

The Spatial and Temporal Distribution Characteristics and Governance Tension of Tricycle Passenger Transport in County Towns from the Perspective of Informal Economy—A Case Study of A Certain County in Guangdong Province

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Abstract

In the process of county-level urbanization, tricycle passenger transport, as a form of informal economy, effectively fills the spatial and temporal gaps in public transportation. This study selects a county in Guangdong Province as a case, and comprehensively uses spatial analysis and semi-structured interviews to examine the spatial and temporal evolution characteristics and governance contradictions of tricycle passenger transport. The results show that the industry presents a ‘high-density, small-scale’ ‘ring-locking’ spatial form, which is highly concentrated in the central area of the county in terms of spatial distribution. Although some practitioners hold business licenses and meet the legal requirements in form, they still encounter institutional exclusion and barriers to career advancement in actual operation, and are in the marginalized position of “legal but excluded.” This paper argues that the current ‘de-informalization’ strategy ignores the social security supplementary function undertaken by the industry. In the future, we should realize the transformation from “compulsory banning” to “orderly counseling,” recognize its existence value, implement a flexible management mechanism, and separate social security from formal employment system, so as to promote the inclusive transformation of governance model.

Keywords

informal economy, tricycle passenger transport, spatial distribution, governance tensions, case interviews

1. Introduction

As county towns rapidly undergo urbanization, the formal public transportation system—due to an imbalance between costs and benefits—is struggling to cover all spatial and temporal blind spots. In this gap, tricycle passenger transport has emerged as an economic activity that requires low barriers to entry, offers great flexibility, and does not necessitate complicated approvals, swiftly filling the market void. From the perspective of the informal economy, tricycle operators are typically self-employed workers [1]. They use their own tricycles as a production tool, participate in market transactions through self-employment, and carry out business activities in the absence of formal employment contracts and social security systems to support family livelihoods.

However, the current institutional arrangements are often ambiguous about informal employment [2], and even regard it as a “stain” in the process of urbanization, trying to remove it by administrative means. Such governance approaches ignore the important role of the informal economy in absorbing low-skilled labor and reducing urban operating costs. Some studies have pointed out that the proportion of urban informal employment in total employment in China is between 33.2 % and 44.7 %; in view of its huge volume, the ‘de-informalization’ strategy may not be effective in practice [3]. The existing literature pays more attention to the violation or safety risk of tricycle passenger transport [4], but few questions from the perspective of economic rationality: why does the informal economy continue to exist under strict control? How does its spatial distribution reflect the practitioners’ continuous pursuit of economic efficiency?

Based on this, this study takes a typical county in Guangdong Province (highly concentrated tricycle passenger transport activities) as a case. The tricycle passenger transport economy in the county presents the distribution characteristics of ‘local high density’ in space. The purpose of the study is to explore: as a typical form of informal economy, how does tricycle passenger transport respond to market risks and administrative constraints with spatial strategies? Has the regulatory behavior represented by franchising changed the inherent vulnerability of its informal attributes?

2. Theory Framework

The theory of the informal economy holds that the existence of the informal economy is not due to backwardness, but rather represents a structural feature of the capitalist development process [5]. For the operators of tricycle passenger transport in the county town, their economic behavior follows the following logic:

2.1 Low Barriers to Entry and Excessive Competition

Due to the lack of technical barriers and capital thresholds, a large influx of surplus labor has led to “involutionary” competition within the tricycle passenger transport industry [6].

2.2 Flexibility and Vulnerability Coexist.

Although working hours are flexible, a lack of bargaining power makes operators of tricycle passenger transport highly vulnerable to external shocks, leading to high volatility in the number of practitioners and fragile livelihoods.

2.3 Spatial Dependency

The informal economy cannot, like formal enterprises, have a fixed business location; instead, it must rely on public spaces with high foot traffic to carry out its mobile operations. The survival of tricycle passenger transport depends heavily on the occupation and utilization of urban space.

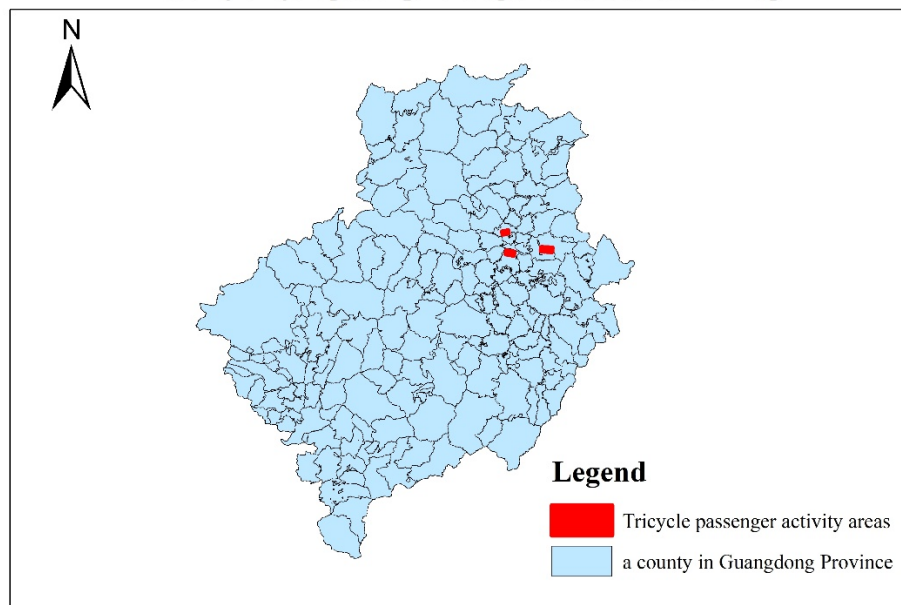
3. Research Methodology

This study comprehensively uses the mixed method design of spatial analysis and case interview to achieve the mutual verification between macro spatial pattern and micro individual behavior.

3.1 Spatial Analysis Method

As the core method of analyzing the spatial distribution of social and economic phenomena in the field of geography and urban planning, spatial analysis is often used to reveal the location characteristics. With the help of ArcGIS platform, based on the vector data of Tianditu 2024 and the administrative boundary data of Guangdong Province, this study implements spatial visualization of three-wheel passenger transport activities in a county. By using the ‘point to polygon’ conversion technology, the scattered passenger transport behavior is transformed into the geographic information layer, and then the spatial aggregation situation is identified.

Figure 1: A county tricycle passenger transport area distribution map
A county tricycle passenger transport area distribution map



1:500,000

It can be seen from Figure 1 that the tricycle passenger transport activities are densely distributed in three adjacent red areas in the center of the county, and its area is less than 2 % of the total area of the county's administrative division. This area covers the county people's hospital, the central farmers' market and the commercial square, which is not only the most densely populated area in the county, but also the most lacking area of public transport service coverage. This distribution situation shows that tricycles are frequently used for passenger transport; this spatial dispersion is not randomly scattered, but shows a structural 'spatial locking' pattern.

3.2 Case Interview Method

Case interview method is a qualitative research method commonly used in social science. With the help of in-depth interactive communication, it can grasp the subject meaning cognition and action logic of the research object. In view of the fact that statistical data are difficult to capture the actual life experience of individuals in the institutional cracks due to their macro attributes, this study selected a typical representative tricycle operator to conduct semi-structured in-depth interviews.

3.2.1 SAMPLE Selection and Representativeness

The respondent is a 52-year-old male with a junior high school education who has been engaged in passenger transportation operations since 1996 and holds a "Non-Motorized Vehicle Operation Permit" issued by the county government. This sample was selected based on the following considerations:

- (1) Long-term experience: With 30 years of professional experience, he has fully witnessed the entire process of passenger transport by three-wheeled vehicles in the county town—from its wild, unregulated growth to its strict regulation and control—a period spanning a considerable length of time.
- (2) Compliance: Although these practitioners are officially certified and legally authorized, they are at the boundary between formal systems and informal practices. Its situation of "holding certificates but being marginalized" is precisely the most direct mapping of the current governance tension.
- (3) Typicality: its occupational substitution space is extremely narrow (such as 'can only do security'), which directly reflects the structural dilemma faced by low-skilled labor groups in county-level cities [7].

3.2.2 Interview Implementation and Analysis

The interview is carried out layer by layer around the five dimensions of “employment motivation,” “time and space trajectory,” “income level,” “administrative contact” and “future expectation.” This study implements grounded theory coding for interview records, aiming to extract the ‘livelihood resilience’ and ‘identity cognition’ of informal employees from the interviewees’ oral experience, so as to make up for the limitations of spatial analysis methods in explaining individual behavior motivation, and ultimately serve the research goal of human-land relationship coordination.

4. Spatial and Temporal Distribution Characteristics and Their Logic of Passenger Transport by Tricycles in County Towns

4.1 Spatial Agglomeration: The “Core Circle” That is Locked In

The map clearly shows that the passenger-carrying activities of three-wheeled vehicles are not evenly distributed across the entire county; rather, they are highly concentrated in the core area of the county seat. This “circle lock-in” pattern is not the result of the operator’s active planning, but the product of the interaction of multiple forces. First, because tricycle passenger transport is billed by mileage and the pricing is low, the operating income is highly dependent on the passenger flow, so the vehicle naturally gathers to the crowded nodes such as hospitals, markets, and transportation hubs. Secondly, the urban management department imposes tricycle passenger transport activities on a specific range by setting ‘no-go zones’, ‘strict road control’ and other control methods, thus forming a spatial governance logic of ‘allowing its presence and limiting its diffusion’.

From the perspective of human-earth system coupling, this kind of spatial locking represents a non-equilibrium coupling state between human activities and urban spatial environment. Liu Yansui believes that contemporary human activities have had a significant impact on the human-land system on the earth’s surface [8], and the coupling level within the human-land system is directly related to the sustainability of regional development. The over-reliance of tricycle passenger transport on the core area is, in essence, a form of “over-coupling”—human activities are confined to an extremely small spatial area, leading to strained human-land relationships and intensified competition.

The respondents’ experiences confirm this spatial logic: “Previously, we could still venture a bit farther; now, as soon as we step beyond these few intersections, we’re either turned back or even fined.” This spatial contraction not only reduces its operating radius, but also blocks their way to achieve capital accumulation through business expansion, leaving them in a vicious cycle of ‘short distance-low frequency-low income’ for a long time.

4.2 Temporal Regularity: The Rhythm of Survival in the Gaps

In addition to the characteristics of spatial agglomeration, the working hours of tricycle passenger transport operators also show obvious characteristics of ‘gap filling’. They often go out at 5 to 7 o’clock in the morning, 5 to 8 o’clock in the evening, and rainy days or holidays when public transport capacity is insufficient, so as to make up for the gap of conventional bus services. Such timing not only reflects market rationality, but also reflects the passive adjustment of regulatory pressure: avoiding the peak of law enforcement inspections and using regulatory space to protect its living space.

However, this ‘survival in the cracks’ mode of operation further aggravates its informal attributes. Practitioners of tricycle passenger transport can neither build a solid customer network nor accumulate industry reputation. Their income is completely dependent on the immediate flow of people in the past, and the unstable state of ‘living today and not knowing’ has gradually become the norm.

5. The Marginalization of Compliers

5.1 The Paradox of Formal Recognition and Practical Exclusion

Holding a license to operate was supposed to be the system's formal recognition of rickshaw drivers' right to livelihood. Yet in practice, these licenses have failed to grant them equal road rights or secure operating conditions. On the contrary, they have become a kind of "limited permit"—allowing you to operate only at designated times, in designated locations, and in designated ways; once you step beyond those boundaries, you'll face penalties. This governance logic—"recognizing capability but not recognizing rights"—leaves licensed operators stuck in the awkward position of being "legal yet illegitimate."

Although the respondent has held the relevant documentation for 30 years, he has never been integrated into the social security system nor received any vocational training or support for career transitions. His "compliance" merely means "not being banned," rather than "being accepted." This disconnect between form and substance is precisely a manifestation of the deep-seated tensions inherent in the governance of the informal economy.

5.2 Occupational Lock-in and the Dilemma of Job Mobility

30 Years of work experience have made the respondents' human capital highly specialized in tricycle passenger transport, leaving them unable to translate this expertise into employability in other industries. At the same time, their income is just sufficient to cover basic living expenses, leaving them unable to afford the costs of skills training or starting their own businesses [9]. When asked about his future plans, he said, "I'll keep going as long as I can still do the job," with alternative options limited solely to security guard positions that offer similarly low pay and poor benefits.

This kind of career lock-in [10] is not merely a limitation of individual capabilities; rather, it's a product of the institutional environment. Informal employment lacks career advancement pathways, social security systems, and retraining mechanisms, making it extremely difficult for workers to exit once they've entered this sector. Meanwhile, urban governance's ongoing crackdown on tricycle passenger transport further narrows their room for transformation, creating a vicious cycle in which "the more they're regulated, the more trapped they become; the more trapped they become, the more dependent they grow."

6. Conclusion and Discussion

Through the combination of spatial analysis method and case interview method, this paper reveals the dual dilemma of tricycle carrying passengers in the county under the framework of informal economy : On the one hand, their activities are strictly confined to the narrow space of the county town's core area, resulting in "circular lock-in"; on the other hand, even after obtaining operational qualifications, practitioners still encounter institutional exclusion and barriers to occupational mobility, becoming trapped in a state of "compliance yet marginalization."

The issue of tricycle passenger transport is essentially a conflict between the goals of urban modernization and the survival logic of those at the grassroots level. Current governance places too much emphasis on "de-informalization.", relevant departments by driving them away, we purify the space while neglecting the safety-net function that the informal economy plays in county-level societies.

As far as the informal economy is concerned, the idea of follow-up governance should be shifted from 'containment' to 'diversion'.

6.1 Recognizing the Legitimacy of the Informal Economy

Tricycle passenger transport should not be regarded as the 'focus' of the city; on the contrary, it should be seen as a useful complement to public transport and a reservoir of jobs.

6.2 Spatial Justice and Flexible Management

In non-central areas or designated time periods, ‘tolerance zones’ are set up for the informal economy, allowing tricycle passenger transport to operate independently within the framework of established rules, rather than being completely driven to desperate situations.

6.3 Decoupling of Social Security

Try to separate social security benefits from employment status, and provide flexible employees with reasonable medical and old-age security to reduce their livelihood risks, rather than rigidly classifying them into a non-existent ‘formal employment’ framework.

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Conflicts of Interest

The authors declare no conflict of interest.

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