

Research on the Evaluation of Professional Market Service Quality ——Take Yiwu China Commodity City as an example

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Abstract: This paper uses the service quality (SERVQUAL) scale as an analysis tool to construct a professional market service quality evaluation index system, including 22 question items in 6 dimensions of tangibility, reliability, assurance, empathy, e-commerce, and logistics service. Based on this indicator system, this paper conducts a questionnaire survey on the service quality expectations and perception values of Yiwu China Commodity City, and uses the weighted SERVQUAL evaluation method to calculate the overall score of Yiwu China Commodity City's service quality. The research results show that the service quality scores of 6 dimensions are all negative, especially the logistics service and empathy dimensions have very low scores. The overall service quality score of Yiwu China Commodity City is -0.8092, indicating that its overall service level is lower than the expectations of stall tenants. In terms of percentages, the market service quality level can only reach 79.77% expected by merchants. Therefore, it is necessary to further improve market infrastructure, standardize market operation and management models, promote the development level of e-commerce platforms, optimize logistics service systems, enhance the service quality and capabilities of market administrators, and strengthen the brand developing strategies of professional market.

Keywords: Professional market; Service quality; Evaluation system; Yiwu

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I. Introduction

Since the reform and opening-up, China's professional markets have developed rapidly and become the fastest growing and largest type of commodity circulation industry. At the same time, with the emergence of new business forms such as e-commerce and exhibition economy, the professional market is facing increasingly fierce competition, so it is urgent for professional market to transform and upgrade to a modern commerce service industry. The modern commerce service industry has more service elements, therefore service quality management has become the key to the survival and development of the professional market. By checking the previous literature, research studies on Chinese professional market have achieved great results, mainly including the evolution process, stage characteristics, existing problems and development strategy of professional market, but there are few research studies on service quality of professional market. Therefore, based on the SERVQUAL evaluation method, this article constructed a professional market service quality evaluation index system, and evaluated Yiwu China Commodity City, which is of great significance to improve the professional market management and service level, realize the mutual benefit and win-win situation between the market and the merchants, promote the healthy development of the professional market, and accelerate the transformation and upgrade of the professional market.

Researches on service quality began in the 1970s, and obtained many excellent research results. After the 1980s, through the joint efforts of countless scholars, service management has truly become a discipline. Due to the different understanding of the concept of service quality in academia, two representative viewpoints have been formed: the first is to define service quality from the perspective of customer service expectations and service perception (Parasuraman et al.,1985; Heskett et al.,1997), and the second is to define service quality from the constituent elements (Wei, 2005; Cui, 2003). Regarding service quality evaluation methods, there are mainly scale evaluation methods and comprehensive evaluation methods. The famous scale evaluation methods are SERVQUAL evaluation method, SERVPERF evaluation method and Non-difference evaluation method. Parasuraman et al (1988) proposed that the SERVQUAL scale includes five measurement dimensions: tangibility, reliability, responsiveness, assurance and empathy, and organize 22 items to measure the gap between customer

expectations and perceptions (Parasuraman et al., 1988) . In 1994, they extended the original SERVQUAL model to take into account the difference between perception quality and expectation quality, and the difference between perception quality and appropriate quality (Parasuraman et al., 1994) . The SERVQUAL scale has been widely used in the service industry since it was proposed, but its application has also been questioned by many scholars (Teas et al., 1993) . However, most current studies still use this scale for service quality evaluation in all walks of life.

Cronin and Taylor (1992) proposed the SERVPERF evaluation method (Cronin et al., 1992) , which uses only one variable (service performance) to measure customer perceived service quality, because they believe that service results can be measured by directly measuring service perception, and there is no need to compare with customer needs and expectations. There is no substantial difference between the SERVPERF scale and the SERVQUAL scale in terms of the content of the questionnaire design. The five dimensions and 22 question items of the SERVPERF scale are still the same as the SERVQUAL scale. Since only service perception is measured in the SERVPERF scale, the workload of investigation is reduced. However, through the comparative study and analysis of the direct measurement method (SERVPERF) and the difference comparison method (SERVQUAL), it is proved that the difference comparison method has more credibility and application value than the direct measurement method.

Therefore, the investigator should choose an appropriate evaluation method according to the purpose of the survey. If you just want to predict the improvement trend of service quality, the method of direct measurement is obviously the better one. If you want to diagnose the service quality of the enterprise, the differential comparative analysis method is undoubtedly the better one. However, Brown et al. (1993) believe that in the SERVQUAL method, customers' expectations for service will be affected by their previous experience of receiving services, which will weaken the judgment of the difference comparison method. Thus, they proposed a Non-difference evaluation method, which also uses 22 items in the SERVQUAL scale, but only directly measures the compatibility between customer expectations and perceptions(Brown et al., 1993).

II. Construction of the evaluation index system of service quality in the professional market

The questionnaire research in this article includes three stages :1) the original questionnaire was obtained through literature collation, and the preliminary exploratory questionnaire for this study was obtained through a visit to Yiwu China Commodity City; 2) use preliminary exploratory questionnaires to conduct pre-test survey research, and test the reliability and validity of the questionnaire based on the survey results, so as to obtain the formal questionnaire for this research; 3) conduct a formal questionnaire survey with a large sample, and evaluate the service quality of Yiwu China Commodity City based on the survey results.

2.1 Design of original evaluation index

After summarizing the literature and combining expert opinions, this paper designs the original questionnaire for the evaluation of professional market service quality. The original questionnaire is divided into two parts: The first part is the basic information of merchants including going into business time, annual turnover, source of goods sold and sales territory of the goods; the second part is the evaluation project of professional market service quality.

2.2 Preliminary exploratory questionnaire design

Based on the original questionnaire, the authors conducted a visit to Yiwu China Commodity City. The purpose of visits and interviews is mainly based on observations that are closely related to market services. According to the merchant's feedback, the annual turnover option of the merchant's data has been revised, and the items in the original questionnaire that have little relevance to the professional market service quality have been deleted, and some question items have been added to the original basis. At the same time, the wording of the questionnaire was also revised, and most of the previous professional terms were changed to easy-to-understand words. The preliminary exploratory questionnaire adopts the Likert 5-level scale. If the actual performance of the market service management department is very poor, it is expressed as 1 point, and very good level is 5 points. The equidistance between very poor and very good means respectively 2 to 4 points. Similarly, according to the level of concern of the merchants on the service, it is divided into: never caring (1 point), very caring (5 points), and the equidistance between never caring and very caring indicate respectively 2 to 4 points.

Based on the above-mentioned preliminary questionnaire, a pre-test was conducted on Yiwu China Commodity City. The purpose of the pre-test is to make the survey questionnaire more streamlined and effective. The formal questionnaire is based on the pre-test, removing irrelevant factors, summarizing and refining the evaluation dimensions. According to the T-test results, the Sig. values of the 24 question items are all less than 0.05, so it can be judged that they are all significant, and retained in the project analysis. The KMO value of factor analysis test is 0.820, indicating that it is suitable for factor analysis. At the same time, the result of Bartlett's

sphere test is 0.000, which shows a significant level and can be used for factor analysis. In the preliminary exploratory questionnaire, the loading value of factor X23 is 0.406, which is less than 0.45, so X23 is deleted. To make the questionnaire more streamlined and the exploratory factor analysis more feasible, the question item X16 (on the timely and effective dispute resolution) was summarized in X14 (the handling of unexpected events).

Based on the results of this analysis, the preliminary exploratory questionnaire should be revised. After deleting the X16 and X23 options, six main factors were extracted, and the cumulative contribution rate of variance rose to 67.361%. The reliability of each factor was tested again, and the Cronbach a coefficient of the service expectation questionnaire is 0.897, and the Cronbach a coefficient of each dimension is between 0.665-0.819, indicating that the reliability of the questionnaire is good. The factor loading value of each question item is between 0.510 and 0.870, which are all above 0.5, indicating this questionnaire has good validity.

2.3 Revision of the evaluation index system and determination of the formal questionnaire

Through the item analysis and factor analysis of the pre-test questionnaire, irrelevant and repetitive indicators were deleted, and the reliability and validity of the revised questionnaire were verified. The results indicate that the final questionnaire is scientific and pertinent. In the above factor analysis, the scale is divided into 6 dimensions. Drawing on the division of service quality dimensions of PZB (Parasuraman, Zeithaml and Berry), the authors adjusted the coding and order of the question items according to the six dimensions of tangibility, reliability, assurance, empathy, e-commerce, and logistics service. The formal professional market service quality evaluation scale is shown in Table 1.

Table 1 Service Quality Evaluation System of Yiwu China Commodity City

Dimension	New number	Original number	Question content
Tangibility	T1	X1	Market infrastructures such as water, electricity, communication, internetwork, etc.
	T2	X2	The security situation in the market
	T3	X6	Parking service provided by the market
	T4	X9	Small commodity market information provided by the market
Reliability	R1	X3	complete and standardized management system
	R2	X4	Hygienic environment in the market
	R3	X11	The performance of the lease contract in the market
	R4	X12	Reasonable market operation time
	R5	X14	The market properly handles accidents (theft, disputes, complaints, etc.)
	R6	X15	The market repairs damaged facilities in a timely and effective manner
Assurance	A1	X17	The reward and punishment measures of the market management department are fair and transparent
	A2	X18	Corrective measures are timely and effective when the service of the market goes wrong
	A3	X19	Convenient financial loan and currency exchange services in the market
	A4	X22	Market management staff provide services with enthusiasm and courtesy
Empathy	E1	X8	Food service in the market
	E2	X10	Preferential measures for taxation and rent
	E3	X13	The market management department can solve the problems you encounter in time
E-commerce	C1	X20	The market strives to increase visibility and social credibility
	C2	X21	"Yiwugou" e-commerce platform is convenient, fast and practical
	C3	X24	The market provides training and consulting services for opening online stores
Logistics service	L1	X5	The market provides convenient transportation services for incoming and outgoing goods
	L2	X7	The market provides space for cargo storage management

III. Analysis of the basic situation of the samples

The formal questionnaire survey of this research was conducted by zoning survey. Currently, Yiwu China Commodity City mainly includes District 1 to 5 of International Trade City and Huangyuan Clothing Market. In the survey, 300 questionnaires were finally distributed, and 300 questionnaires were returned, 267 of which were valid with an effective rate of 89%. Distribution of questionnaires is: 42 in District 1, 44 in District 2, 41 in District 3, 79 in District 4, 30 in District 5, and 31 in Huangyuan.

In order to understand the basic situation of merchants, it is necessary to first conduct statistical analysis on the background data of merchants. From this survey, it can be found that most of the merchants in Yiwu China Commodity City have been in business for a long time : 50.9% of which have been in business for more than 5 years, 17.6% of 3-5 years, 24.0% of 1-3 years, 7.5% of under one year (Table 2). The annual turnover of merchants is mainly distributed between 3 million Yuan and 500,000 Yuan (Table 3). The merchants who have been in business in Yiwu for a long time have their own fixed customers, therefore their commercial operating efficiency is better than that of the new coming merchants.

Table 2 Duration of business of merchants in Yiwu China Commodity City

Duration of business	Sample size	Percentage (%)	Cumulative percentage
Less than one year	20	7.5%	7.5%
1-3 years	64	24.0%	31.5%
3-5 years	47	17.6%	49.1%
five years and above	136	50.9%	100%

Table 3 Annual turnover of merchants in Yiwu China Commodity City

Annual turnover (Yuan)	Sample size	Percentage (%)	Cumulative percentage (%)
Below 500,000	62	23.2%	23.2%
500,000-1 million	89	33.3%	56.5%
1 to 3 million	60	22.5%	79.0%
More than 3 million	56	21.0%	100%

Yiwu China Commodity City has a diversified source of goods, but the model of factory store is the main one. The majorities of the merchants produce and sell commodity by themselves, accounting for 64.0% (Table 4). All the goods purchased in Yiwu City accounts for 4.9% of merchants, while from domestic areas accounts for 17.2%, and import from other countries and areas accounts for only 7.2%. It can be seen from the source of goods that China Commodity City Mainly sells products made in China.

Table 4 Commodity sources of Yiwu China Commodity City

Source of goods sold	Sample size	Percentage (%)	Cumulative percentage (%)
Self-production	171	64.0%	64.0%
Purchase in Yiwu City	13	4.9%	68.9%
Domestic purchase	46	17.2%	86.1%
Foreign import	19	7.2%	93.3%
Self-production and domestic purchase	13	4.9%	98.2%
Self-production and import from abroad	3	1.1%	99.3%
Domestic purchase and foreign import	2	0.7%	100%

Yiwu China Commodity City has a wide range of sales territory, with 33.7% of domestic sales, 38.6% of foreign sales, and 27.7% of both domestic and foreign sales (Table 5). For stall owners who are engaged in export business, most of them do better than those engaged in domestic business. However, some merchants in export business will conduct domestic sales when the export business is not ideal. Basically, merchants in export business have their own brands of goods, so if the professional market wants to achieve large-scale operations, it must form a brand effect. Merchants reported that business has not been good in recent years, profit has generally declined, and their dissatisfaction with the market has gradually increased. Merchants are mainly profit-oriented. If they can achieve their expected profit, they are not very concerned about whether the market services is good or not.

Table 5 Sales territory of Yiwu China Commodity City Commodity

Sales territory	Sample size	Percentage (%)	Cumulative percentage (%)
This city	3	1.1%	1.1%
This province	8	3.0%	4.1%
Domestic(other provinces)	79	29.6%	33.7%
Foreign	103	38.6%	72.3%
Domestic and abroad	71	27.7%	100%

IV. Service quality evaluation of Yiwu China Commodity City

4.1 Analysis of market service expectations

First, according to the questionnaire, the authors calculated the average service expectation score and perception score for each item and each dimension (Table 6). It can be seen from the table that the service expectations of the merchants for each item are relatively high, all of which are above 3 points. Among them, the empathy (E) score is the highest, which is 4.20. The following are the tangible (T) of 4.02 and the reliability (R) of 4.0, e-commerce (C) of 3.78, logistics service (L) is 3.58, and assurance (A) is 3.51. In terms of specific

items, tax and rent concessions (X10) is closely related to the interests of business owners, which they care it very much and thus makes the average value of this item up to 4.46. Most business owners reported that, in the situation of business recession, rent and tax should be appropriately reduced or exempted to support and retain stall merchants. Catering is also an item that merchants care very much with an average value of 4.05. In addition, stall tenants are also closely concerned about market safety (4.31), sanitation (4.21), accident handling (4.18) and the construction of the "Yiwugou" online trading platform (4.05). Merchants eagerly hope that the department of market management can take practical measures to help them become bigger and stronger.

4.2 Analysis of market service perception value

Service perception reflects the perception of merchants on the actual performance of market services. Through the analysis of service quality perception, the insufficiency of market services can be found, which can provide a reference for improving market service quality.

From high to low, the score of reliability (R) is 3.51, e-commerce (C) is 3.47, tangibility (T) is 3.28, assurance (A) is 3.26, empathy (E) is 2.87, and logistics service (L) 2.48. The actual performance score of reliability is the highest, indicating that the Yiwu small commodity market is worthy of trust. With the rise of e-commerce, the Yiwu small commodity market has also been greatly impacted in recent years. The market has made a lot of efforts in this regard, launching "Yiwu Go" e-commerce platform, and organizing merchants to conduct online store management training and learning. The introduction of early training has solved the problems of some business users, but it still did not meet the expectations of all business users (3.78). In this regard, the market still needs to improve website maintenance and website security. The actual performance of empathy and logistics service did not reach the general standard of 3 points. In the mean value of each question item, storage (2.39), tax and preferential measures (2.51), transportation tools (2.57), and catering (2.74) are all below the three-point standard. Among them, tax and rent concessions is very important to merchants, but some merchants reported that the rent increase had not been notified in advance and the increase rate was too high. Logistics service provided by the market also gets a very low score. Catering is necessary for the daily life of the merchants, and most of the market catering services are fast-food restaurants with limited quantity, quality and variety of food. The market should introduce a number of branded restaurants to improve the catering problems of the market.

4.3 Service quality analysis in all dimensions

According to the PZB service perception gap model, the difference between service perception and service expectation is the service quality. In other words, the service quality (SQ) is equal to the service quality perception (P) minus the service quality expectation (E). Based on this, the scores of each question and dimension of the service quality of Yiwu China Commodity City can be determined by calculation (Table 6). Among the six dimensions of service quality, the average values are all negative. For the average score of each dimension, it can be seen that the relatively high scores are assurance (-0.25) and e-commerce (-0.32), while the lowest score is empathy (-1.29).

Table 6 Service Quality Scores of Yiwu China Commodity City

	Service expectations	Service perception	service quality
T1	4.02	3.59	-0.43
T2	4.31	3.66	-0.66
T3	3.97	2.84	-1.13
T4	3.76	3.05	-0.70
Tangibility (T)	4.02	3.29	-0.73
R1	3.83	3.57	-0.26
R2	4.21	3.44	-0.77
R3	4.09	3.40	-0.69
R4	3.65	3.76	-0.10
R5	4.18	3.54	-0.65
R6	4.01	3.34	-0.67
Reliability (R)	4.00	3.51	-0.49
A1	3.47	3.20	-0.27
A2	3.73	3.25	-0.48
A3	3.16	3.26	0.10
A4	3.67	3.31	-0.36
Assurance (A)	3.51	3.26	-0.25
E1	4.05	2.74	-1.31
E2	4.46	2.51	-1.94
E3	4.00	3.37	-0.63
Empathy (E)	4.17	2.88	-1.29
C1	4.04	3.62	-0.43
C2	3.79	3.55	-0.24
C3	3.52	3.24	-0.29
E-commerce (C)	3.79	3.47	-0.32

L1	3.52	2.57	-0.95
L2	3.64	2.39	-1.25
Logistics service (L)	3.58	2.48	-1.10

4.4 Overall service quality score

The weighted SERVQUAL evaluation method is used to calculate the overall service quality score of Yiwu China Commodity City. The formula is shown as follows:

$$SQ = \sum_{j=1}^K W_j \frac{1}{n} \sum_{i=1}^n (\bar{P}_i - \bar{E}_i)$$

In the above formula, SQ represents the overall evaluation of the market service quality of the merchants; K represents the number of dimensions; W_j represents the weight of the j-th dimension; n is the number of questions in the questionnaire; \bar{P}_i represents the average service perception value of the merchants to the i-th question; \bar{E}_i represents the average service expectation value of merchants to the i-th question.

Service expectations reflect the importance of each dimension in the minds of small commodity city merchants. Therefore, this article assigns weights based on the expected value of merchants. The methods are as follows:

First, according to the calculated average value of the dimension expectation in the previous section, the size of each item is sorted in descending order: assurance (A) <logistics service (L) <e-commerce (C) <reliability (R) <tangibility (T) <empathy (E).

Second, according product scaling method, the value of the dimension with the lowest expected score is determined to be 1, the value of the second-to-last evaluation dimension is determined to be 1×1.354 , and the value of the third-to-last dimension is $1 \times 1.354 \times 1.354$, and so on (Table 7).

Table 7 Weight of each dimension

Dimension	Expected mean	Value assignment by product scaling method	Weights
Assurance (A)	3.51	1	0.07
Logistics service (L)	3.58	1×1.354	0.09
E-commerce (C)	3.78	$1 \times 1.354 \times 1.354$	0.13
Reliability (R)	4.00	$1 \times 1.354 \times 1.354 \times 1.354$	0.17
Tangibility (T)	4.02	$1 \times 1.354 \times 1.354 \times 1.354 \times 1.354$	0.23
Empathy (E)	4.20	$1 \times 1.354 \times 1.354 \times 1.354 \times 1.354 \times 1.354$	0.31

Finally, the overall service quality score of Yiwu China Commodity City is calculated as -0.8092, indicating that the services provided by the management department of the Commodity City cannot meet the expectation of market merchants.

To intuitively indicate the value of the service quality scores of Yiwu China Commodity City, this paper also uses the SQ percentile system to calculate the service quality scores, that is to say, uses a real number from 0 to 100 to represent the SQ score. The method is: when $P-E=0$, $SQ=100$; when $\min(P)-\max(E)=0$, $SQ=0$.

The calculation formula is:

$$SQ = \frac{SQ - (\min(P) - \max(E))}{0 - (\min(P) - \max(E))} \times 100$$

According to this formula, the percentile system of service quality of Yiwu China Commodity City is 79.77, which means that the market service quality level can only achieve 79.77% of what is expected from merchants.

V. ANOVA analysis

Due to the differences of the merchants in Yiwu China Commodity City, ANOVA analysis is used to explore whether the duration of business, annual turnover, commodity sources and sales territory affect the merchants' evaluation of service quality. The analysis results are shown in the table below. It can be seen that the F-value of the duration of business, annual turnover, source of goods, and sales territory with the probability P value are all greater than 0.05, indicating that they have no significant impact on the evaluation of service quality.

Table 8 ANOVA analysis

Question item		Sum of square	df	Mean square	F	Sig.
Duration of business	Between groups	1.368	3	0.456	0.843	0.471
	Intra-class	142.205	263	0.541		
	Sum	143.573	266			
Annual turnover	Between groups	2.092	3	0.697	1.296	0.276
	Intra-class	141.481	263	0.538		
	Sum	143.573	266			
Commodity source	Between groups	1.283	6	0.214	0.391	0.885
	Intra-class	142.290	260	0.547		

	Sum	143.573	266			
Sales territory	Between groups	2.225	5	0.445	0.822	0.535
	Intra-class	141.348	261	0.542		
	Sum	143.573	266			

VI. Conclusion and suggestion

This paper conducts a questionnaire survey on the service quality of Yiwu China Commodity City from the perspective of merchants and calculates the overall score of service quality of Yiwu China Commodity City on this basis. First, referring to the SERVQUAL scale, the four dimensions of tangibility, reliability, assurance, and empathy are retained. At the same time, according to the characteristics of the development of Yiwu China Commodity City, two dimensions of e-commerce and logistics service are added. The indicator system of this research is finally divided into 6 dimensions, including 22 questions. The research results show that the service quality scores of 6 dimensions are all negative, especially the logistics service and empathy dimensions have very low scores.

According to the weighted SERVQUAL evaluation method, the overall service quality score of Yiwu China Commodity City is -0.8092, indicating that its overall service level is lower than the expectations of merchants. In terms of percentage, the market service quality level can only reach 79.77% of merchants' expectations. From the result of the ANOVA analysis, it shows that the duration of business, annual turnover, commodity sources and sales territory have no significant impact on the evaluation of service quality.

Based on the above research results, the author gives corresponding countermeasures and suggestions for improving the service quality of Yiwu China Commodity City, that is, further improving market infrastructure, standardizing market operation and management models, promoting the development level of e-commerce platforms, optimizing logistics service systems, enhancing the service quality and capabilities of market administrators, and strengthening the brand developing strategy of the professional market.

References

- [1]. Parasuraman, A. , Zeithaml, V. A. , & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4).
- [2]. Heskett, J. L., Sasser, W.E. & Schlesinger, L. A. (1997). *The service profit chain*. New York: The Free Press.
- [3]. Wei, F. (2005). *Service Quality Evaluation and Management*. Beijing: Beijing People's Posts and Telecommunications Press
- [4]. Cui Lixin (2003). *The Evaluation Models for Enhancing Service Quality*. Beijing: Economic Daily Press.
- [5]. Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). Servqual: a multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40.
- [6]. Parasuraman A. (1994). Reassessment of expectations as a comparison standard in measuring service quality: implications for further research. *Journal of Marketing*, 58(1), 111-124.
- [7]. Teas, R. K. (1993). Expectations, performance evaluation, and consumers' perceptions of quality. *Journal of Marketing*, 57(4), 18-34.
- [8]. Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality - a reexamination and extension. *Journal of Marketing*, 56(3), 55-68.
- [9]. Brown, T. J., Churchill, G. A. , & Peter, J. P. (1993). Improving the measurement of service quality. *Journal of Retailing*, 69(1), 127-139.

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