FIU FLORIDA INTERNATIONAL UNIVERSITY

ARISE Case Studies in Disaster Risk Management

Authorized by the State of Florida Legislature in 2000, the Florida Public Hurricane Loss Model (FPHLM) provides the state with a fair, open, and transparent tool for reviewing insurance company rate requests. The intent was to ensure fair pricing for both consumers and insurance companies. The model acts as a check on private sector models in determining property insurance premiums, and has led in some cases to lower rates for consumers but in other cases to higher rates to ensure insurance company solvency. The model must meet rigorous standards set by the state and is certified biannually by the Florida Commission on Hurricane Loss Projection Methodology - the U.S. gold standard for such models. Experts from six universities and research institutions comprise the team and make Florida, and FIU, leaders in financial risk assessment from hurricanes.

RISK	ACTION	IMPACT	OUTPUT
Florida ranks #1 in total insured property value exposed to hurricane wind and #1 in coastal property exposed to storm surge within the United States. Florida has $3.6 trillion in insured properties of which about $2 trillion are residential -- all exposed to hurricane risk. About 79% of the properties (valued at $400 billion) are coastal and particularly vulnerable to both hurricane winds and storm surge. With approximately 6.1 million residential flood policies, Florida contains about 35% of all U.S. flood policies and contributes 30% of the national flood program's premiums.	In 2001 the State of Florida funded Florida International University to independently develop a public hurricane loss model to assess hurricane wind risk and predict insured losses for residential properties. In 2013 the state enhanced the FIU funding to add both storm surge and fresh water flooding (hurricane and other source) components to the wind model. The Florida Commission on Hurricane Loss Projection Methodology was created as an independent expert panel to evaluate computer models and other recently developed or improved actuarial methodologies for projecting hurricane and flood losses. The Legislature specified the need for reliable projections of residential property losses from hurricanes and for flood losses for personal line residential flood insurance to assure rates that were neither excessive nor inadequate, noting that computer modeling made it possible to improve the accuracy of both hurricane and flood loss projections.	The FPHLM can generate for a given residential policy or portfolio of policies the annual average losses and the probable maximum losses from different event levels. Loss estimates are produced for building structures, contents, and living expenses during repairs. FPHLM estimates are typically used by insurance companies as inputs to rate making and used by Florida state regulators to help evaluate rate filings. The model is also capable of scenario analyses and can predict likely losses down to the street level. In addition, the model can estimate loss reductions from selected mitigation efforts. The model's new flood components will assess storm surge and hurricane-related flood risk and estimate the associated losses. It will thus provide a more refined and actuarially sound method for estimating insured losses and determining fair pricing for all sources of hurricane risk, and allow simulations, scenarios, and cost-benefit analyses to help state and local governments with mitigation options, disaster response, and land use planning.	The model addresses the ongoing homeowner insurance crisis in the U.S., and it will enhance insurance offerings, ensure fair pricing for actuarial insurance, assess solvency of insurance companies, and assist the State of Florida in regulating insurance rates. The FPHLM supports post-doc, graduate and undergraduate students, providing them with unique catastrophe modeling experience that is highly sought by the private sector. With the storm surge and flooding enhancement, the new version of the model will allow separation of flood loss from wind loss estimates and help resolve the issue of who should pay for which type of property damage. The FPHLM is also regularly used to conduct "stress tests" to help assure insurance company solvency in case of catastrophe. The model's certifying body, the Florida Commission on Hurricane Loss Projection Methodology represents a partnership between higher education and the private sector.

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Lessons Learned	Homeowner insurance is key to local, state, and even national resilience. The FIU-based Florida Public Hurricane Loss Model exemplifies public higher education-state government-private sector cooperation and partnership to improve disaster risk management and help protect property and assets. The FPHLM has shown how a state may regulate private sector insurance rates and assess private sector insurance company solvency to avoid post-disaster/post-catastrophe bankruptcies.

BUSINESS CASE

Insurance as well as timely and reliable post-event payouts are crucial to community recovery. Universities offer unique "homes" for open and transparent loss models to help the public, government, and the private sector formulate plans to provide effective coverage and reasonably priced insurance against damaging events.

REPLICATION OPPORTUNITIES

Given adequate data and technical capacity and/or assistance, the FPHLM and its methodology can be replicated across countries, particularly for coastal areas.

How does the project support the implementation of the Sendai Framework targets?

1	*Reduce disaster mortality by 2030*		#3 – Effective insurance is key to reducing net economic losses from disaster. #5 – Effective insurance is the key to the DRR risk transfer and strategies at all levels, local to national (and international, through reinsurance). #6 – If replicated, the FPHLM would promote insurance coverage increases to underserved countries, which is essential to their resilience.
2	*Reduce number of affected people by 2030*		
3	*Reduce economic loss by 2030*	X	
4	*Reduce infrastructure damage and disruption of services by 2030*		
5	*Increase countries with DRR national/ local strategies by 2020*	X	
6	*Enhance international cooperation to developing countries*	X	
7	*Increase the availability of and access to EWS* and DR information to people by 2030*		

How does the project contribute to the ARISE Themes?

1	*Disaster Risk Management Strategies*	X	#1 – Insurance is a key financial component of DRM. #3 – The State of Florida uses the FPHLM to benchmark private sector premium requests and private sector solvency estimates. #6 – Insurance is concentrated in urban areas and underpins resilience. #7 – The FPHLM exemplifies a cooperative public-private-higher education approach to insurance.
2	*Investment metrics*		
3	*Benchmarking and Standards*	X	
4	*Education and Training*		
5	*Legal and Regulatory*		
6	*Urban Risk Reduction and Resilience*	X	
7	*Insurance*	X	

For More Information

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