

China's Approach to Promoting Social Governance by Enhancing Catastrophe Insurance

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Abstract: Catastrophe insurance has emerged as a pivotal national strategy for mitigating large-scale risks, particularly natural disasters, and enhancing societal resilience. China, with its vast territory, dense population, and frequent exposure to catastrophes, has progressively integrated catastrophe insurance into its social governance framework to bolster disaster prevention, economic compensation, and post-disaster recovery. This paper explores China's evolving approach, emphasizing the necessity of establishing a robust catastrophe insurance system amid escalating climate risks and fiscal pressures. Catastrophe Insurance 'pilot' projects in China have demonstrated tangible progress in loss public awareness, compensation, and collaborative governance models. However, persist, challenges including technical constraints in risk modeling, market non-actuarial distortions from pricing, institutional gaps in fiscal governance, and stagnant product innovation. To address these issues, this study proposes targeted countermeasures: strengthening legislative frameworks. optimizing collaborative refining risk-sharing governance, mechanisms, leveraging advanced technologies, and cultivating public risk awareness through nationwide education. By aligning catastrophe insurance innovation with governance modernization, China aims to enhance systemic resilience, foster multisectoral coordination, and achieve the dual goals of economic stability and societal harmony. This study underscores the critical role of catastrophe insurance in advancing the "Safe China" initiative and offers insights for global policymakers seeking to balance intervention with market-driven state solutions in disasters and risks.

Keywords: Catastrophe Insurance; Social Governance; China's Approach; Countermeasures

1. Introduction

China has a vast territory and a large population density, facing numerous types of catastrophes, including large-scale natural disasters. From the Tangshan earthquake in 1976, the SARS epidemic in 2003, the Wenchuan earthquake in 2008, the COVID - 19 pandemic in 2019, to the flood disasters caused by Typhoon Doksuri in 2023, each disaster caused economic losses amounting to hundreds of millions or even billions, seriously affecting social harmony and the stable development of China.

As living standards keep improving, people's demands for a better life are growing daily, and higher requirements have been imposed on the national capacity of governance as well. In order to improve the public safety governance, strengthen the capabilities of disaster prevention, mitigation and relief, as well as handling and safeguarding public emergencies, relevant government departments in China should actively strengthen the construction of regional emergency forces: improve the social governance perfect system, the social governance system of co - construction, cogovernance and sharing, enhance the effectiveness of social governance, and promote the construction of "Safe China" to a higher level. This shows that the Chinese government attaches great importance to the social governance capacity in the face of disaster risks and has a great demand for emergency forces.

China has fully recognized the necessity of leveraging the risk management function of insurance to enhance the social governance system. This includes improving the insurancebased economic compensation mechanism, increasing participation in disaster relief efforts, and emphasizing the establishment of a



catastrophe insurance system grounded in institutional development, supported by commercial insurance platforms, and ensured through multi-level risk sharing ^[1]. Therefore, it is essential to explore the professional development and practical implementation pathways of contemporary catastrophe insurance systems and integrate them into modern governance frameworks.

2. Necessity of Establishing Catastrophe Insurance Systems in China

Firstly, the potential risks brought by catastrophes are increasing at an unprecedented rate. In the context of global climate and environmental deterioration, the frequency of natural disasters has risen significantly, leading to expanded potential losses and posing a serious threat to social stability. Catastrophe insurance can mitigate economic losses, maintain social order, and prevent destabilizing events. In China, Catastrophes may result in "poverty recurrence due to disasters".

Furthermore, when confronting fiscal risks arising from catastrophes, catastrophe insurance can effectively transfer a portion of these risks to insurance or reinsurance companies, thereby alleviating the financial burden on affected populations during post-disaster reconstruction and recovery. As a quasi-public good ^[2], catastrophe insurance contributes to enhancing public service resources and addressing gaps in social security coverage.

The insufficient market demand primarily stems from low individual willingness to purchase insurance, compounded by consumer price sensitivity and a lack of insurance awareness, which pose significant challenges to catastrophe insurance as a purely market-driven initiative. In a highly competitive environment, it is difficult for insurance companies to reach consensus, making the establishment of unified pricing and mechanisms even more challenging. Given the enormous risks associated with catastrophes, a consortium approach is necessary to share risks collectively, yet such collaboration is difficult to achieve under a purely market-based model. Therefore, there is an urgent need for government-level macro-regulation and the establishment of institutional support to ensure proper functioning and sustainable the development of catastrophe insurance.

3. Evolution of Catastrophe Insurance

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Systems at Home and Abroad

Historically, researches on commercial insurance have predominantly focused on its role as a profit-driven financial product. However, with the increasing intersection of sociology and finance, the scope of insurance has expanded beyond its traditional boundaries, revealing its significant social utility. As a form of insurance designed for universal benefit, many countries have adopted fiscally supported catastrophe insurance systems ^{[3][4]}. For instance, in the United States, local governments collaborate with private markets to provide catastrophe risk insurance. This public-private partnership enhances the efficiency of post-disaster compensation, since the official involvement and mechanisms reinsurance ensure the sustainability of disaster payouts. In Japan, one of the Countries most frequently affected by catastrophes, a government-led model has been established, involving mutual aid organizations, insurance companies, and reinsurers to collectively share risks. This system includes premium subsidies and tax incentives to support its implementation. Similarly, France enacted legislation in 1982 related to agricultural disaster relief, mandating compulsory coverage for agricultural catastrophe insurance and reinsurance ^[5].

These cases illustrate the global trend toward integrating government support with market mechanisms to create robust and sustainable catastrophe insurance systems, highlighting the importance of collaborative approaches in addressing large-scale risks.

The development of catastrophe insurance in China has evolved through three phases.

(1) Restoration Phase. In 1979, the Chinese government officially approved the resumption of domestic insurance operations, and earthquakes were included within the scope of property insurance coverage.

(2) Transition Phase. In 1998, Banking and Insurance Regulatory Commission (CBIRC) was established in China. To ensure that insurance companies maintained sufficient solvency, the CBIRC prohibited insurers from arbitrarily expanding their liability coverage for earthquake risks. During this period, insurance protection against earthquake-related catastrophes remained highly limited ^[6].

(3) Breakthrough Phase. In 2014, the Chinese government proposed the establishment of a catastrophe insurance system supported by

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multi-level risk-sharing mechanisms [1][7][8][9]. And the government has explored the implementation of catastrophe insurance systems through 'pilot' projects ^{[10][11]}. The first pilot project was launched in Shenzhen City in 2014, where the Shenzhen municipal government allocated 36 million RMB to purchase catastrophe insurance services from commercial insurers ^[12]. In the same year, the Ningbo government invested 38 million RMB in a initiative. Both projects similar were government-funded, providing coverage for personal injuries, fatalities, and property losses caused by natural disasters within their respective administrative regions. In subsequent adjustments, Shenzhen introduced a consortiumbased insurance model, while Ningbo expanded its coverage to include major safety accidents and public safety emergencies, gradually optimizing the insurance models and schemes. Additionally, regions or provinces such as Yunnan, Sichuan, and Hubei have also adopted catastrophe insurance models, experimenting with agricultural insurance, earthquake insurance, livelihood-related catastrophe insurance, and fiscal catastrophe index insurance.

4. Progress of Catastrophe Insurance 'Pilot' Projects in China

The nationwide catastrophe insurance'pilot' projects in China have achieved significant outcomes in three key dimensions.

4.1 Effective Loss Compensation

The compensation mechanism has demonstrated effectiveness in enhancing regional disaster resilience. Notable examples include: In Ningbo, typhoon-related payouts for major risks (Chanhome and Dujuan in 2015, Meranti in 2016) exceeded 89 million RMB; Heilongjiang Province's agricultural catastrophe insurance disbursed over 72 million RMB through index-triggered compensation mechanisms ^[1]. These timely payouts have provided essential post-disaster economic relief and eased the financial burden on governments.

4.2 Improved Public Awareness and Satisfaction

Insurers have elevated public engagement through integrated risk management services. Leading institutions have developed advanced predictive systems including Earthquake Catastrophe Insurance Loss Assessment Models,



created seismic event databases and innovative hazard analysis algorithms, and implemented real-time monitoring through drone networks and risk radar systems to predict and issue early warnings before disasters, effectively reducing casualties and property losses.

4.3 Exploration of New Approaches of Insurance

The pilot initiatives have pioneered collaborative governance models with features as: government-led design and market-driven operation; multi-stakeholder risk sharing across public and private sectors; transformation of government roles from sole responder to systemic risk coordinator.

5. Challenges Facing China's Catastrophe Insurance System

China's catastrophe insurance system confronts multifaceted challenges across technical, institutional, and market dimensions, which collectively hinder its capacity to mitigate disaster risks effectively.

5.1 Core Technical Constraints

The foundational weaknesses stem from data inadequacy, complexities of risk modeling, and actuarial inefficiencies.

Limited historical disaster data and inconsistent quality impede the development of precise catastrophe risk models, undermining critical functions such as premium pricing, capital allocation, and reinsurance planning. And the inherently complex nature of catastrophic events (e.g., low-frequency, high-severity) necessitates sophisticated actuarial analyses, which are prohibitively expensive. Insurers, already constrained by narrow profit margins in government-led programs, lack incentives to invest in refining these models.

5.2 Policy-Driven Market Distortions

The state's dominant role in procurement and pricing creates systemic imbalances.

(1) Non-actuarial pricing. Premium rates are largely dictated by administrative directives rather than risk-based calculations, forcing insurers into a "break-even with minimal profit" operational mode.

(2) Fiscal intervention risks. Excessive state subsidies or operational interference distort market mechanisms, resulting in mispriced risks and weakened incentives for commercial



innovation. Over time, such distortions may erode the insurance sector's ability to function as an independent risk management entity.

5.3 Institutional and Regulatory Gaps

Structural flaws in fiscal governance and regional coordination further compound systemic vulnerabilities. The Government Revenue and Expenditure Classification System fails to delineate budgetary categories for non-agricultural catastrophe programs (e.g., earthquake insurance, livelihood relief). complicating fund allocation and accountability ^[3]. Besides, disparities in pilot programs—such as inconsistent coverage limits, risk-sharing mechanisms, and pricing standards-highlight the absence of a unified national framework. The widely-adopted Catastrophe Reserve model, which rolls over unspent premiums annually, standardized protocols lacks for fund management, auditing, and transparency, raising risks of fiscal mismanagement.

5.4 Market Stagnation and Innovation Deficit

The system's limited adaptability to evolving demands stifles growth.

(1) Homogeneous Products. A lack of differentiated or customizable insurance offerings fails to address diverse consumer needs, restricting market expansion ^[13].

(2) Post-Disaster Coordination Gaps. While product innovation is critical, parallel weaknesses in disaster response mechanisms such as delayed claims processing and uncoordinated relief efforts—undermine the system's overall efficacy in supporting recovery.

6. Countermeasures to Promote Social Governance by Enhancing Catastrophe Insurance in China

Addressing the challenges above requires a balanced approach.

6.1 Strengthening Policy and Regulatory Frameworks

Legislative codification of catastrophe insurance is imperative to establish a sustainable institutional foundation. A comprehensive legal framework should standardize product design, actuarial pricing, and claims settlement protocols to ensure market stability. Regional implementation of semi-mandatory insurance schemes could maximize coverage, ensuring universal access to catastrophe insurance as a

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public good. Fiscal incentives—including tax relief and targeted subsidies—should incentivize insurers to expand product portfolios while fostering market competition and service quality. Concurrently, a multi-stakeholder catastrophe risk governance mechanism must be institutionalized through public-private partnerships (PPPs) to enhance systemic resilience.

6.2 Optimizing State-Enterprise Collaborative Governance

Clarified delineation of roles among governments, insurers, and policyholders is essential ^[14]. Adherence to the principle of moderate state intervention ensures market vitality while maintaining China's stateled governance paradigm. The relevant administrative departments should facilitate insurer engagement and public participation through regulatory guidance and awareness campaigns. Insurers' financial sustainability must be prioritized to stimulate innovation and ensure effective risk transfer mechanisms.

6.3 Refining the Catastrophe Insurance Programs

To enhance the efficacy of catastrophe insurance programs, product standardization must be prioritized through the integration of international best practices in policy clauses, premium frameworks, and reinsurance architectures with localized risk exposure assessments. Establishing teams composed of actuarial specialists and insurance industry representatives would enable the development of unified policy templates, ensuring consistency and adaptability across regional implementations. Regarding capital management, institutionalizing a transparent reserve system governed by premium accrual principles is critical to maintaining financial accountability and stability. Unutilized government-allocated catastrophe funds-after deducting operational costs-should be consolidated into a long-term solvency reserve, thereby optimizing capital allocation and ensuring sustained liquidity for insurers.^[15] Also. expanding risk-sharing mechanisms, such as co-insurance consortiums and reinsurance markets, is essential to diversifying risk exposure, enhancing underwriting capacity, and mitigating potential financial liabilities for individual insurers.

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6.4 Integrating Advanced Technologies for Risk Mitigation

Insurers should develop predictive catastrophe risk models using geospatial analytics and AIdriven simulations to improve risk assessment and mitigation strategies. Cross-sectoral datasharing platforms with meteorological, environmental, and agricultural agencies.^[16] will enhance disaster forecasting, prevention efficiency, and claims processing accuracy.

6.5 Cultivating Public Risk Awareness and Participation

Building a risk-aware society requires:

 Nationwide educational campaigns on catastrophe preparedness and insurance literacy;
Transparent risk communication channels to clarify compensation procedures and post-

disaster entitlements;

(3) Real-time disclosure of catastrophe risk data via digital platforms to enable informed preventive actions. Such measures foster collective responsibility and align individual preparedness with national social governance objectives.

7. Conclusion

In recent years, China's catastrophe insurance pilot initiatives have demonstrated tangible efficacy. By mitigating fiscal shocks induced by natural disasters and catastrophic events, catastrophe insurance facilitates loss reduction, deepens systemic risk management, and fosters multi-sectoral collaboration, ultimately contributing to a more robust governance network.

Subsequent studies should prioritize elucidating mechanisms optimize interagency to collaboration among stakeholders, including the development of information-sharing platforms, frameworks. coordination and resource integration strategies to address dynamic disaster risks. Such research could further bridge insurance catastrophe systems with the modernization of social governance, ensuring synergistic advancements in risk mitigation efficacy and societal stability. Emphasis should also be placed on evaluating institutional designs that incentivize public-private partnerships and adaptive policymaking in response to evolving climatic and socio-economic challenges.

This integrated approach bridges catastrophe insurance innovation with governance modernization, creating synergies between risk



mitigation, economic stability, and societal resilience.

Acknowledgments

This paper is supported by National Institute of Industrial Technology through its 2023 Project "On the High-Quality Development Paths of English Majors in Application-Oriented Undergraduate Universities Guided by the Theory of Holistic Education" (No. 23GYJS046).

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Academic Conferences Series (ISSN: 3008-0908)



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