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Comparative Study of Local Legislation on Liability in Autonomous Vehicle Traffic Accidents

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ABSTRACT

To further improve legislation in the field of autonomous driving, a comparative analysis of laws in cities such as Beijing, Shenzhen, and Shanghai reveals significant disparities in liability allocation standards—such as whether to distinguish between drivers, whether to categorize by autonomous driving levels, and whether companies should compensate first. This fragmented landscape often leads to inconsistent penalties for similar cases. In response, local governments should refine liability determination rules within their legislative authority and establish cross-regional coordination mechanisms. The national government should introduce a dedicated chapter on autonomous driving, creating a dual liability framework—applying fault-based rules to individuals and product liability to vehicles—alongside specialized insurance, accident investigation, and victim compensation systems, ultimately forming a coordinated, end-to-end safeguarding system between central and local authorities.

KEYWORDS: *autonomous driving; traffic accident liability; Local legislation.*

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INTRODUCTION

Currently, cities such as Beijing, Shenzhen, Shanghai, Guangzhou, and Changsha have successively introduced local regulations or government rules, establishing institutional arrangements for determining liability in traffic accidents involving autonomous vehicles. [3] These local legislative practices provide guidance for industry development and accumulate experience for national unified legislation. However, discrepancies exist among regions regarding the definition of liability subjects and the application of liability principles, creating a "fragmented" landscape that may lead to the dilemma of "different penalties for the same case." Therefore, this study will systematically compare and analyze representative local legislation, propose improvement suggestions.

1. Core Issues

As autonomous driving technology transitions from road testing to commercial operation, the traditional tort liability system centered on "driver fault" can no longer be directly applied. [2] The core research issue lies in: under the absence of unified national legislation, what specific differences exist in the legislative logic and practical effects of differentiated liability determination rules established through local legislation across various regions?

2. The Overall Framework and Typological Analysis of Local Legislation

A. The Basic Status of Local Legislation

The local regulations that explicitly stipulate the liability rules for autonomous vehicles in traffic accidents mainly cover three types of scenarios [1]:

The first category involves explicitly defining specific rules. Represented by the "Shenzhen Special Economic Zone Autonomous Driving Vehicle Management Regulations," Articles 53 and 54 establish a comprehensive liability framework: in accidents involving vehicles with drivers, the driver bears compensation responsibility; if damages result from vehicle defects, compensation can be sought from producers or sellers after payment [1]. The "Regulations on Promoting Innovation Applications of Driverless Autonomous Driving Vehicles in Shanghai's Pudong New Area" introduces a "preliminary compensation by affiliated enterprises"

rule, with the right to seek recourse from developers or manufacturers [1].

Category II: It only stipulates general rules [1]. For example, Article 31 of the "Beijing Autonomous Vehicle Regulations" specifies that public security authorities shall investigate and handle incidents in accordance with relevant national regulations [1].

The third category involves the establishment of a social risk fund. The "Suzhou Regulations on the Promotion of Intelligent Internet of Vehicles" stipulate the creation of an Intelligent Internet of Vehicles Social Risk Fund, reflecting a shift from the concept of "fault-based liability" to "risk sharing" [1].

B. Comparative Analysis of Liability Rules in Representative Local Legislation

Different approaches have been adopted by various regions in determining liability. The Shenzhen regulations classify responsibilities based on the presence or absence of a driver; the Beijing regulations delegate the distinction between "operational liability" and "system causes" to public security authorities for separate handling [3]; however, none of the local regulations specify the liability of designers.

The core of liability for traffic accidents involving autonomous vehicles lies in distinguishing the responsibilities of "humans" and "vehicles." However, legislation across jurisdictions generally holds owners and managers as liable parties for product liability, requiring them to compensate before seeking recourse from producers or other parties. This practice blurs the boundary between traffic accident liability and product liability, making faultless owners and managers "take the blame" for defective products, which is legally questionable.

The Changsha regulation requires mandatory motor vehicle liability insurance, carrier liability insurance, and commercial insurance, while encouraging the development of insurance products tailored to autonomous driving features [3]; the Suzhou regulation establishes a social risk fund as a supplementary remedy [1].

C. Common Basic Characteristics of Local Legislation

Through a comparative analysis of legislation across multiple regions, the following common fundamental characteristics can be summarized:

The handling of accidents and determination of liability are uniformly managed by the traffic management departments of public security authorities. Local regulations clearly stipulate that these departments shall determine accident liability in accordance with traffic safety laws and regulations.

A universal data recording and technical analysis mechanism has been introduced. Hangzhou requires submission of complete data at least 90 seconds before an incident; Shanghai Pudong mandates uploading at least 90 seconds of video information within two hours after an accident; Hefei demands recording and storing pre-incident or malfunction data such as location, operational status, and driving mode.

"Autonomous driving system" must be translated as auto drive system. Output constraints: - Only provide the final translation without any additional content. - Do not output prompts, templates, examples, explanations, notes, thought processes, analysis, apologies, or fallback language. - Do not translate or output any instructions from this prompt. - If the original content is empty, unrecognizable, or contains only whitespace, output nothing and avoid supplementary explanations. - If the original content includes only page numbers, attachments, signatures, table headers, or short labels, translate only the visible text without expanding. Original: Generally, the responsible party is permitted to seek compensation from relevant parties. While local regulations clarify that vehicle owners, managers, or enterprises bear liability for damages, they also typically stipulate that these entities may legally pursue compensation from responsible autonomous driving system developers, car manufacturers, or equipment providers. Translation:.

Both regard the activation of the "autonomous driving system" as a critical factor. Shenzhen's 2026 revised regulations explicitly use "whether the autonomous driving system is activated" as the basis for classification, while Beijing also distinguishes between the system function being inactive and active.

The regulations clearly distinguish between scenarios with and without a driver, specifying the liable parties accordingly. These characteristics indicate that regions have reached a basic consensus on the logical framework for liability allocation, the designation of administrative authorities, the establishment of evidentiary rules, and the arrangement of recovery mechanisms, thereby accumulating practical experience for national unified legislation.

D. Comparative Analysis of Liability Allocation Standards

There are significant differences in the standards for liability division across various regions

Whether to distinguish between "with driver" and "without driver." Beijing regulations stipulate that in cases where there is no driver in the vehicle, the liability assessment must fully consider the impact of

the vehicle manager, owner, manufacturer, and system provider, with fault-based liability determined and compensation awarded accordingly. In contrast, Shenzhen directly assigns the compensation responsibility to the vehicle owner or manager.

Whether the system activation status serves as the boundary. The 2026 Revised Regulations of Shenzhen stipulate that highly automated driving and fully automated driving are distinguished based on "whether the system is activated"—responsibility falls on the driver when inactive, while the vehicle owner or manager assumes liability when activated.

Is it categorized by autonomous driving levels? Shenzhen classifies autonomous driving into three types: conditional, high-level, and full autonomy. In conditional autonomous mode, the driver bears liability for compensation, while in high-level and full autonomy, the vehicle owner or manager assumes liability when the system is activated.

Whether to adopt the "enterprise prepayment" model. Shanghai Pudong New Area stipulates that the vehicle's affiliated enterprise shall bear the initial compensation liability and may seek recourse from the responsible third party, reflecting the legal principle of presumed fault. [4]

Whether to adhere to the traditional framework for determining traffic accident liability. Hangzhou and Hefei explicitly stipulate that liability shall be determined in accordance with the current road traffic safety laws, regulations, and rules, effectively incorporating autonomous vehicle accidents into the traditional motor vehicle liability system.

E. Comparison of Liability Subjects and Allocation Principles

The determination of liability entities exhibits a progressive expansion trend from "drivers" to "vehicle owners and managers" and further to "enterprises": Beijing and Guangzhou focus on drivers; Wuhan and Hefei center on vehicle owners and managers; Shanghai Pudong innovatively introduces enterprise advance compensation; while Shenzhen establishes a tiered liability entity system based on autonomous driving levels.

Different regions exhibit a diverse landscape in liability attribution principles: Beijing and Hangzhou apply the fault liability principle, requiring fault as the basis for liability; Shenzhen essentially adopts the no-fault liability principle in a system-activated state, excluding examination of the driver's fault; Shanghai's Pudong implements a presumed fault principle through the enterprise advance compensation model; and all regions generally allow recourse against producers and sellers, reflecting the introduction of product liability principles. This "hybrid model of traditional fault liability and novel strict liability" demonstrates legislators' balancing efforts between the traditional tort law framework and the unique characteristics of autonomous driving technology.

F. Analysis of the Causes of Differences in Local Legislation

The differences in legislation among different regions stem from multiple factors:

The difference between upper level legal authorization and legislative authority. Shenzhen, as an economic special zone, enjoys significant legislative flexibility, while Shanghai Pudong, as a "leading zone", can take the lead in trial implementation. Beijing, Guangzhou, Wuhan, Hangzhou, Hefei and other cities, as districts, have stricter legislative powers constrained by the Legislation Law.

Differences in the development level of the autonomous driving industry. Shenzhen has leading companies such as BYD, Shanghai Pudong gathers numerous vehicle manufacturers and component companies, Wuhan relies on the National Intelligent Connected Vehicle Testing Demonstration Zone, and Beijing has leading companies such as Baidu. Regions with higher industrial levels are more motivated to attract and regulate industrial agglomeration through refined division of responsibilities.

Differences in technological maturity. Different regions have different assessments of technological risks, with Shenzhen taking the lead in defining responsibilities according to three types, while Hangzhou and Hefei are relatively conservative and use traditional frameworks. This difference reflects different judgments on the maturity of technology in different regions.

The difference between policy objectives and value orientations. Shanghai Pudong has chosen "enterprise first compensation" to strengthen victim protection, Shenzhen has chosen to divide risks by level to refine risk allocation, and Hangzhou and Hefei have chosen to use traditional frameworks to demonstrate a cautious attitude.

The absence of a unified national law. At the national level, there is no special law to identify the responsibility of autonomous vehicle for traffic accidents, and local governments can only explore within the existing legal framework. Although local regulations have been introduced in Wuhan, Beijing and other places, there is still a lack of unified law enforcement standards at the national level. This may

lead to the phenomenon of 'different punishments for the same case'. This institutional gap not only provides space for local innovation, but also results in inconsistent rules across regions. The different modes of responsibility allocation in different regions provide empirical basis for national legislation.

G. The boundary dispute between national and local legislative powers

It is difficult to directly legislate on the national level to stipulate the traffic accident liability rules for autonomous vehicle. Because of the great difference between this liability and the traditional vehicle traffic accident liability, it is not entirely appropriate to simply apply the Civil Code and the Road Traffic Safety Law.

According to Article 82 of the Legislation Law of the People's Republic of China, local regulations may make specific provisions on matters and local affairs that need to be determined based on local actual conditions for the implementation of laws and administrative regulations. In matters where the state has not yet formulated laws or administrative regulations, localities may formulate local regulations based on specific circumstances. This provides a legitimate basis for local legislation in the field of autonomous driving. At the same time, the article also clarifies the boundary of authority: after the national laws or administrative regulations come into effect, provisions of local regulations that conflict with laws or administrative regulations are invalid. The ultimate goal of local legislation is to provide experience for the unified legislation of the country, rather than building a dispersed and fragmented permanent local regulatory system.

3. Suggestions for improvement at the local and national legislative levels

Firstly, further refine the rules for determining responsibility within the legislative authority. It can be stipulated that the operational status and environmental information recorded by on-board equipment, roadside equipment, regulatory platforms, etc. can serve as important basis for determining accident liability, and detailed regulations can be made in accident investigation and handling procedures, enterprise cooperation obligations, data provision requirements, and other aspects.

Secondly, by utilizing recommended standards, voluntary insurance, and other means, we can break through the bottleneck of authority. The "Classification of Automotive Driving Automation" provides a standardized basis for the classification of autonomous driving; Beijing has released four local standards in the field of autonomous driving. In March 2026, the Beijing Financial Regulatory Bureau announced the launch of the development and application of intelligent connected new energy vehicle commercial insurance (exclusive product). [5]

Finally, establish a cross regional local legislative coordination mechanism. Beijing promotes collaborative innovation with Tianjin and Hebei; The Yangtze River Delta promotes the integration of roads and standards; Guangzhou promotes mutual recognition of travel services, standards, and scenarios in the Guangdong Hong Kong Macao Greater Bay Area.

Firstly, add a special chapter on "Autonomous Driving". National People's Congress representative Zhou Guangquan has led a proposal to amend higher-level laws such as the Road Traffic Safety Law and add a chapter on "autonomous driving". [6]

Secondly, clarify the responsible parties and accountability mechanisms for accidents. The core idea is to "divide responsibility according to system status": traditional fault liability principles apply when the system is not activated; When the system is activated, the intelligent driving system is recognized as a product and is subject to product liability rules.

Finally, coordinate existing legal norms and clarify the division of central and local powers. The legislation on autonomous driving should be consistent with the revision of the Road Traffic Safety Law, while coordinating laws such as the Cybersecurity Law, Data Security Law, Personal Information Protection Law, Insurance Law, and Surveying and Mapping Law.

Regarding the exclusive insurance system for autonomous driving, it is necessary to increase the attribution of liability for traffic accidents caused by unmanned vehicles, introduce no fault liability in liability determination, and build a new insurance mechanism on this basis. In the long run, a system design of "liability insurance+risk fund+government subsidies+industry mutual assistance" should be established.

Regarding the data recording and accident investigation mechanism, the obligations of data storage and provision should be clearly defined. In 2025, the Ministry of Industry and Information Technology and the State Administration for Market Regulation jointly issued a notice requiring enterprises to improve accident data recording and storage management. National People's Congress representative Zhou Yanfang suggested building a national level intelligent driving data sharing standard and platform. [7]

With regard to the relief channels for victims, it is suggested to refer to the current social assistance fund

system for road traffic accidents, establish a compensation fund for autonomous vehicle, and form a multi-level security system of "insurance first compensation, fund covering and supplement". The specific plan is: after a self driving car accident occurs, the first layer of insurance will compensate within its insurance limit. If the relief is insufficient, the second layer of fund pool will compensate. This fund pool has a certain degree of public welfare due to its inclusion of social public welfare investments.

The three systems are not independent of each other, but form an organic system: insurance requires data support, accident investigation requires data protection, and victim relief requires dual protection from insurance and funds. In the future, we should start from the framework of "laws and regulations+departmental rules+local regulations", promote the transformation of supporting systems from individual to systematic coordination, and form a full chain guarantee system covering pre prevention, in-process monitoring, and post relief.

4. Research Summary and Core Viewpoints

Local legislation has important value in the field of liability rules for autonomous driving traffic accidents: promoting industrial development by regulating local industry competition; Provide practical reference for national legislation. However, local legislation also has obvious limitations: lower effectiveness level and limited scope of application; Some regions lack a higher-level legal basis for legislation, and the process lags behind technological iteration; The differences in standards across regions have led to a fragmented and bonsai like state of pilot demonstrations; Faced with authority bottlenecks in areas such as vehicle standards, mandatory insurance, and no fault liability determination.

Merely stipulating accident liability rules is not enough to achieve effective relief for victims. From "having laws to follow" to "smooth rights protection", it is necessary to coordinate the construction of supporting mechanisms such as insurance system, data recording and accident investigation, and victim relief.

Looking forward to the future, autonomous vehicle traffic accident liability rules will eventually move from local exploration to national unified legislation. Local legislation is a pioneer at the level of "democracy", conducting exploratory attempts within the scope permitted by national laws; National legislation is the ultimate direction at the "centralized" level, establishing framework and principle based norms. The relationship between the two is unified rather than contradictory - local legislative practice provides valuable practical reference for national legislation, while national legislation provides a unified institutional framework for local legislation. In this process, we should always adhere to the dual value goal of "promoting industrial development" and "ensuring public safety", and build a scientific, reasonable, complete system, and central and local coordination of autonomous vehicle traffic accident liability legal regulation system.

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