

# Exploring the Market Opportunities of Motorway Service Areas (MSAs) in China – Based on Customer Satisfaction and Expectation

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**Abstract** There are approximately 2000 motorway service areas (MSAs) in China, of which roughly 1/3 is profitable. It is a special economic entity, playing the combined role of providing public welfare and pursuing economic benefit. Long-term Monopoly management and neglect of customer have brought bad name for the MSAs. In the trend of state owned economy's withdrawing from the emulative domain, the operators of the MSAs have to learn about their customer, the challenges and the opportunities there exist. This study investigates the marketing opportunities and challenges of Chinese Motorway Service Areas based on the service quality of Motorway Service Area and the customer satisfaction of motorists and passengers.

**Keywords** Customer Satisfaction, Market Opportunity, Motorway Service Area (MSA)

## 1. Introduction

Defined by Bawden F, et al. (2013), the Motorway Service Area (MSA) is commercial zone on the motorway, providing motorists and passengers with diverse services, including refuel, rest, catering, etc. According to the standards of the general specification of freeway traffic engineering and roadside facilities (JTG D80-2006) issued by Ministry of Transportation, Motorway service areas (MSAs) are essential facilities on the roadside of motorway, and places where drivers can leave a motorway to refuel, rest, eat and drink, use toilet, check the vehicle and get some maintenances to make sure a comfortable and safe driving. The regulation also stipulates that the average distance between adjacent MSAs should be less than 50km.

The facilities similar to or same with MSAs are named differently. For example, it is called motorway service areas, service stations or services in United Kingdom. While it is called rest areas, travel plaza, rest stop, or service in other countries (Wikipedia). The management systems vary from country to country. In the UK, the majority of motorway service areas are privately owned and managed by 3 major operators. In the United States, rest areas are typically non-commercial facilities that provide, at a minimum, parking and restrooms. Some places even have laws to explicitly prohibit private retailers from occupying rest stops.

In China, the investment and management of the motorways are delegated to the provincial government (Notice issued by the State Council, 1992). The major motorways are toll ways at provincial level, built by provincial Motorway Group which are state-owned companies and have the ownership of MSAs. Among the companies within the group, the company which is responsible for the road construction has the right to operate the motorway service area. Therefore, MSAs are regarded as the extension of the motorway industry or motorway sideline, and the state-owned property. But according to the document about the improvement of the service in the MSAs (NO.198 [2014] issued by Ministry of Transportation ), it is explicitly proposed to construct a fair market, improve the franchise and the other relevant constitutions, and encourage the private capital to invest in the commercial project such as cantering, convenience store, hotel, vehicle maintenance, gas station. Now some private companies have already operated some MSAs or some types of business in MSAs by contracting.

During recent years, motorway infrastructure has been developing quickly. By the end of 2013, the mileage of motorways open to traffic reached 104,400 kilometers (Chinese Year Book, 2014). It has been estimated that the total mileage of motorway in China will reach to 118,000 km from 2013 to 2030 (National Motorway Network Plan, 2013). So MSAs will emerge in large numbers in the near future (Xu, 2007).

China's motorways are fully enclosed Turnpikes. Toll booths are set up at the motorway entrances and exits. So the vehicles cannot leave the motorway between the two toll booths. Consequently, the products and service in MSAs can

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in some extent be monopolistic. Meanwhile, due to inflexibility of management mechanisms of the state-owned enterprises, and unawareness of service and brand, it is normal that MSAs are dirty, chaotic, with poor quality and high-price products (Tao, 2014; Wu, 2008).

According to 'CCP Central Committee's Decision on some Major Issues in Comprehensively Deepening Reform' in 18th National Congress of the Communist Party of China (CPC), State-owned assets' withdrawing from emulative domain is an inevitable trend. Therefore, the state-owned MSAs may be transformed into entities with mixed proprietorship or may be stripped out from the state-owned enterprises. Without the subsidy from the mother company, the state-owned operators should build customer demand-oriented service concept. It is the first step for them to understand their customers. Then, they can find the unsatisfied market, the opportunities, challenges and the direction of improvement in the near future. Also, there are great opportunities for the private companies or retailers and to know the status quo of the satisfaction of the MSAs. This paper aims to collect information about the market of MSAs and analyze the market opportunities for the state-owned MSA operators, the private companies and retailers.

## 2. Theory

There are fewer literatures about the service quality and customer satisfaction of the MSAs in English. Two academic literatures that the authors can get are about the Financial Viability (Tsamboulas D., et al., 2006), and the reasons clients/customers chose to visit MSAs and rental determinants of motorway (Bawden, Freeth, Hempstead, 2013). According to (Tsamboulas D., et al., 2006), the footfall at MSA and the amounts spent by motorists and passengers are the main factors affecting the financial viability of MSAs. Bawden, et al. (2013), used questionnaire of 11 questions focusing on the consumer view such as "How often do you visit motorway service area", "What is the reason for your visit today", "What do you think is missing from motorway service areas" and did 50 surveys to the customer in the MSAs in UK. They also used semi-structured question to make interviews with the managing director and chief executive. This article also proposed that the introduction of popular chains had increased sales at MSAs, and MSAs were becoming an increasingly attractive place for retailers, where the problem of hygiene and cleanliness had ever make MSAs an unappealing places.

Although there are an increasingly amount of literatures about market and management of MSAs in China, the literatures about the customer satisfaction are rare. According to Wu (2008), Chinese MSAs have the attributes of both public welfare and economy. About the functions of the MSA, there is much discussion. Koo, et. al. (2014) and the regulation of Zhejiang Motorway (revision in 2008) suggested MSA relieves drivers from fatigue and stress due

to continuous driving on motorway, meet the physiological needs of the drivers, and offer them chances to refill their gas tanks and to check their vehicles. MSAs have likewise been required to provide additional amenities such as integrated IT services and eco-friendly resting places. Apart from this, scholars consider that based on the huge footfall, MSAs should take responsibility for showing local image and economy as a window (Xu, 2004).

In China, the gas station operators are overwhelmingly monopolized by 2 largest state-owned groups both in and outside MSAs. So it makes little difference for the gas station. Therefore, the survey is focused on the consumer products and the relevant services. Due to the lack of literatures about customer satisfaction of the MSA, this study borrowed some indicators from Bawden, et al. (2013), and the factors and indicators of customer satisfaction in the section of catering.

The earliest study of customer satisfaction could be originated from 1960s. Cardozo (1965) found that the increase of customer satisfaction would attract customers to return, which would not only increase the possibility of buying products but also promote word of mouth publicity. Gronroos (1982) presented a comprehensive theory of the perceived quality of service. He believed that customer service quality evaluation was depended on their subjective feelings. The evaluation criteria actually were the comparison between the expected quality service and the actual experience. Parasuraman (1988) defined satisfaction as the function the quality of service, product quality and price. Westbrook and Reilly (1983) believed that customer satisfaction is customer's mental status coming from the comparison between product or service consumption, consumption behavior, and customer's expectation.

Main factors that influence the customers' satisfaction level for catering are as follows:

**Surroundings** Creating unique and comfortable environment will bring better enjoyment to the customers and increase the customers' satisfaction level, which improve the competitiveness of MSA Fast-food restaurants. These unique surroundings include sanitary conditions, light, music and layout. (Yuan, et, al., 2011)

**Meal quality, price, taste** According to Tao (2011), customers' satisfaction on price, taste and quantity have positive effect on the entire satisfaction.

**Service** For restaurant, good attitude will make customers feel comfortable; the staff efficiency plays an important role in the customers' waiting time. Only if the restaurant's entire service efficiency is improved, the customers' waiting time can be reduced, which will help to decrease customers' complaints and increase the satisfaction level. (Tao, 2011)

Wu (2008) suggested the problems of MSAs be fragmented layout, uncoordinated buildings' color, noisy environment and unsanitary toilet. Mo (2008) found that product variety is not rich and there are less than 20 varieties of local specialty and meal in more than 35% stores in MSAs.

### 3. Research Methods

#### Interviews

The surveys were implemented from April to December in 2014, before and after the making up of the questionnaire. 4 professors and one research assistant had 3 meetings with the top managers of Zhejiang Expressway Investment and Development Corporation, which manages 14 MSAs in Zhejiang Province. And the research group also met with the director, one of the vice directors, and some staff of Chang'an, Jiaying, Shaoxing, Yuyao, Shengzhou MSAs on site.

#### Survey indicator

According to the types of operation in MSAs, the ideas of the managers of the company, indicators used to survey the customer in MSA in UK (Bawden, et al., 2013), and the theories of customer satisfaction, the indicators to assess the satisfaction of Chinese customer of MEAs are:

##### *Survey indicators about customer satisfaction (12 items)*

Toilet sanitation, Service, Product quality in the store, Product variety in the (convenience) store, price in the store, Price in the restaurants, Taste of the meal in restaurant, restaurant sanitation, snack sanitation, snack price, snack variety. 1 and 0 are used to represent satisfied or not to these indicators. Demographic indicators are gender (0 represents

female, 1 male.), age, and income. Age and income are fallen into 5 tiers respectively. Satisfaction degree is defined as 5 levels: Extremely dissatisfied, dissatisfied, fine, satisfied, extremely satisfied, respectively, ranging from 1 to 5. 1 means extremely dissatisfied and 5 means extremely satisfied. At the same time the stay times per year in MSAs and the length of stay each time are put into the questionnaire as multiple choices.

**Expected improvement and service (20 items)** Just like in Bawden, et al. (2013), the question “What do you think is missing from motorway service areas?” was asked. Combining the common marketing tools in Chinese market and the economic condition, the survey listed more than 20 items for the responders to choose. The items are MSAs membership card, discount, electronic games, local specialty, world famous brand discount store, direct sale store of the Zhejiang factories, famous retailing store, special souvenir, special gift, ATM, light of the restaurant be improved, larger recreation area, aesthetics of MSA design, free Wi-Fi, premium for the regular client, sweepstakes and other promotions, cultural and historical miniature landscape, horn banning, provide relaxing place, expand the greenness, display the local special history, the special architecture, add music, group-buying.

**Table 1.** Interviewee profiles

Brief company description	Position
<p>Free parking, free restroom, free water for auto, free hot water, gas, vehicle maintenance, and convenience store etc should be available for 24 hours per day because the MSA is responsible for the public welfare to the drivers and passengers.</p> <p>The restaurant is mostly operated by the state-owned companies because of the food safety and some international brands such as McDonald's were introduced into the MSAs.</p> <p>Most snacks are leased to the private company or individual.</p> <p>Because of the large footfall, it is hard to keep the parks and restrooms clean. Some MSAs do harm to the reputation of the whole MSAs because of the price, product quality, and hygiene. While it is the chance to build up the brand of some services or MSAs. At the same time the large amount of footfall is the important resource of the company, but it is far from been exploited. For example, some MSA such as Jiaying, the average vehicle pulling over each day is about 10,000.</p> <p>Many private companies get into the business of MSA by renting the whole MSA or contracting some business such as book stands, local specialty.</p> <p>The state-owned the MSA management company can also bid to contract the MSA operation in other province. Owing to the background of state-owned capital, they are more trustworthy. But their marketing capacity is poorer.</p> <p>The large footfall is the vital resource but the most profitable business is gas station. Except for the gas station, above 80% of the sales revenue comes from food. The other markets need to be explored.</p> <p>There are many development opportunities for the employees because the company has already expanded their business to other provinces by contract.</p>	General manager and 2 vice managers
<p>Safety is a very important indicator by which the company evaluates the managers of the MSA.</p> <p>It is hard to hire the high-quality employee because of the isolation and remoteness.</p> <p>The cost of taking the public responsibility is very much, for example, the service of cleanness, security, free parking, free water, even free shower for the truck driver in the summer and so on.</p> <p>Meal is a vital attractive factor for the old customers. Many of them stop in some MSA on purpose for some kind of food.</p>	5 Directors of MSAs
<p>The working atmosphere is good. They can get many times of training in one year about safety and service skill.</p> <p>There're many investigations from the higher- levels.</p>	8 Staff of MSAs

Table 2. Correlation Coefficient

	Age	Gender	Income	times	Length per time	Satisfaction degree	Toilet Sanitation	Service	Store product variety	Store product quality	Price of meal	Meal Taste	Restaurant Sanitation	Snack variety	Snack price	Snack sanitation	Price in the store
Age	1																
Gender	.164**	1															
Income	.139**	.305**	1														
Times	.072*	.251**	.295**	1													
Length per time	.158**	.120**	.132**	.185**	1												
Satisfaction degree	.062*	.074**	.064*	.089**	.093**	1											
Toilet Sanitation	.058*	.020	.016	.045	0.012	.069*	1										
Service	.025	-.041	-.058*	.082**	0.012	.154**	.021	1									
Store product variety	-.030	-.035	-.017	.067*	.070*	.089**	.068*	-.013	1								
Store product quality	.007	.027	.054	.080**	0.003	.084**	.105**	.077**	.206**	1							
Price of meal	.062*	.112**	.094**	.113**	.106**	.093**	.020	.013	.136**	.165**	1						
Meal taste	.084**	.077**	.064*	.087**	.083**	.181**	.004	.077**	.026	.031	.122**	1					
Restaurant Sanitation	.034	-.034	-.005	.002	0.045	.149**	-.038	.096**	-.005	-.001	.108**	.180**	1				
Snack Variety	-.025	-.050	-.004	-.017	.058*	.068*	.028	-.033	.113**	.089**	.063*	.028	.085**	1			
Snack price	-.044	.001	-.032	.000	0.009	.074**	.028	-.007	.050	.116**	.066*	.060*	.093**	.216**	1		
Snack sanitation	.054	.040	.013	.012	0.039	.067*	.085**	.049	.105**	.145**	.092**	.114**	.122**	.205**	.280**	1	
Price in the store	-.036	.019	-.002	.081**	0.044	.062*	.072*	.032	.165**	.171**	.126**	.080**	.046	.057*	.124**	.098**	1

\* ,p&lt;0.05; \*\* ,p&lt;0.01.

### Data collection

From May to July in 2014, 2000 pieces of questionnaire were passed out to the 10 MSAs located in Zhejiang Province under the help of Zhejiang Expressway Investment and Development Corporation. In order to motivate responder to fill out the questionnaire carefully and accurately, MSA coupon valued at ¥5 was given to the responder who finished one survey. This coupon can be used as cash in MSA. Coupon and staff of MSA delivering questionnaires might increase customers' satisfaction level. Totally 1283 questionnaires were collected. Incomplete and substandard questionnaires were filtered out. 1239 qualified questionnaires were analyzed further.

## 4. Research Results and Discussion

### Descriptive analysis

According to the frequencies of staying in the MSA per year, 56% of total passengers stopped over for 5 times or less; 13% stopped over ranged from 6 to 10 times; nearly 30% stopped over more than 10 times. According to the age, the proportions for less than 30 year-old, 31 to 40 and 41 to 50 are 24%, 43.7% and 26.7%, respectively. Passengers who were over 51 years old accounted for 5.6%. The gender ratio of man to woman was about 2:1. In terms of passengers' monthly income, passengers with ¥5,000 or less accounted for 68.4% of total passengers; monthly income ranged from ¥5,000 to ¥10,000 accounted for 20.5%; 11.1% of passengers had a monthly income over ¥10,000. Regarding the length of stay, 56.6% were staying for ¼ hour to ½ hour; Passengers who stayed above ½ hour to 3 hours accounted for 23.2%; 91.2% of passengers stayed under ¾ hour. Mean satisfaction degree is 4.

### Top 10 Items that customer wants

Top 10 items are expected to be improved or provided: free Wi-Fi, music, larger recreation area, aesthetics of MSA design, sweepstakes and other promotions, special souvenirs, membership card, cultural and historical miniature landscape, famous brand discount store, famous retailing store.

### Correlation analysis

ALL the Factors significantly related to satisfaction. (See table 2)

### Discussion

During the recent years, MSA also has been equipped with other functions, including tourism, entertainment, shopping. MSA itself is a special industry which has great potential to be explored urgently. As of the composition of MSA business, dining and using toilet are the largest businesses. Dining service is the core of the MSA business, which also represents the management level of MSA managers. (From the operators of the MSAs)

Previously the operators of the MSAs thought that the customers of the MSAs were the one-off ones. So the sanitation and the product quality in the MSAs were not concerned. The need was thought to be rigid and the

customers would not be expected to return. Complaint cost was very high even if they encounter the unqualified products or be charged for much higher price. So in the publics' mind, the product and service is very poor and people may be cheated when they consume in the MSAs. Passengers are driven by physiological and basic needs, such as eating, toileting, tank refueling and car fixing. Thus, the commercial features of the MSAs are far from being developed, and the time value of the passengers is far from being fully achieved. Nowadays, the government has realized that the MSAs are the windows of the local culture, economics and civilization. So many provinces put the safety, sanitation, management as performance indicators for the state-owned companies who have the equity of MSAs. Therefore, the operators have paid more and more attentions on the safety, sanitary and efficiency of the MSAs. And in the MSAs run by the state-owned companies, the basic food in the store such as bottle water and constant noodles and so on are at the same price with the supermarket outside the MSAs. But most of the potential customers and publics have not known that because of the long bad reputation of MSAs. The bad name has already stopped publics attempting to access the service and products in MSAs. Many people buy food before they depart to avoid buying in MSAs. The big challenge for the operators is that how to make the improved service and good product known by the potential customers and publics. Other difficulty is that some MSAs are rent by the private companies and they have the great motivation to pursue short-term profit. This can to some extent add the difficulty to build up the reputation for the state-owned companies because the public can't distinct the MSAs. They think all the MSAs are similar. But more and more state-owned companies realize the importance of building MSA brand (Above information is got from the interview with the top managers of the company).

From the statics we can see that among those surveyed, more than 30% stop over more than 10 times per year. There is a very good opportunities to build brand and customer loyalty. But nowadays the basic condition should be paid more attention such as toilet sanitary, service, taste of meal. At the same time, strengthen the publicity. Make the concept and improvement of the MSAs accessible to the public.

From table 2, we can see that the length of stay per time is significantly related to satisfaction. Maybe more satisfaction can cause the longer stay and then more purchase. Maybe the satisfaction makes them stay longer and more. Only when they stay, can the operators have chances show their improvement to them and make them consume. Now in one MSA 91.2% passengers usually stay for less than ¾ hour. From the surveys, we can learn the passengers expect the MSAs provide free Wi-Fi, music, larger recreation area, design aesthetics of design, promotion and membership card. As the improvement of living standard, the passengers propose higher requirement to the MSAs. They want to relax and be regenerated through staying in MSAs. At the same time, they want to bring home some special gift or souvenirs to make full use of the stay time. But the service, layout,

aesthetics, specialty of the MSAs are below their expectation.

## 5. Recommendations

### Recommendations For the state-owned companies who operate the MSAs

It is trend that the state owned service sector will take part in the market competition. For the state-owned operators of MSAs, learning the characteristic of the customer and their requirement is very important. At the same time, analyzing the opportunities in the market is also vital for the future decision. One of the important strength of the state-owned company to compete is the financial capability. Comfortable hardware and environment is the first move to attract motorists and passengers to stay longer or attract the private company to rent. According to the information from customers and the company, the following fields should be paid attention to:

1. Improve customer experiences, including customers' feelings of sounds, smells, visual sense, tactile and other sensory in MSA;
2. Provide fitness, massage, games and other recreation facilities in order to attract passengers' participation;
3. input more to improve the sanitation and service level;
4. Propagate their consciousness of responsibility to the republic.

For the operations, several strategies should be considered:

#### 1. Build MSA Management Brand

The ability to provide good public services and plan the variety of services in MSA is the vital capability of MSA operation and management. On this basis, the company can contract for other MSAs, achieving economies of scale, as well as providing management consulting services for other companies with MSA business. It is one direction for the state-owned MSA operation company to improve itself from the infrastructure supplier to be a management supplier.

#### 2. Create Restaurant Chain Brands at MSAs

According to Liu (2013), concentration ratio of China's top 100 catering enterprises was between about 7% in recent years. US's top 100 catering enterprises accounted for over 20% sales of total American catering market sales. That indicates that restaurant with brands are more likely to achieve business growth and increase market shares.

Advantages of Developing Catering in MSAs are obvious. MSAs have great geographical advantages. The large amount of footfall lays a solid foundation for brand creation. MSAs can rely on the motorists and passengers to increase brand awareness and influence. Requirements of convenience and safety have become a good way of creating unique advantages because of the limited stay length. Therefore, the unique demand of customer in dining becomes one of the sources of brand uniqueness.

State-owned Companies operating the MSA can take advantage of the current dispersed market, fully carrying

forward the advantages of local features, to create the brand with uniqueness.

#### 3. Create Convenience Store Chain

Developing convenience store chain in MSAs has great potential because of the advantage of the logistics, large footfall. As the supporting service facilities of motorway, MSA has unique advantage on meeting the immediate needs of motorists and passengers. Meanwhile, since the required space is small, the profitability per unit area of MSA can be increased. Compared with the supermarket and shopping mall which are greatly influenced by E-commerce, convenience store has been paid more and more attention by the E-commerce companies because there are big cooperative opportunities. Therefore, state-owned companies with MSAs can create convenience store chain in MSAs and try to expend the brand off the MSAs.

#### 4. Create Localized product Brand

MSA operators can cooperate with local companies with distinctive products, to create localized brand in MSAs. For example, in Jiaying MSA, Traditional Chinese Rice-pudding with the brand Wufangzhai goes to fame with the increasing footfall of Jiaying MSA. But, the brand equity is owned by producer. While, MSA operators can think about creating their own brands by utilizing the great amount of footfall at MSAs.

#### 5. Optimize the varieties of services and products in MSA

Increase the categories of affordable products for the passengers to reduce the relevant time of on-line shopping and shopping activities outside MSAs. Launch membership card to the passengers who stay over frequently, improve their feeling of being taken seriously; Provide design and products with local and historical features, give passengers opportunities to broaden their horizons. All in all, the MSAs should pay more attention on the consuming experience of the customers.

### Recommendations For the private MSA operators

State-owned MSA operators will also participate in other MSA business tender, where they don't have any property right. Therefore, relying on high prices and monopoly can keep a long-term competitive advantage for private operators. Furthermore, statistics show that 40% of motorists and passengers will stop in a MSA for 5 times in a year, but the service and products price issues will inhibit their purchase. Therefore, private operators should pay more attention to the long term profits, formulate a reasonable price and create good atmosphere, in order to stimulate customer consumption. At the same time, private MSA operators can consider to cooperate with State-owned MSA operators to contract for more MSA businesses, exerting the capabilities of marketing.

### Recommendations for the retailers

For the retailers who are currently doing business at MSA, they face the challenges from both customers and the competitors. Along with the growth of the service awareness,

the owner of the MSA will tend to choose the retailer with good quality and service not just considering the bidding price. Meanwhile, in the era of information, the lower level of the product quality and service, or the unreasonable prices will bring great negative impact and a bad name will be widely and quickly spread out through social media. Therefore, the retailers should realize the advantage of monopoly is not permanent and should improve their products quality and service level, so that they can achieve long term operations and prevent themselves from being replaced by the competitors.

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