

Regulatory Dilemma of Sharing Economy and Innovation of Collaborative Governance Model: A Case Study of Online Rental Car Industry

Jingwei Zhu

*College of Foreign Languages and Literature, Taiyuan University of Technology, Taiyuan, China
zhujw1230@163.com*

Abstract. As a typical representative of the sharing economy, the online taxi industry, with its continuous expansion, has gradually exposed the structural contradiction between the traditional regulatory paradigm and the shape of the digital economy. Based on the analysis of policy tools theory and collaborative governance framework, this paper finds that the root causes of the regulatory dilemma of the net car industry are mainly the structural imbalance of policy tools, the failure of the collaboration of all parties to give full play to their roles, and the system lag triggered by the rapid technological iteration. In this regard, this paper proposes a collaborative governance innovation path centered on "dynamic adaptive regulation", constructing a hierarchical policy tool system and adopting diversified modes to reduce enterprise compliance costs; innovating a mesh implementation mechanism to clarify and solidify the responsibility of platforms in algorithmic ethics; and designing a series of supporting safeguard systems, including a gradual transition compensation scheme and a data public ownership check and balance mechanism.

Keywords: Sharing economy, Collaborative governance, Algorithmic regulation, Policy tools

1. Introduction

China's online car rental industry has seen explosive growth since 2012, has now become an iconic representative of the sharing economy in transportation. The innovative concept of "cooperative consumption" was first proposed by Joe L. Spaeth, a professor of sociology at the University of Illinois, and Marcus Felson, a scholar at Texas State University, in 1978 [1]. The collaborative consumption they articulate is essentially what we call the sharing economy today, also known as the sharing or cooperative economy [2]. Nancy F. Koehn, a professor of history and business administration at Harvard University, argues that the sharing economy builds systems for the direct exchange of goods and services between individuals, and that this theoretical framework encompasses a wide range of scenarios for the sharing of resources and services, such as unused items, spare rooms, and unused parking spaces [3]. The rise of online taxi has significantly optimized the allocation of urban travel resources, while creating a large number of flexible jobs. However, the industry's explosive growth has outpaced policy adaptation, creating a significant

regulatory time lag. In 2012, the net taxi industry gradually emerged, but the Interim Measures for the Administration of Network Reservation Taxi Operation Services were only formally introduced in 2016, and the lag of the local implementation rules is even more prominent, i.e., net taxis were actually in the state of illegal operation before November 2016, and car-sharing services on platforms like Didi Express and Uber have been accused of tax avoidance and damaging labor rights and interests [4]. The regulatory exploration of net car is becoming a testing ground for exploring Chinese-style collaborative governance innovation, and its accumulated Policy wisdom is not only dedicated to solving the regulatory problems of the net car industry, but also provides an important reference for dealing with the common regulatory challenges of all kinds of new business models.

2. Policy failure manifestations of internet car regulation

Local governments have simply transplanted the access shackles of the traditional cab industry to the new industry, resulting in the current online taxi regulatory system falling into a command-and-control tool dependency [5]. The imbalance of instruments exposes a systematic lack of incentive-led mechanisms, and the policy toolkit exhibits structural imbalance [6]. The current fragmented status quo of the regulation of Internet dating is inextricably linked to the institutional failure of cross-departmental coordination, as the industry attributes of Internet dating involve multiple areas such as transportation, network security, labor security, and so on, including the Ministry of Transportation, the Ministry of Public Security, the Ministry of Industry and Information Technology, and other ministries and commissions with cross-cutting responsibilities, and the lack of effective coordinating bodies [7]. The gap in policy articulation further exacerbates the coordination dilemma, and the documents issued by the central government based on the principle of inclusiveness and prudence for new businesses have been alienated as a tool in the regulatory race in local implementation [8]. Facing the double attack of technological fission and capital game, the regulatory dilemma of the online car rental industry is getting more and more serious. Algorithmic black-boxing continues to undermine the effectiveness of traditional regulatory tools, platform companies achieve hidden market control through dynamic pricing models, regulatory blind spots are spawned under technological iteration, and the rise of aggregation platforms blurs the body of responsibility [9]. Finally, disorderly capital expansion has continuously challenged policy boundaries, and head platforms have formed an invisible monopoly through cross-shareholdings, exposing the lagging nature of antitrust regulation.

3. Policy optimization suggestions for the collaborative governance of internet vehicles

3.1. Building a hierarchical and categorized system of policy instruments

The primary path to cracking the current regulatory dilemma of the net car industry is to reconstruct a precise and differentiated policy toolbox. In view of the highly heterogeneous nature of the industry, a tiered regulatory model should be established based on the dimensions of drivers' intensity of employment, the nature of vehicle use, and the characteristics of the service area, with strict social security payments and annual vehicle inspections for full-time drivers, and a filing system for part-time drivers with preferential policies for the tax threshold; and differentiating between owned and leased vehicles in terms of vehicle access, with the former applying traditional insurance rules and the latter mandating the purchase of group liability insurance. Platform to buy group liability insurance to solve the risk of ownership separation [10]. With reference to London's "three-color license system", China can design a "service capability grading certification system",

such as the pilot in Chengdu, where drivers are divided into 'basic' and 'quality' drivers, the latter of which can access sensitive areas such as airports and hospitals and enjoy platform traffic tilt.

3.2. Synergistic mechanisms for innovative policy implementation

In order to realize the policy optimization of the coordinated governance of the network car industry, it is imperative to build a synergistic mechanism for the implementation of innovative policies, and multi-party co-governance is the core of this synergistic mechanism. A close and efficient tripartite partnership should be established among government departments, online car rental platform enterprises and the public. As a regulator and guide, the government needs to improve laws and regulations, strengthen the management of market access, clarify the operational norms and standards of the online car rental industry, and draw boundaries for the development of the industry, as well as play a coordinating role to promote cross-sectoral and cross-regional regulatory cooperation, so as to avoid regulatory gaps and duplication of regulatory phenomena [11]. As the main body of the industry operation, the net taxi platform enterprise bears the key normative responsibility, and should actively implement the main responsibility, establish a strict and perfect internal management system in vehicle management, driver qualification audit, service quality control, etc., to ensure that the platform operation is in line with the requirements of laws and regulations, and should make use of its technical advantages and data resources to actively cooperate with the government departments to carry out the regulatory work, and report the operation data in a timely manner. We should utilize our technical advantages and data resources to cooperate with government departments to carry out regulatory work, and report operational data in a timely manner. The public, as the direct users of the online car service, have extensive supervision power and should actively participate in the industry supervision, feedback the problems in the process of online car operation through complaints, reports and other channels, to form an external supervision force on the platform enterprises and government supervision. At the same time, the public's monitoring opinions can also provide important references for the adjustment of government policies and the improvement of platform services. Only when the government, platform enterprises and the public give full play to their respective advantages and form a governance synergy of mutual collaboration and supervision can we effectively solve the regulatory challenges of the online car rental industry and promote the healthy and orderly development of the industry.

3.3. Technology-enabled innovation in policy tools

Governments should construct a unified blockchain platform...to promote the shift from ex-post punishment to real-time intervention. The platform should have real-time access to vehicle tracks, audio recordings, payment flows and other data and generate tamper-proof "trip fingerprints" to provide a credible chain of evidence for the determination of liability for accidents, but also through smart contracts to automatically perform compliance checks, and instantly freeze the platform's settlement account and push warnings when the system detects a non-compliant driver taking orders [12]. In addition, deepening AI applications in risk control, such as deploying biometric monitoring systems in vehicles, identifying fatigue driving through pupil changes, steering wheel grip pressure frequency and other features, and triggering mandatory rest instructions. Finally, the establishment of the aggregation platform "responsibility penetration" mechanism, requiring aggregators such as Gao De and Meituan to implement real-time insurance verification of the access to the capacity platform, and automatically stop the diversion of service providers that do not meet the standards, and the development of a policy simulation system, which predicts the distribution of orders and

fluctuations in complaints by inputting variables such as the size of the capacity and the strength of the subsidy, and provides a digital sand table to support the adjustment of the policy. Provide digital sandbox support for policy adjustment.

3.4. Supporting policy guarantee system

Consolidating the results of collaborative governance requires a solid base of institutional safeguards. At the level of labor rights and interests, a pilot "Occupational Injury Protection Fund for Internet Contract Workers" has been set up to cover medical treatment in major accidents and loss of work. In the area of data security, the Guidelines on Data Classification and Grading for Online Rental Vehicles have been issued to clarify the requirements for the localized storage of sensitive data such as trip trajectories, and platforms are prohibited from using behavioral portraits such as the frequency of emergency braking and late-night service preferences for commercial marketing. In terms of market order, the establishment of a monopoly risk melting mechanism, the mandatory opening of the capacity data interface when the market share of a single platform exceeds 50%, and allowing small and medium-sized platforms to call up the heat maps of their neighboring vehicles. Simultaneously improve the policy iteration mechanism, requiring provincial governments to release a white paper on the regulatory effectiveness of Internet dating every year, and conduct a dynamic assessment of 12 indicators, including passenger satisfaction, driver turnover, and accident reduction rate, to drive the continuous optimization of the governance system [13].

4. Risk prediction for policy implementation

4.1. Short-term pain risk

The risk of short-term pain is a realistic challenge that is difficult to avoid. For online car rental platform enterprises, the new policy on vehicle qualification upgrades, stricter driver qualification review and other requirements will make them face the pressure of a significant increase in operating costs in the short term, including vehicle procurement or modification costs, driver training costs, etc., which may lead to a decline in profits or even losses for some platform enterprises. For the group of online taxi drivers, at the initial stage of the implementation of the new policy, many non-eligible drivers will be forced to leave the industry and face the plight of unemployment due to the increase in the threshold of access; while eligible drivers may also experience fluctuations in their income due to adjustments in the platform's operation strategy [14]. Consumers may face higher fares as platforms pass on costs, or encounter reduced ride availability due to fleet downsizing, degrading service quality.

4.2. Risk of platform data monopolization

With the huge amount of user travel data, transaction data and vehicle operation data accumulated by the online car rental platform in the course of its operation, it is very easy to form a data monopoly situation. On the one hand, platform enterprises may refuse to share key data to maximize commercial interests, hindering the government's ability to monitor industry operations and enforce policies effectively; on the other hand, platform enterprises may take advantage of the data to implement unfair competition behaviors in market competition, such as big data on users. Platform enterprises may use their data advantages to implement unfair competition in market competition, such as conducting big data-enabled price discrimination, and formulating differentiated pricing strategies for different users by analyzing their consumption habits, travel preferences and other

data, thus harming the legitimate rights and interests of consumers. In addition, platform companies may use the data for unauthorized commercial purposes, leaking users' private information and triggering a data security crisis.

5. Conclusion

By deconstructing the current phenomenon of policy variation and the compliance game cases of platforms such as DDT and T3, this study argues the inevitability of the collaborative governance model. When the government transforms from an access controller to a rule anchorman, platform enterprises upgrade from passive compliers to responsibility sharers, and social organizations transform from marginal bystanders to buffer mediators, the functional complementarity of the triad of main bodies will unleash the governance efficacy that transcends a single administrative regulation. With a view to the "14th Five-Year Plan" for the development of the digital economy and the goal of common prosperity, the coordinated governance of network car rental needs to move towards a dynamic and adaptive regulatory paradigm. In the short term, the revision of the Interim Measures for the Administration of Network Reservation Taxi Operation and Service in 2025 should be taken as an opportunity to incorporate innovations such as hierarchical and categorized regulatory tools, mesh synergistic mechanisms, and technological empowerment paths into the legal framework, and to synchronize the establishment of a 12-key indicator framework with a driver retention rate, 10,000-unit accident rate, complaint resolution timeframe, and so on. It has also synchronized the establishment of a regulatory effectiveness evaluation system centered on 12 indicators, including "driver retention rate," "10,000-unit accident rate," and "complaint resolution time". In the medium and long term, it is necessary to focus on the overall vision of China's modernized governance, and promote the strategic transformation in three aspects: firstly, exploring the practice of public ownership of data, constructing a public data pool for the net taxi industry under the structure of the National Transportation Big Data Center, and eliminating the monopoly of the platform algorithms' black box; secondly, innovating the distribution of labor value, promoting the integration experience of typical regions, and constructing a closed-loop of rights and benefits under the concept of "negotiation on the proportion of commission, social security support, and career development empowerment". The third is to export China's program of governance, upgrading the effective practices of various regions into national standards of the industry, and contributing Oriental wisdom to the governance of the global sharing economy. The only way to raise a more inclusive digital civilization on wheels is to adapt technological resilience through institutional toughness.

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