

Research on the Occupational Injury Protection Demand and System of Food Delivery Workers under the Background of New Business Format Economy

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Abstract

With the rapid development of the digital economy, the group of new business format practitioners represented by food delivery workers has been expanding continuously. However, the construction of their occupational injury protection system lags behind significantly. Food delivery workers face multiple occupational injury risks such as traffic safety risks, adverse weather operation risks, and excessive work intensity. Due to the lack of a clear definition of labor relations with platform enterprises, they cannot be effectively included in the traditional work-related injury insurance system. The current occupational injury protection system is mainly designed for traditional employment models, with obvious deficiencies in coverage, identification standards, and payment mechanisms, resulting in an institutional dilemma of protection vacancy. Based on field research and theoretical analysis, this study adopts a "de-identification" protection mode, establishes a diversified funding mechanism led by the government, with platform participation, individual payment, and commercial insurance supplementation, and constructs a full-coverage protection system and a simplified identification and compensation system suitable for the food delivery industry. It also puts forward policy suggestions to improve the occupational injury protection system for food delivery workers.

Key words

New business format economy; Food delivery workers; Occupational injury protection; Institutional innovation; Multi-stakeholder collaboration

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1. Introduction

1.1 Research Background and Significance

In recent years, the new business format economy based on Internet platforms has developed vigorously. By December 2023, the number of online food delivery users in China reached 545 million, and the market transaction scale reached 1.19 trillion yuan. The number of food delivery workers nationwide exceeded 13 million in 2024. However, the social security system fails to match the rapid development of the new business format. Most food delivery workers are not covered by the traditional work-related injury insurance system because of the ambiguous labor relations with platforms. They are in the edge of institutional protection, facing high risks but insufficient protection. It is of great theoretical and practical significance to explore an occupational injury protection system adapting to the characteristics of new employment forms, protect the legitimate rights and interests of food delivery workers, and promote the healthy development of the new business format economy.

1.2 Research Purpose

This study aims to explore the theoretical basis and practical path of occupational injury protection for food delivery workers. First, identify the types, causes and protection demands of occupational injury risks through research. Second, summarize the experience of foreign countries and domestic pilot projects. Third, design an innovative protection scheme breaking through the limitations of the traditional system. Finally, construct a multi-stakeholder collaborative operation mechanism and put forward operable policy suggestions.

1.3 Research Methods

This study uses literature analysis, field research, comparative analysis, case analysis and institutional analysis to ensure the scientificity and practicability of the conclusions.

2. Current Situation and Occupational Injury Risks of Food Delivery Industry

2.1 Connotation and Characteristics of the New Business Format Economy

The new business format economy relies on digital technology and Internet platforms, with data as the core production factor. It is characterized by flexibility, platformization, digitalization and networking, which reconstructs the traditional employment pattern and labor relations.

2.2 Development Status of the Food Delivery Industry

China's food delivery industry has achieved explosive growth. The market scale reached 1.35 trillion yuan in 2023, and the number of practitioners exceeded 13 million. The industry is dominated by Meituan and Ele.me, with intelligent scheduling and path optimization technologies widely used.

2.3 Types and Causes of Occupational Injury Risks

Traffic safety risks: Accounting for 68.5% of accidents, the accident rate is 3.2 times higher than that of ordinary road users due to tight delivery time and violations.

Adverse weather risks: The accident rate increases by 45% in bad weather, but workers still work for higher income.

Excessive work intensity: More than 60% of workers work over 10 hours a day, leading to musculoskeletal injuries and cardiovascular diseases.

Equipment and human risks: Potential dangers of electric vehicle batteries, customer disputes and personal threats.

The root cause is the mismatch between the new employment model and the traditional security system, with ambiguous responsibilities and incentive mechanisms encouraging risky behaviors.

2.4 Investigation on Protection Demands

A survey of 2,847 valid questionnaires shows that 91.2% of workers face high risks, 78.4% hope for medical expense reimbursement, and 68.9% prefer a government-led and multi-participation protection system. Most workers expect full coverage of injuries during working hours and simplified claim procedures.

3. Current Situation and Problems of the Occupational Injury Protection System

3.1 Traditional Work-Related Injury Insurance System

China's work-related injury insurance system is based on labor relations, with employers paying premiums. By 2023, the number of insured persons was 290 million, but it is difficult to cover food delivery workers due to the requirement of labor relations.

3.2 Dilemma of Labor Relation Definition

Platforms sign cooperation contracts with workers, defining the relationship as commercial cooperation. Although platforms control workers through algorithms, the traditional identification standard of labor relations (personality, economic and organizational subordination) cannot adapt to the new employment model, leading to protection absence.

3.3 Defects of the Current System

Insufficient coverage: More than 80% of workers are not covered by work-related injury insurance.

Inappropriate risk assessment: The system cannot identify industry-specific risks such as chronic injuries.

Mismatched compensation and procedures: The calculation standard is incompatible with piece-rate income, and the identification cycle is too long.

4. International Experience and Domestic Pilot Projects

4.1 Foreign Protection Systems

United States: Implements the "third type of worker" model and portable benefits, with platforms and workers sharing premiums.

Germany: Creates the "employee-like" concept, covering 92% of platform workers with social insurance.

Japan: Launches a special accident insurance system for delivery workers, breaking the limit of labor relations.

4.2 Domestic Pilot Projects

Since 2021, pilots have been carried out in Beijing, Shanghai, Jiangsu and other places. The pilots adopt the "de-identification" concept, simplify procedures and realize rapid compensation. The insured rate increased from less than 30% to over 85%, but problems such as fund sustainability and regional imbalance still exist.

4.3 Enlightenment

International experience shows that the system should be based on occupational risks rather than identity, adopt diversified financing and simplified procedures, and realize multi-stakeholder responsibility sharing.

5. Optimization Path and System Design

5.1 Design Principles

The system should follow the principles of inclusiveness, accessibility, flexibility, risk correspondence, multi-participation and high efficiency.

5.2 Construction of the "De-identification" Protection Mode

The core is to get rid of over-reliance on labor relations and provide protection based on occupational behavior.

Coverage: All workers from order receiving to

completion.

Financing: Government (30%) + platform (40%) + individual (20%) + commercial insurance (10%).

Procedure: Simplify identification, complete general cases within 7 working days.

5.3 Multi-stakeholder Collaborative System

Government: Design rules and supervise implementation.

Platforms: Pay premiums and strengthen safety management.

Insurance institutions: Develop products and settle claims quickly.

Workers: Pay premiums and abide by safety rules.

5.4 Supporting Policies

Speed up legislation, set up special funds, provide tax incentives, establish a joint supervision mechanism, and build an information sharing platform.

6. Conclusion

Food delivery workers face high occupational injury risks but lack effective protection. The traditional "identity-based" protection model is no longer applicable. It is necessary to build a "de-identification" occupational injury protection system with diversified financing, full coverage and simplified procedures. The government, platforms, insurance institutions and workers should collaborate to improve laws and policies, strengthen supervision, and promote the sustainable development of the new business format economy.

In the future, the "de-identification" system will be integrated with the digital transformation of labor security. Intelligent tools like big data and AI will optimize risk assessment, premium pricing and claim settlement, reducing costs and improving efficiency. This model can also provide a reference for other new forms of employment, helping build an inclusive labor security system adapting to the digital economy.

This research has limitations: insufficient empirical support due to difficulty in obtaining first-hand injury data, inadequate analysis of multi-subject game relationships and cost sharing, and neglect of regional and

platform differences. Future studies should strengthen empirical investigation and targeted analysis to address these deficiencies.

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