan, C.L., 1987. "Principles of Ratemaking." In *Foundations of Casualty Actuarial Science*, 117–120.

- Medders, L.A., C.M. Nyce and J.B. Karl, 2012. "Market Implications of Public Policy Intervention: The Case of Florida's Property Insurance Market." Florida Catastrophic Storm Risk Management Center.
- Menzinger, I. and C. Brauner, 2002. *Floods Are Insurable!* Focus report. Swiss Reinsurance Company.
- Mills, E., R.J. Roth, Jr. and E. Lecomte, 2005. "Availability and Affordability of Insurance Under Climate Change: A Growing Challenge for the US." Ceres.
- Mittler, E., 1997. "A Case Study of Florida's Homeowners' Insurance Since Hurricane Andrew." Natural Hazards Working Papers 96. Natural Hazards Center. [www.colorado.edu/hazards](http://www.colorado.edu/hazards).
- Muir-Wood, Robert, 2006. "RMS Advances the Science of Catastrophe Risk Models." *Bermuda Reinsurance Magazine*.
- Munich Re Group, 2006. "Hurricanes – More Intense, More Frequent, More Expensive: Insurance in a Time of Changing Risks." Knowledge Series.
- Musulini, R., 1997. "Issues in the Regulatory Acceptance of Computer Modeling for Property Insurance Ratemaking." *Journal of Insurance Regulation* 5 (3): 342.
- , 2013. "Personal Communication." Oct. 8.
- National Research Council, 1997. "Environmental Epidemiology: Use of the Gray Literature and Other Data in Environmental Epidemiology." Committee on Environmental Epidemiology and Commission on Life Sciences. Washington, D.C.: National Academy Press.
- Newman, Jr., J.W., 2009. "Residual Market Subsidies in Florida's Property Insurance Market: A Conceptual and Historical Framework." Special White Paper Series. Florida Catastrophe Storm Risk Management Center/ Florida State University.
- , 2010. "Insurance Residual Markets: Historical and Public Policy Perspectives." Florida Catastrophic Storm Risk Management Center.
- Nutter, F.W., 2002. "The Role of Government in Financing Catastrophes." *The Geneva Papers on Risk and Insurance* 27 (2): 283–287.
- , 2013. *Climate Change: It's Happening Now*. Committee on Environmental & Public Works. U.S. Senate. July 18.
- OEDR, 2008. "Florida: An Economic Overview." The Florida Legislature. Nov. 17.
- , 2010. "Florida: An Economic Overview." The Florida Legislature. Dec. 7.
- , 2011. "Florida: Demographic Trends." The Florida Legislature. Sept. 26.
- , 2012a. "Florida Economic Outlook: Executive Summary." Economic Estimating Conference Florida Economy. July 23.
- , 2012b. "Florida: An Economic Overview." The Florida Legislature. Aug. 16.
- , 2013. "Florida: An Economic Overview." The Florida Legislature. June 19.
- Olorunnipa, T., 2012a. "Citizens Wants to Raise Rates 10 Percent in 2013." *The Miami Herald*, July 27.

- , 2012b. “Insurance ‘Sticker Shock’ for Home Buyers.” *The Miami Herald*, Aug. 11.
- Pielke, Jr., R., 2010. *The Climate Fix: What Scientists and Politicians Won’t Tell You About Global Warming*. New York: Basic Books.
- , J. Gratz, C.W. Landsea, D. Collins, M.A. Saunders and R. Musulin, 2008. “Normalized Hurricane Damage in the United States: 1900-2005.” *Natural Hazards Review* 9 (1): 29–42.
- , 2007. *The Honest Broker: Making Sense of Science in Policy and Politics*. New York: Cambridge University Press.
- Rayner, S., 2012. “Uncomfortable Knowledge: The Social Construction of Ignorance in Science and Environmental Policy Discourses.” *Economy and Society* 41: 107–25.
- Renn, O., W.J. Burns, J.X. Kasperson, R.E. Kasperson and P. Slovic, 1992. “The Social Amplification of Risk: Theoretical Foundations and Empirical Applications.” *Journal of Social Issues* 48 (4): 137–160.
- Rivera, D., 2007. *House Bill 1A*. House Policy & Budget Council. Florida House of Representatives. Jan. 17.
- Robinson, J.B., 1992. “Risk, Predictions and Other Optical Illusions: Rethinking the Use of Science in Social Decision-Making.” *Policy Sciences* 25: 237–254.
- Rocherfort, D.A. and R.W. Cobb, 1994. “Problem Definition: An Emerging Perspective.” In *The Politics of Problem Definition: Shaping the Policy Agenda*. Lawrence: University Press of Kansas.
- Rollins, J.W., 2012. “Refocus on Facts: Citizens Insurance Still a Time Bomb.” *Tampa Bay Times*, Sept. 4.
- Rothschild, M. and J. Stiglitz, 1976. “Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information.” *Quarterly Journal of Economics* 90 (4): 629–649.
- Ryan, T., 2006. *Citizens Insurance Relief Act*. Florida House of Representatives. [www.myfloridahouse.gov](http://www.myfloridahouse.gov). Accessed June 23, 2014.
- S&P, 2012. “Everglades Re Ltd. Class A Notes.” Global Credit Portal, RatingsDirect.
- Sarewitz, D., 2004. “How Science Makes Environmental Controversies Worse.” *Environmental Science & Policy* 7: 385–403.
- , R.A. Pielke Jr. and R. Byerly, Jr., eds., 2000. *Prediction: Science, Decision Making, and the Future of Nature*. Washington, D.C.: Island Press.
- Schmidt, S., C. Kemfert and P. Hoppe, 2008. “The Impact of Socio-economics and Climate Change of Tropical Cyclone Losses in the USA.” *Regional Environmental Change* 29 (6): 359–369.
- Schmit, J.T., 1986. “A New View of the Requisites of Insurability.” *The Journal of Risk and Insurance* 53 (2): 320–29. doi:10.2307/252380. [www.jstor.org/stable/252380](http://www.jstor.org/stable/252380).
- Schneider, A.L., 1986. “The Evolution of a Policy Orientation for Evaluation Research: A Guide to Practice.” *Public Management Forum* July/August: 356–363.

- Schwartz, M. and E. Wilson, 2007. "Who Can Afford to Live in a Home? A Look at Data from the 2006 American Community Survey." Special Topics. U.S. Census Bureau.
- Simons, H.W., 1990. *The Rhetorical Turn: Invention and Persuasion in the Conduct of Inquiry*. University of Chicago Press.
- Slovic, P., 1999. "Trust, Emotion, Sex, Politics, and Science: Surveying the Risk-Assessment Battlefield." *Risk Analysis* 19 (4): 689–701.
- South Florida Sun-Sentinel*, 2010. "Rick Scott Calls for Raising Citizens Insurance Rates." *South Florida Sun-Sentinel*, Sept. 21.
- St. John, P., 2010. "Florida Insurers Rely on Dubious Storm Model." *Sarasota Herald-Tribune*, Nov. 14, sec. Special Report.
- Star, S.L., 2010. "This Is Not a Boundary Object: Reflections on the Origin of a Concept." *Science, Technology and Human Values* 35 (5): 601–617.
- and J. R. Griesemer, 1989. "Institutional Ecology, 'Translations' and Boundary Object: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39." *Social Studies of Science* 19 (3): 387–420.
- Stone, Deborah A., 1988. *Policy Paradox and Political Reason*. Deborah A. Stone.
- Stiglitz, J.E., A. Sen and J.-P. Fitoussi, 2009. "Report by the Commission on the Measurement of Economic Performance and Social Progress."
- Subcommittee on Consumer Credit and Insurance, 1993. *The Availability of Insurance in Areas at Risk of Natural Disasters*. Washington, D.C.: U.S. Government Printing Office.
- Subcommittee on Oversight and Investigations, 2008. *The Homeowners' Insurance Crisis and Its Impacts on Communities, Homeowners, and the Economy*. Washington, D.C.: U.S. Government Printing Office.
- Tidwell, M., 2011. "A Climate-Change Activist Prepares for the Worst." *Washington Post*. [www.washingtonpost.com](http://www.washingtonpost.com), Feb. 25.
- Tuckey, S., 2006. "Florida's Last-Resort Insurer Faces Deficit of \$1.7 Billion." *Property Casualty 360*. [www.propertycasualty360.com](http://www.propertycasualty360.com). Accessed June 23, 2014.
- Weingart, P., 1999. "Scientific Expertise and Political Accountability: Paradoxes of Science in Politics." *Science and Public Policy* 26 (3): 151–161.
- , A. Engels and P. Pansegrau, 2000. "Risks of Communication: Discourse on Climate Change in Science, Politics, and the Mass Media." *Public Understanding of Science* 9: 261–283.
- Weinkle, J., 2013. "The Prediction Racket: Constructing, Characterizing and Governing Florida's Hurricane Risk." Dissertation. Boulder, CO: University of Colorado at Boulder.
- Wildavsky, A., 1985. "The Once and Future School of Public Policy." *The Public Interest*. 79: 25–41.
- Worham, L., 1985. "Insurance Classification: Too Important to Be Left to the Actuaries." *University of Michigan Journal of Law Reform* 19: 349.

- Wynne, B., 1992. "Misunderstood Misunderstandings: Social Identities and Public Uptake of Science." *Public Understandings of Science* 1: 281–304.
- Young, I.M., 2002. *Inclusion and Democracy*. Oxford University Press.

## **Acknowledgements**

The author greatly appreciates the thoughtful comments on earlier drafts of this article by Roger Pielke Jr., Rade Musulin, Leonard Schulte and Chris Austin. Funding from the National PERISHIP Awards and ICAT supported this work. The University of Colorado IRB, #12-0581, approved the interview protocol conducted for this work. A more in-depth and broader analysis of Florida's Citizens Property Insurance Corporation is available in Weinkle (2013).

# Journal of Insurance Regulation

---

## *Guidelines for Authors*

Submissions should relate to the regulation of insurance. They may include empirical work, theory, and institutional or policy analysis. We seek papers that advance research or analytical techniques, particularly papers that make new research more understandable to regulators.

Submissions must be original work and not being considered for publication elsewhere; papers from presentations should note the meeting. Discussion, opinions, and controversial matters are welcome, provided the paper clearly documents the sources of information and distinguishes opinions or judgment from empirical or factual information. The paper should recognize contrary views, rebuttals, and opposing positions.

References to published literature should be inserted into the text using the “author, date” format. Examples are: (1) “Manders et al. (1994) have shown. . .” and (2) “Interstate compacts have been researched extensively (Manders et al., 1994).” Cited literature should be shown in a “References” section, containing an alphabetical list of authors as shown below.

Cummins, J. David and Richard A. Derrig, eds., 1989. *Financial Models of Insurance Solvency*, Norwell, Mass.: Kluwer Academic Publishers.

Manders, John M., Therese M. Vaughan and Robert H. Myers, Jr., 1994. “Insurance Regulation in the Public Interest: Where Do We Go from Here?” *Journal of Insurance Regulation*, 12: 285.

National Association of Insurance Commissioners, 1992. *An Update of the NAIC Solvency Agenda*, Jan. 7, Kansas City, Mo.: NAIC.

“Spreading Disaster Risk,” 1994. *Business Insurance*, Feb. 28, p. 1.

Footnotes should be used to supply useful background or technical information that might distract or disinterest the general readership of insurance professionals. Footnotes should not simply cite published literature — use instead the “author, date” format above.

Tables and charts should be used only if needed to *directly support* the thesis of the paper. They should have descriptive titles and helpful explanatory notes included at the foot of the exhibit.

Papers, including exhibits and appendices, should be limited to 45 double-spaced pages. Manuscripts are sent to reviewers anonymously; author(s) and affiliation(s) should appear only on a separate title page. The first page should include an abstract of no more than 200 words. Manuscripts should be sent by email in a Microsoft Word file to:

Cassandra Cole and Kathleen McCullough  
jireditor@gmail.com

The first named author will receive acknowledgement of receipt and the editor's decision on whether the document will be accepted for further review. If declined for review, the manuscript will be destroyed. For reviewed manuscripts, the process will generally be completed and the first named author notified in eight to 10 weeks of receipt.

Published papers will become the copyrighted property of the *Journal of Insurance Regulation*. It is the author's responsibility to secure permission to reprint copyrighted material contained in the manuscript and make the proper acknowledgement.

NAIC publications are subject to copyright protection. If you would like to reprint an NAIC publication, please submit a request for permission via the NAIC Web site at [www.naic.org](http://www.naic.org). (Click on the "Copyright & Reprint Info" link at the bottom of the home page.) The NAIC will review your request.