

Transition, Difficulties and Measures: A Study on the Policy of Cruise Taxi License in Zhuhai City

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Abstract: There are three controls in the taxi industry: license quantity control, running price control and service quality control, of which license control is the core. The article takes the Zhuhai city taxi license policy as a case and analyses the three stages of the license policies. It clarifies the interests of the parties in all stages of government, taxi companies, taxi drivers and licenses. It reveals the predicament of the current cruise taxi industry, focusing on the difficulty of the relevant taxi industry under the impact of the online car-hailing, and proposes countermeasures.

1. Introduction

There are some difficulties in the taxi industry including monopoly trend in the taxi market, government held or captured by interest groups and the driver's squeezed income, resulting in difficulty in taxiing, black car, and strike. The impact of the online car-hailing further forced the government to reform.

License control is the core of three main controls in the taxi industry, because it effects the taxi model and the rationality of the running price, which in turn effects the quality of taxi services. Therefore, this study focuses on the taxi license policy, taking Zhuhai City as a case, trying to explore the following issues from the perspective of policy transition: what change has experienced in the taxi license policy? What difficulties stakeholders faced in these policy transitions? What reform measures should be adopted for the taxi license policy in the context of the online car-hailing?

2. Basic introduction to the policy of Taxi Licenses in Zhuhai City

In 1993, to regulate the taxi industry, Zhuhai City borrowed the taxi management model from Hong Kong and Macao, transferred the taxi license to the private and the company through quota auction, and controlled the number of licenses. The license rental market is different from other cities.

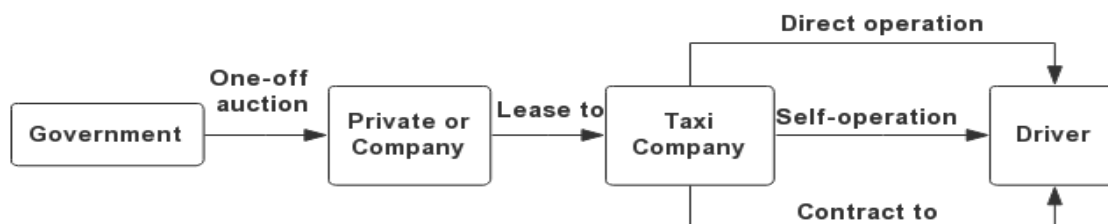


Fig. 1 One-off auction operation mode of taxi license management rights

Zhuhai City taxi license operation mode has the following characteristics:

The taxi license has a too-long term and can be traded and transferred. The taxi license was converted into private property. Even after 1997 the term was revised to 50 years, it's still too long compared with other cities, making it difficult for the government to adjust prices.

The proportion of individuals is too high. There are 3,687 licenses in Zhuhai. Before the splits were split, the licenses held by companies accounted for 14%, the individual holdings in the mainland accounted for 56%, and the Hong Kong and Macao people held 30%. After the licenses were split, the proportion of three parts is 24.1%, 51.5%, and 24.3%.

Table. 1 Total number of taxi license holders Holders in Zhuhai City

Before splitting	After split	Held by the company	Held by Hong Kong and Macao people	In the mainland	Remarks
1852	/	260	561	1031	Not counting 800 service quality biddings and 2 US
/	2887	696	701	1486	

Taxi license holders are generally separated from vehicle owners. According to Article 8 of the Regulations on Taxi Management of Zhuhai Special Economic Zone, the operation of taxis shall be registered as an enterprise, and a permit for the carriage of passenger roads shall be obtained. Therefore, the privately owned taxi licenses are entrusted to the taxi company for operation. The purchase and management of the rental vehicles are borne by the taxi company, so the taxi license holders are separated from vehicle owners.

Table. 2 Statistics of license categories held by some taxi companies in November 2019

Serial number	Company name	Total number of licenses	Number of company licenses			Number of Non-company licenses	
1	Bai Ning	858	34	3.96%	824	96.04%	
2	Jin Tuo	756	131	17.33%	625	82.67%	
3	Zhihong	302	107	35.43%	195	64.57%	
4	Bai An	248	20	8.06%	228	91.94%	
5	Quanxing	236	76	32.20%	160	67.80%	
6	Juying	206	64	31.07%	142	68.93%	
7	Zhuao	153	60	39.22%	90	60.78%	
8	Haitian	68	66	97.06%	2	2.94%	
Total number		2827	558	19.74%	2269	80.26%	

Table 2 shows that the company's own licenses only account for 20.02%, and private licenses account for the majority. Among them, only Haitian Company's majority is the company's own licence, and most of the others are non-company licenses.

3. Zhuhai City Taxi License Policy Transition History

The overall path of taxi license policy transition from a gradual perspective. Cruise taxis are non-competitive and exclusive. They are quasi-public goods, subject to the dual pressure of public demand and market. The change of taxi license policy is characterised by gradualism. The first phase of the license auction policy emphasises the quasi-public product characters of taxi licenses. The auction method is used to ease the shortage of taxi capacity then. The second phase of the external environment changes, resulting in the loss of the quasi-public product attributes of the licence, forming a monopoly and man-made scarcity. So the government introduced a licence plate splitting policy to commission and returning the license's quasi-public product attributes, and strengthening non-competitiveness. In the third stage, the government adjusted the freight rate to ease the rise in taxi operating costs, reflecting the exclusivity of the taxi. In the future, it will fully return.

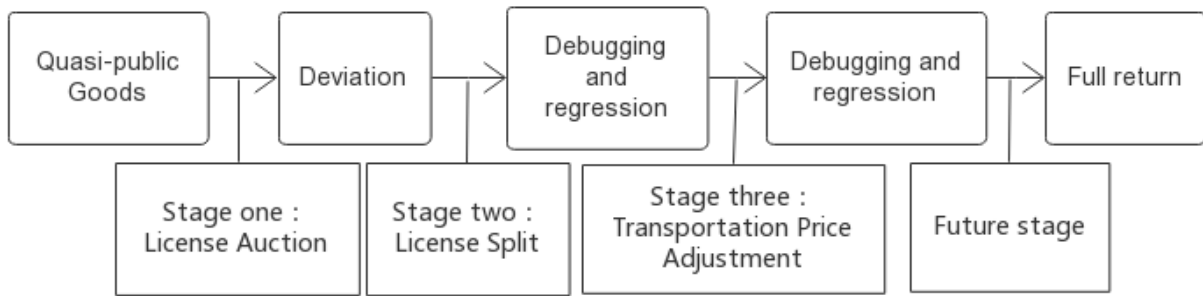


Fig. 2 The progressive reform of Zhuhai Taxi Licence policy

The first phase of the taxi licence policy stabilization period (1993-2011). In 1993, the government carried out the licence auction policy to regulate the industry. The taxi licence rent was affected by the market, rising from 2,000 yuan to 9,000 yuan. The taxi company's management fees charged for taxis were more flexible and the profit was higher. To maintain stability, the government stipulates the taxi contracting fee consists of three parts: the licence rent not exceeding 6,200 yuan, the depreciation of the vehicle and the comprehensive management fee not more than 3,800 yuan. The total limit is not more than 12,800 yuan. In 2011, Zhuhai had 1,852 taxi operating licenses. From 2002 to 2011 the government has hardly issued new licenses, and the number of taxis is far from satisfactory demand. The taxi has a low idling rate and a high average daily turnover. The interests are generally met of the three stakeholders of the driver, the company and the license holder.

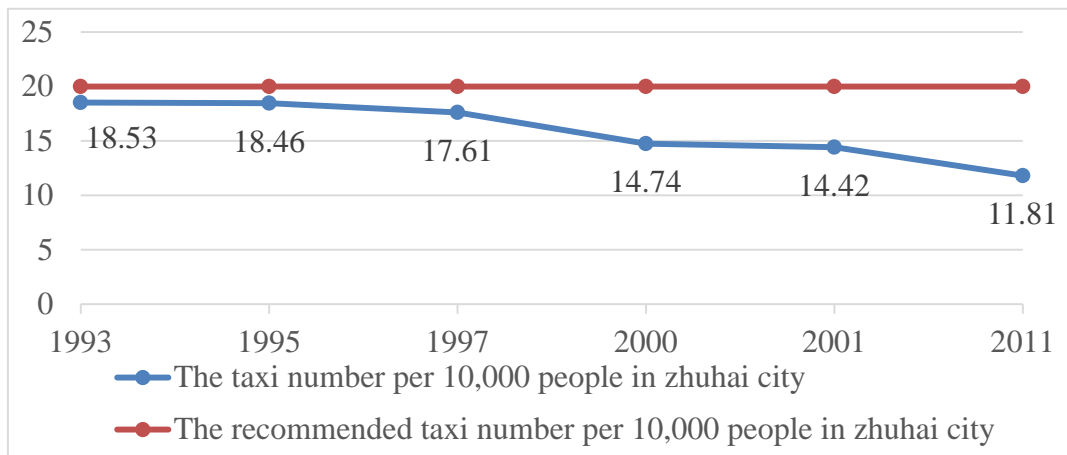


Fig. 3 The Taxi Number per 10,000 People In Zhuhai City

Source: Taxi Association, Zhuhai Statistics Bureau Public Network

In 2011, the taxi number per 10,000 people in Zhuhai City was only 11.81, lower than the 20 recommended by the Ministry of Housing and Urban-Rural Development. The real load rate of taxis in Zhuhai City in September 2011 was 83%, much higher than the reasonable 70%. At this stage, the interests of the three parties were relatively balanced, but there was still a contradiction between the scarcity of licenses and the growing demand for transport capacity, thus forming a difficulty of taking a taxi and the increasing license rent.

The second phase of the taxi licence policy shock period - License Split (2012-2015). In August 2012, the Zhuhai Municipal Government proposed a "license split" reform policy. 200 licenses were split into root and sub-licenses, and the maximum price of the license was 3,300 yuan per deputy. The split licenses were not transferable. In 2012 and 2013, 635 new taxis were added. In 2014, the license split did not continue, but the demand continued to increase, So 800 licenses were issued through tenders, stipulating that they were prohibited from being transferred. In September 2015, the third license split increased 400 licenses.

Table. 3 New additions to taxi licenses in Zhuhai City (1993-2015)

years	The Number of Increased licenses	The Number of split licenses	The number of Increased split licenses
1993	1449	/	/
1995	193	/	/
1997	145	/	/
2000	35	/	/
2001	30	/	/
2012	/	153	303
2013	/	174	332
2014	700	/	/
2015	100	200	400
Add total	2652		1035

The license split policy eased the shortage of taxis in Zhuhai City, and the number of taxis reached the standard of 20 taxis per 10,000 people in the Ministry of Housing and Construction (see table 4), which improved the non-competitiveness of license plates.

Table. 4 The Taxi Number per 10,000 People in Zhuhai from 1998 to 2015

1998	2001	2006	2011	2012	2013	2014	2015
17.5	14.7	12.9	11.8	13.7	15.7	20.5	22.7

Phase III Taxi Policy Reform Period in the Background of Online Car-Hailing (2016-present). The license split policy effectively alleviated the dilemma of insufficient taxi capacity. However, with the rise of the network-based car led by Didi in 2015, the taxi industry turned from insufficient capacity to excess capacity, and the no-load rate rose sharply. Zhuhai City set up the taxi fare increase policy on December 1, 2017. The taxi fare has been fixed from 1996 to 2017 and has not been adjusted for 21 years. The cost of fuel and labour costs has been rising under inflation. Therefore, the policy has its merits. The average daily operation income experienced a downward trend in 2016. It began to rise slowly in 2017 and gradually maintained at around 900 yuan. The freight rate adjustment weakened the overall revenue decline rate and guaranteed overall revenue stationery.

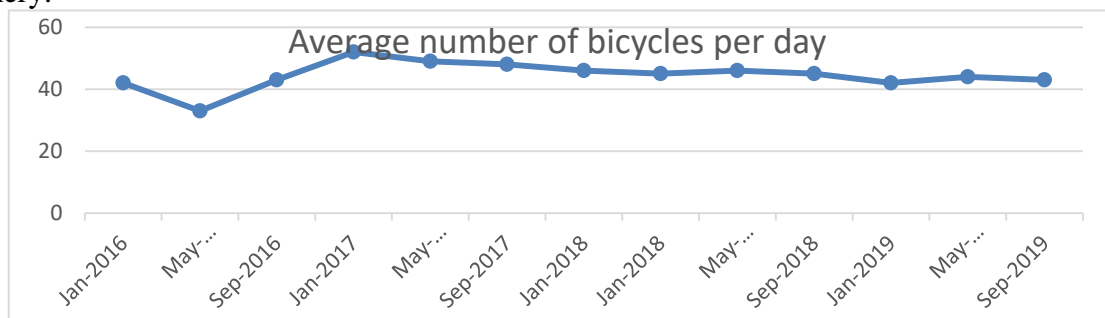


Fig. 4 Changes in the average daily operating hours of taxis from 2016 to 2019

Fig. 4 shows the number of taxi operations started to rebound after the decline in May 2016, and gradually maintained between 40 and 50. There was no sharp decline in the number of operations because of the adjustment of the freight rate in December 2017, which can reflect the exclusive characteristics of quasi-public products of taxi licenses.

4. Analysis of the difficulties of the taxi license policy in Zhuhai City

The market competition dilemma between the online car-hailing and the cruise taxi. In 2015, the online car-hailing car entered Zhuhai, which impacted the profits of the taxi industry. The no-load

rate data of taxis in Zhuhai has risen from about 26% in the past to 39%, and the revenue of taxis has also declined.

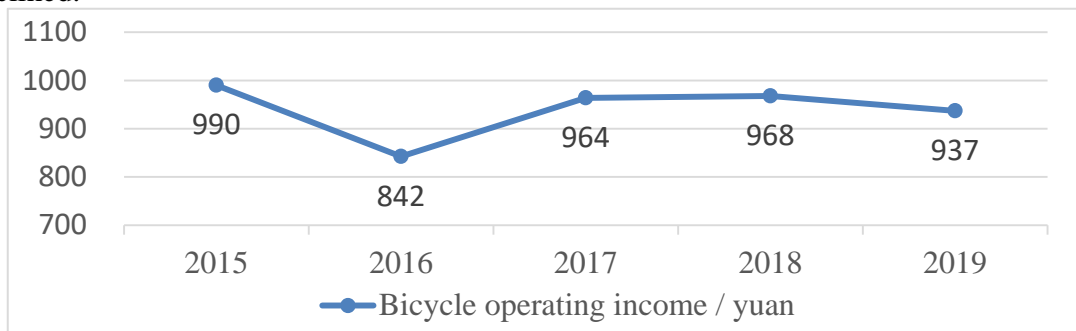


Fig. 5 Zhuhai City Bicycle Day Operating Income from 2015 to 2019

The competing situation of the online car-hailing and the cruise taxi has shaped, but this cannot be the reason for banning taxis. The taxi market is only a man-made monopoly market. The trend of releasing the market is obvious, so the two have a long-term compatibility and competition. They have shown a certain dislocation. Cruise taxis satisfy the demand in the form of randomness along the way, while the network car meets the demand for the reservation. The price of the taxi is slightly lower than the net car in the long run. Taxis are not luxury, while online car-hailing has a higher ride comfort requirement. The cost structure of the two is different. For example, there are a large amount of subsidies for the network platform in the early network car. Most of the network cars are private cars, the purchase cost is low. They also don't need to pay various management fees. So there is no relatively fair competition environment between the two.

Difficulties in the distribution of income between license owners, taxi companies and drivers. Zhuhai taxi operating income can be divided into three main categories: license rent, taxi management fees and driver personal income, thus forming three major stakeholders: license holders, taxi companies and taxi drivers, and the government has changed from a real operator to a supervisor.

In the tripartite relationship, the biggest profiteer is the person who first auctioned the transfer license. The current license holders have been transferred to obtain a license, and the taxi license rent has not changed much within the contractual deadline. The management fees collected by taxi companies include fixed fees such as taxes, and the companies' profit is stable. The biggest victim is the taxi driver, under excessive pressure on the license rent and the reduced taxi turnover. Taxi drivers are at the core of the entire taxi industry. The reduction in income has caused some drivers to stop working in the profession, reducing the market operation capability. It's not conducive to the continuous operation of the taxi industry.

In the subsequent two rounds of license reform, some sequels have emerged. First, the decline in the rent after license split has reduced profits for licensees. The purpose of license split is to meet the demand for increased taxi capacity. It also is to return the license to its market price, while ensuring that the interests of the original license holders are not impaired. However, the license split under the impact of the network car did not achieve the expected results. It can be seen from Fig. 6 that the monthly rent of the license plate in Zhuhai is in a cliff-like downward trend. Under the influence of inflation and other factors, the license rent of Zhuhai City is from 6038 yuan fell to 2190 yuan.

Second, the adjustment of the freight rate in December 2017 only temporarily slowed down the decline in taxi drivers' income. The approach improves operational efficiency within a limited operating space. The government stipulated that the state-owned taxi enterprises charged the taxi driver a fixed fee, so the operation amount most of the profits have flowed into the hands of drivers, and their average monthly income has increased accordingly. However, under the trend of declining operating income, the driver's income has not improved much. In Fig. 7, the blue curve shows the change in taxi driver wages, and the red one is the change in the average wage of employees in Zhuhai. In 2015 the blue curve exceeded the red one, but it fell to below 1,000 yuan one in May

2016. It is only in December 2017 that taxi wages began to approach the average wage of employees in Zhuhai, due to the freight rate adjustment.

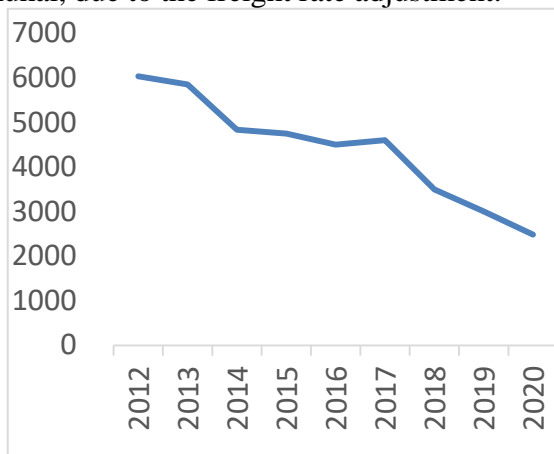


Fig. 6 Zhuhai City License Monthly Price

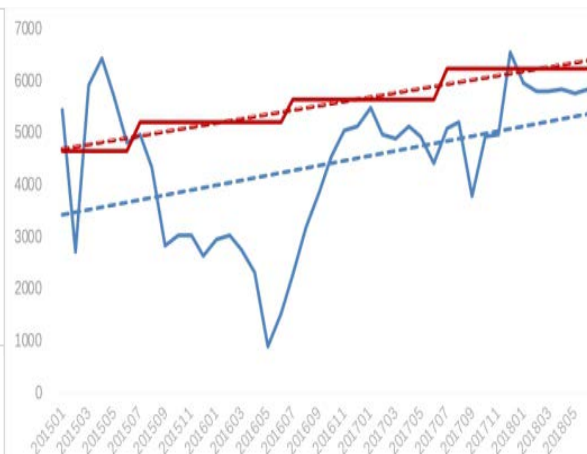


Fig. 7 The change in taxi wages and average wage of employees in Zhuhai (2015.1-2018.6)

The dilemma of government roles between regulators and maintainers. The private holding rate of taxi operating licenses was as high as 86%. With the increasing demand for taxis, a sharp rise in the value of taxi licenses has severely squeezed the overall income distribution of the taxi industry. The government reversed this situation with the role of a regulator and restricted the license rent. But it was difficult to achieve the necessary intensity. The network car made the original imbalance of interest distribution more prominent. The license rental price fell rapidly with the license split policy, while the driver's income was shrinking. Taxi cars invested by taxi companies in the early stage are idle due to the reduction of drivers. The industry need to effectively maintain stability. Therefore, the government faces different and conflicting demands from the parties.

Regulatory roles need to respect the market rules to govern the taxi market and moderately deregulate. However, the stability role need to stabilize the declining income of the taxi industry, thus ensuring a moderate balance of interests. The government is facing conflicts of roles and must be some trade-offs.

5. Measures

Moderately control the total scale of urban network vehicles and build a fair and orderly competitive environment. The online car-hailing has grown rapidly since 2015 and brings public safety risks. Compared with the taxi industry, it is not in a level playing field with existing taxis. The original parade taxi industry has access control, quantity control, price control and service control. However, due to the lag of regulation, it is often unable to reflect the market dynamic demand in time, and the urban traffic capacity is limited, the driver's handover, traffic congestion, driver and passenger supply and demand information asymmetry and other factors are prone to the peak period. At the same time that it is difficult to take a taxi, the taxi drivers are still complaining about the high vacancy rate, hard work, and high license rent and low-income.

Moderate burden reduction for the taxi industry to enhance the competitiveness of the taxi industry. Although the comprehensive management fee for the taxi industry has been decreasing, it has become the main cost of expenditure in the taxi industry. The survey found that social security fees have become an important aspect of comprehensive management fees. Take the city's household registration as an example, according to the comprehensive management fee (excluding license rent) given by the rental car association, take social security premiums paid by 3 people per vehicle as a calculate unit. It shows the proportion of social security contributions each to the total administrative expenses as follows.

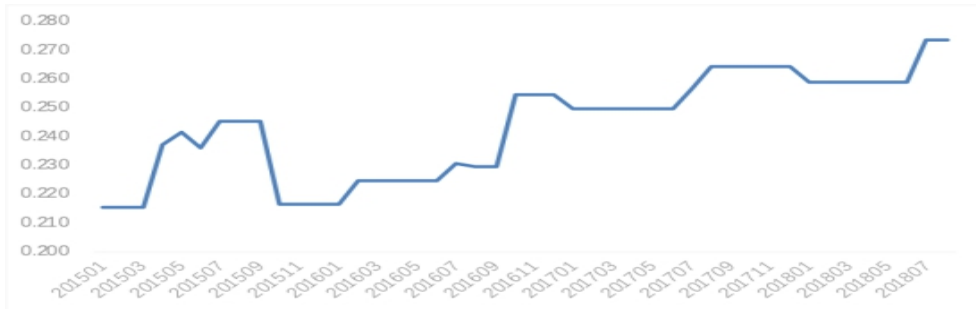


Fig. 8 Proportion of social security paid by drivers (3 persons) to total comprehensive management fees (excluding license rent)

Since 2015 the social security contribution amount of each vehicle has been maintained at 21%, and has risen to 26% after 2017, having a continued upward trend. The investigation found that some drivers did not register for employment, evading payment of social insurance premiums. Some drivers have already paid social security in other places, so they want to selectively pay other expenses such as work injury insurance and unemployment insurance. Therefore, taxi drivers can selective purchases if they buy corresponding social security in other places, to moderately reduce the burden.

Vigorously rectify traffic congestion, making taxi utilization more efficient. Urban traffic congestion affects the increase in operating costs of taxi taxis. Although the cost of congestion waiting time is considered in the billing standard of freight rate, the opportunity cost because of long-term waiting is also increased. The gain from congestion charging cannot balance the cost of overall loss, even higher costs at no load. The emergence of online car-hailing and traffic congestion have a strong impact on taxi drivers. Congestion reduces the efficiency of taxi operations per unit time, and also affects the number of operations of a single taxi, as shown in Fig. 9.

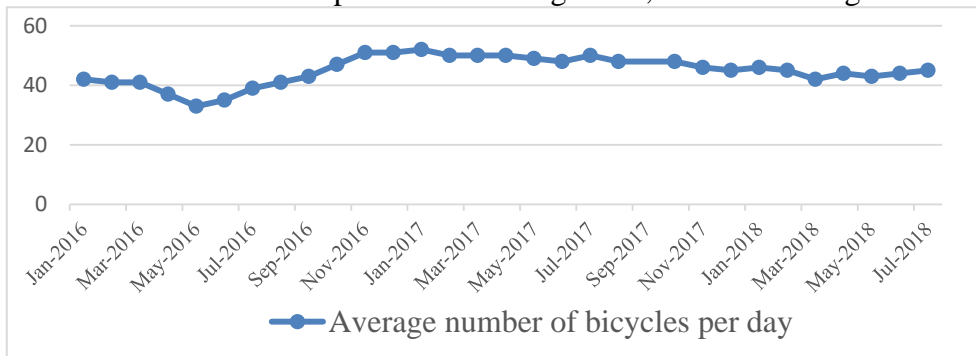


Fig. 9 Average number of bicycles per day from 2016 to 2018

The number of daily operations of taxis has changed drastically. After a sharp decline in May 2016, it began to decline periodically, showing a trend of slow decline in the number of operations. Although the decline in the number of operations is mainly related to the rise of the online car-hailing, the number of car-related vehicles in the late period has been maintained at a high level, the number of operating vehicles is still slowly decreasing. This also indicates that the congestion factor has an impact on the number of operations.

Therefore, the traffic congestion situation will be moderately alleviated, and the revenue of the taxi industry will increase, slowing down the decline in taxi license rents. In the future, it can be considered to open a bus lane to the taxi in the morning and evening peaks to ease the taxi travel pressure.

The government considers choosing the right time to repurchase the taxi license. The two most important factors determining the value of a taxi license are the average growth rate of taxi license rental prices and the return on investment expected by investors. In reality, the average growth rate of rent prices is negative and has a tendency to accelerate. This study collects rent-related data over the years and predicts the average annual rent of taxi licenses based on time series, as shown in Fig.

10. Without external influences, factors such as the license split policy and online car-hailing have led to a decline in taxi license rents like Fig. 10, in line with the state's policy guidance for the abolition of paid royalties. It is conducive to the government's reinstatement of control rights, allowing taxi licenses to return to the attributes of quasi-public goods, and breaking the mystery of privately held licenses. Therefore, choosing the most rapid decline, and the investor's expected rate of return has not been significantly reduced to repurchase, to achieve the maximum repurchase effect with the least amount of funds.

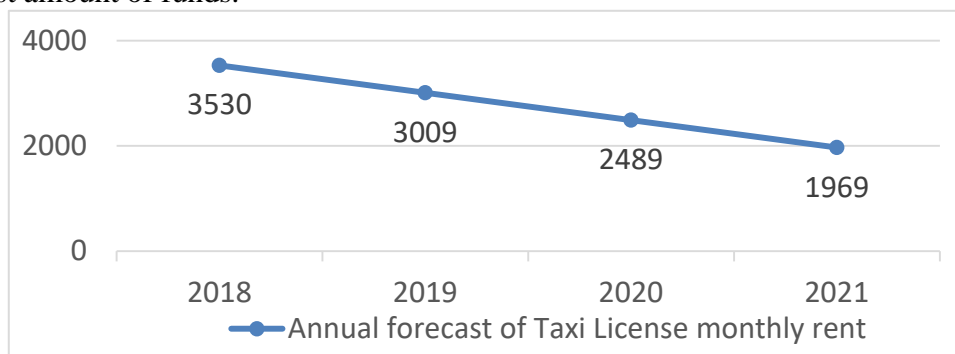


Fig. 10 Annual forecast of taxi license monthly rent (2018-2021)

6. Summary

Tradable license is an exchangeable commodity, the value of which fluctuates with the market. The value of the taxi license is depreciated year by year, and the higher the return on investment expectation under different return on investment, the greater the depreciation of the value of the taxi license. With the natural changes of the above factors, the trend of the monthly rental price of taxi licenses is inevitable. In order to stabilize the taxi industry market and balance the interests of taxi license owners, taxi companies and taxi drivers, government must take some measures.

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