

A FAHP-based comprehensive evaluation on rural supermarket service quality: a case study of Jiangsu province

Tao Meng*

Department of Economics and Management, Huaiyin Normal University, No.71 Jiaotong Rd, Huai'an, China

Received 26 April 2014, www.cmnt.lv

Abstract

With the changes of market supply and demand, as well as increasing business competition, service quality has become a key factor constraining rural supermarket survival and development. This article targets at the rural supermarkets in Jiangsu Province. In the context of constructing an indicator system of rural supermarket service quality evaluation, it acquires data by questionnaires, uses AHP to establish the weights, and applies the multi-level fuzzy AHP to assess rural supermarket service quality. It concludes that there are some spaces for further improvement of rural supermarket service quality and proposes relevant solutions.

Keywords: FAHP, rural supermarkets, service quality

1 Introduction

In the urbanization process of China, the primary task should be the construction of rural infrastructure. In order to improve the life quality and convenience of rural residents, we should focus on the improvement of rural supermarket. However, in China the development of rural supermarket is still in its infancy. There are many problems in operations. Rural supermarket service quality needs to be improved. First of all, we must find out the factors affecting the quality of service and why consumers are not satisfied with rural supermarket service quality, which is the precondition of improving the quality of service and market competition. Make prospect for the improvement of rural supermarket service quality and promote the sustainable healthy development of rural supermarket [1]. Previous studies show that there is a linear positive correlation between customer satisfaction and customer loyalty (Chen Yuan, 2012). Besides, the quality of service affects customer loyalty, both directly and indirectly (Chen Shaojie, 2011). Lots of studies adopt a perceptual model or structure equation model to discuss the service quality of supermarket chains, but seldom specifically focus on rural supermarket service quality. Few articles concerning rural supermarket service quality use the grey relational evaluation method and grey cluster model (Yang Yanbo, et al., 2008), and service quality gap model (Liang Na, et al., 2009). In 2008, Guo Yuexian et al. proved that the FAHP model was appropriate for the evaluation of rural supermarket service quality. Therefore, this article targets at rural supermarkets in Jiangsu Province and adopts the FAHP model to assess their service quality, in the hope of finding out solutions for rural supermarkets improving service quality to keep same space with modern social development in the new urbanization process.

2 Generation of the data

2.1 FAHP COMPREHENSIVE EVALUATION MODEL

FAHP, namely fuzzy analytic hierarchy process, is a comprehensive evaluation method to assess the hierarchical condition of evaluation target from multiple factors, which is on the basis of fuzzy mathematics, applies the principle of fuzzy relationship synthesis, and quantifies some ill-defined and difficult-to-quantify factors [2]. As we analyze a large system, we should take lots of factors into consideration, while there are different levels of the hierarchy between these factors. Thus, we need to collect the evaluation factors and divide them into different categories according to some set of attributes. Perform a comprehensive evaluation on each category firstly, and then make the high-level comprehensive evaluation on the results, so that the final evaluation will be more comprehensive and scientific [3].

The FAHP evaluation procedures are shown as follows:

- Establish the evaluation factors sets. Assume the first-level evaluation factors set $A = \{\alpha_1, \alpha_2, \dots, \alpha_n\}$ and the second-level evaluation indicator a_{ij} , where $i = 1, 2, \dots, n; j = 1, 2, \dots, m$ n the number of first-level indicators, and m the number of second-level indicators beneath each first-level indicator.
- Establish the evaluation results sets. Assume the set of all evaluation results of each level $B = \{\beta_1, \beta_2, \dots, \beta_s\}$. Define them based on actual situations, such as "better", "good", "general", "bad", and "worse" the five levels.

*Corresponding author's e-mail: mtmxb@163.com

- Establish the weights of each evaluation indicator at each level by means of the analytic hierarchy process. Firstly make pair comparison of indicators based on judgment scale table [4] and expert scoring method and construct the judgment matrix of evaluation indicator factors X (Equation (1)). Calculate the sum of every row of judgment matrix and make it normalization. Get the weight vector δ_i (Equation (2)). In order to improve the reliability of weights, we need to apply the consistency ratio CR (Equation (3)) to conduct a consistency test on the judgment matrix.

$$X = \begin{bmatrix} \chi_{11} & \chi_{12} & \cdots & \chi_{1n} \\ \chi_{21} & \chi_{22} & \cdots & \chi_{2n} \\ \cdots & \cdots & \ddots & \cdots \\ \chi_{n1} & \chi_{n2} & \cdots & \chi_{nn} \end{bmatrix}, \tag{1}$$

$$\delta_i = \frac{\sum_{j=1}^n \chi_{ij}}{\sum_{k=1}^n \sum_{j=1}^n \chi_{kj}} \quad i = 1, 2, \dots, n, \tag{2}$$

$$CR = \frac{CI}{RI} = \frac{(\lambda_{\max} - n)/(n-1)}{RI}, \tag{3}$$

where, λ_{\max} is the maximum characteristic value. RI is the average random consistency index. As $CR < 0.1$, the degree of inconsistency of X is within the allowable range. Otherwise, re-construct the matrix.

- Build the single-factor fuzzy evaluation matrix. Use the membership degree of fuzzy mathematics to make synthesis and get the single-factor fuzzy evaluation matrix (Equation (4)).

$$Y_i = \begin{bmatrix} \eta_{i1} & \eta_{i2} & \cdots & \eta_{im} \\ \eta_{21} & \eta_{22} & \cdots & \eta_{2m} \\ \cdots & \cdots & \ddots & \cdots \\ \eta_{n1} & \eta_{n2} & \cdots & \eta_{nm} \end{bmatrix}, \tag{4}$$

where $\eta_{ij} = \frac{q_{ij}}{Q}$. The value is between 0 and 1. Here, η_{ij} refers to the membership degree of the comment β_j of indicator α_i , and $i = 1, 2, \dots, n; j = 1, 2, \dots, m$. q_{ij} is the number of the indicator i at the level j . Q is the total number of respondents in the survey[2].

- The multi-factor fuzzy comprehensive evaluation matrix. It is chiefly to construct the multi-level comprehensive evaluation matrix based on primary comprehensive evaluation matrix. The primary fuzzy comprehensive evaluation matrix is Equation (5), and the general fuzzy comprehensive evaluation matrix is Equation (6).

$$R_i = X_i \times Y_i, \tag{5}$$

$$R = X \times Y. \tag{6}$$

- Calculate the comprehensive score of three-level evaluation. Firstly get the score of each item C_j (Equation (7)). Then, get the score of each dimension F_i (Equation (8)). And finally get the total score of service quality Q (Equation (9)).

$$C_j = V^T \times Y_j, \tag{7}$$

$$F_i = V^T \times R_i, \tag{8}$$

$$Q = V^T \times F_i. \tag{9}$$

Classify the results and establish the membership degree of comprehensive scores on the principle of weighted average. Results are shown in Table 1.

TABLE 1 the level of comprehensive scores

Level	Evaluation Results	Comprehensive Scores
E1	better	[0, 1.5]
E2	good	(1.5, 2.5]
E3	general	(2.5, 3.5]
E4	bad	(3.5, 4.5]
E5	worse	(4.5, 5]

2.2 SELECT THE RIGHT EVALUATION INDICATORS

As early as 1955, Parasuraman Zeithaml & Berry defined service quality as the gap of customers' expectation for services and their feelings about actual services, namely the service quality = expected service – perceptual service. They further established the “five dimensions” for evaluating the level of service quality, i.e. the tangibles, responsiveness, reliability, assurance, and empathy of customers [5]. According to the five-dimension factors and considering the rural supermarket service conditions in Jiangsu Province and the expert investigation, we establish the indicator system for evaluating the rural supermarket service quality in Table 2.

TABLE 2 The indexes for rural supermarket service quality evaluation

Dimension	Number	The Second-level Evaluation Factors
Tangibles α_1	a_{11}	appropriate clothes for salesperson
	a_{12}	comfortable shopping environment
	a_{13}	abundant commodities
	a_{14}	size of shop
	a_{15}	diversified payment
Responsiveness α_2	a_{21}	solving problems with patience
	a_{22}	special accelerated service
	a_{23}	fast payment
	a_{24}	easy counsel from salesperson.
Reliability α_3	a_{31}	complete the committed service
	a_{32}	goods return or exchange rate
	a_{33}	convenient working time
	a_{34}	accurate and safe settlement.
Assurance α_4	a_{41}	commodity quality
	a_{42}	professional knowledge of employee
	a_{43}	employees' reliability
Empathy α_5	a_{51}	personalized service
	a_{52}	respect for customers
	a_{53}	understand customers' needs
	a_{54}	sincerely care about customers

2.3 QUESTIONNAIRE DESIGN AND COLLECTION

In this survey, we design each item in the questionnaire according to the second-level indicator in the evaluation indicator system, including 5 first-level indicators, 20 second-level indicators, i.e. the questionnaire contains 20 questions. Each question has five options, i.e. better, good, general, bad, and worse, and each option is given certain score, i.e. 5, 4, 3, 2, and 1 respectively. This questionnaire focuses on the customers in rural supermarkets in Jiangsu Province. We use a sample survey, handing out 150 copies, and finally collecting 145 copies. The recovery rate is 96.7%. Exclude 5 invalid questionnaires. Then, the recovery rate is 93.3%.

2.4 DATA PROCESSING

Use the fuzzy comprehensive evaluation method to analyze the data from the survey on rural supermarket service quality in Jiangsu Province. Detailed calculations and analyses are displayed as follow.

Establish the set of rural supermarket service quality evaluation factors, $A = \{\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5\}$. Here, the first-level evaluation factors are respectively: tangibles α_1 , responsiveness α_2 , reliability α_3 , assurance α_4 and empathy α_5 . The second-level evaluation factors α_{ij} refer to the specific evaluation indicators of the first-level evaluation factors. The tangibles α_1 contain five second-level indicators, namely five questions, i.e. α_{11} appropriate clothes for salesperson, α_{12} comfortable shopping environment, α_{13} abundant commodities, α_{14} size of shop, and α_{15} diversified payment. The responsiveness α_2 contains four second-level indicators, namely four questions, i.e. α_{21} solving problems with patience, α_{22} special accelerated service, α_{23} fast payment, and α_{24} easy counsel from salesperson. The reliability α_3 contains four second-level indicators, namely four questions, i.e. α_{31} complete the committed service, α_{32} goods return or exchange rate, α_{33} convenient working time, and α_{34} accurate and safe settlement. The assurance α_4 contains three second-level indicators, namely three questions, i.e. α_{41} commodity quality, α_{42} professional knowledge of employee, and α_{43} employees' reliability. The empathy α_5 contains four second-level indicators, namely four questions, i.e. α_{51} personalized service, α_{52} respect for customers, α_{53} understand customers' needs, and α_{54} sincerely care about customers.

Establish the evaluation set of rural supermarket service quality $V = \{better, good, general, bad, worse\}$, namely $V = \{5, 4, 3, 2, 1\}$.

Use the AHP to establish the weights. Respectively get the first-level evaluation matrix according to the Equation (1) and (3).

$$X = \begin{bmatrix} 1 & 3 & 5 & 2 & 3 \\ \frac{1}{3} & 1 & 2 & \frac{1}{2} & 2 \\ \frac{1}{5} & \frac{1}{5} & 1 & \frac{1}{3} & \frac{1}{2} \\ \frac{1}{2} & 1 & 3 & 1 & 2 \\ \frac{1}{3} & \frac{1}{2} & \frac{1}{2} & 2 & 1 \end{bmatrix}$$

Run the MCE comprehensive evaluation software and get $\lambda_{max} = 5.0755$, $CI = 0.0189$, $RI = 1.12$.

Then $CR = 0.0169 < 0.1$, which meets the consistency test of evaluation matrix. According to the Equation (2), the weight of first-level evaluation indicator is

$$\delta = (0.413, 0.155, 0.074, 0.241, 0.117)$$

Similarly, get the weight vector of second-level indicator, i.e. respectively:

$$\delta_1 = (0.096, 0.214, 0.479, 0.157, 0.054),$$

$$\delta_2 = (0.488, 0.089, 0.248, 0.175),$$

$$\delta_3 = (0.274, 0.158, 0.065, 0.503),$$

$$\delta_4 = (0.630, 0.218, 0.152),$$

$$\delta_5 = (0.136, 0.280, 0.114, 0.470)$$

Construct the single-factor fuzzy evaluation matrix for rural supermarket service quality. According to Equation (4), respectively the fuzzy evaluation matrixes of the five dimensions of first-level indicators are gotten:

$$Y_1 = \begin{bmatrix} 0.086 & 0.243 & 0.471 & 0.171 & 0.029 \\ 0.114 & 0.414 & 0.357 & 0.1 & 0.015 \\ 0.072 & 0.544 & 0.258 & 0.126 & 0 \\ 0.136 & 0.264 & 0.493 & 0.1 & 0.007 \\ 0.229 & 0.614 & 0.157 & 0 & 0 \end{bmatrix}$$

$$Y_2 = \begin{bmatrix} 0.121 & 0.272 & 0.407 & 0.121 & 0.079 \\ 0.214 & 0.136 & 0.314 & 0.157 & 0.179 \\ 0.157 & 0.372 & 0.443 & 0.021 & 0.007 \\ 0.129 & 0.186 & 0.529 & 0.114 & 0.042 \end{bmatrix}$$

$$Y_3 = \begin{bmatrix} 0.2 & 0.25 & 0.436 & 0.078 & 0.036 \\ 0.343 & 0.307 & 0.264 & 0.072 & 0.014 \\ 0.271 & 0.3 & 0.429 & 0 & 0 \\ 0.35 & 0.307 & 0.2 & 0.114 & 0.029 \end{bmatrix}$$

$$Y_4 = \begin{bmatrix} 0.121 & 0.493 & 0.336 & 0.036 & 0.014 \\ 0.164 & 0.072 & 0.686 & 0.057 & 0.021 \\ 0.093 & 0.157 & 0.7 & 0.036 & 0.014 \end{bmatrix}$$

$$Y_5 = \begin{bmatrix} 0.036 & 0.243 & 0.557 & 0.093 & 0.071 \\ 0.272 & 0.307 & 0.35 & 0.05 & 0.021 \\ 0.007 & 0.072 & 0.914 & 0.007 & 0 \\ 0.021 & 0.086 & 0.893 & 0 & 0 \end{bmatrix}$$

Conduct the fuzzy comprehensive evaluation. According to Equations (5) and (6), get the fuzzy comprehensive evaluation matrix vector of each dimension and the fuzzy

comprehensive evaluation matrix vector of overall service quality, respectively:

$$R_1 = X_1 \times Y_1 = (0.101, 0.447, 0.331, 0.114, 0.007),$$

$$R_2 = X_2 \times Y_2 = (0.140, 0.270, 0.429, 0.098, 0.063),$$

$$R_4 = X_4 \times Y_4 = (0.126, 0.350, 0.468, 0.041, 0.015),$$

$$R_5 = X_5 \times Y_5 = (0.092, 0.168, 0.698, 0.027, 0.015),$$

$$R = X \times Y = (0.127, 0.352, 0.419, 0.082, 0.020).$$

Calculate the comprehensive score of three-level evaluation. Firstly get the score of each question C_j and introduce them into Equation (7). Obtain the matrix of each question score:

$$C_1 = (3.186, 3.512, 3.562, 3.422, 4.072),$$

$$C_2 = (3.235, 3.049, 3.651, 3.246),$$

$$C_3 = (3.500, 3.893, 3.842, 3.835),$$

$$C_4 = (3.671, 3.301, 3.279),$$

$$C_5 = (3.080, 3.759, 3.079, 3.128).$$

Then, calculate the score of each dimension F_i and get the matrix of each dimension score by Equation (8):

$$F_1 = 3.521,$$

$$F_2 = 3.324,$$

$$F_3 = 3.753,$$

$$F_4 = 3.531,$$

$$F_5 = 3.292.$$

Finally, calculate the total score of service quality by Equation (9): $Q = 3.484$.

3 Results analysis

According to the fuzzy comprehensive evaluation scores, we know that:

Firstly, the comprehensive score of current rural supermarket service quality in Jiangsu Province is 3.484, in the range of (2.5, 3.5), at the general service level of E3. Therefore, we need to make adjustment and reformation as a whole immediately, implement service management and innovation, and improve the overall service quality of rural supermarket.

Secondly, the comprehensive scores of five dimensions (tangibles, responsiveness, reliability, assurance, and empathy) are respectively 3.521, 3.324, 3.753, 3.531, and 3.292. Obviously, for rural supermarkets, the tangibles, reliability, and assurance win relatively better evaluations from customers. But in terms of responsiveness and empathy, customers' evaluation is just ordinary.

Finally, according to the detailed analysis of all items, rural supermarkets win better evaluation in terms of tangibles, which is represented by 3.512 grades for comfortable shopping environment, 3.562 for abundant commodity, and especially 4.072 for payment. Customers agree that the three aspects are better in general. As for the clothes of salesperson and the size of shop, the score is respectively 3.186 and 3.422, what are relatively lower. The scores of questions for reliability spread in the range of (3.5, 4.5]. The evaluation is relatively better. As for the assurance, the commodity quality is scored 3.671, which is better. Employees' professional knowledge and employees' reliability is respectively scored 3.301 and 3.279, which is general. Although the evaluation on responsiveness and empathy is both general, the payment speed under the responsiveness is scored 3.651 and the respect for customers under empathy is scored 3.759. The two items are better. In addition, the general evaluation on rural supermarket service quality also includes personalized service, understanding of customers' needs, sincerely caring about customers, solving problems with patience, providing fast service, and convenience of consulting salesperson.

4 Conclusions and suggestions

Before you begin to format your paper, first write and save the content as a separate text file. Keep your text and graphic files separate until after the text has been formatted and styled. Do not use hard tabs, and limit use of hard returns to only one return at the end of a paragraph. Do not add any kind of pagination anywhere in the paper. Do not number text heads – the template will do that for you.

Finally, complete content and organizational editing before formatting. Please take note of the following items when proofreading spelling and grammar.

4.1 CONCLUSIONS

Whether from the comprehensive scores of dimensions or the score of each item, the evaluations are mainly at the level E3 and E4, which means "general" or "better", but no "good". Therefore, there is a large room for rural supermarkets improving their service management and innovation. As for the "better" aspects, the supermarkets have more comfortable shopping environment, compared with the traditional rural purchasing environment. The payment channels are diversified, such as card, cash, or membership, which makes shopping more convenient. Besides, rural supermarkets keep the good traditions, such as being loyal to commitment, quick for return or exchange goods, convenient hours, accurate settlement, and safety. All these characteristics make customers feel more reliable. Supermarkets give assurance for qualified products because of their inbound channels. And the fast settlement gives rural customers different shopping experiences. Thus, it gets higher score for the item of respecting for customers.

For some “general” evaluations on the clothes of salespersons and the size of shops, the reason is that rural supermarkets are still at the starting stage, plus the weak rural consumption capacities and management abilities, compared with cities. Therefore, the clothes of salespersons and the size of shops in rural supermarkets are lagged behind cities. The scores of the two items are relatively lower. In rural supermarkets, the employees are mainly from local. The civilization quality and professional knowledge are insufficient. However, by means of pre-service training, they can be equipped with basic techniques for the job. In serving customers, they are reliable and basically understand customers’ needs. They can genuinely care about customers, help them solve problems with patience, and provide special fast services. The salespersons are familiar with their commodities and capable of responding to customers’ various questions. Only under the circumstance of all aspects with better scores, can it trigger rural customers’ needs for personalized services. In short, rural supermarkets perform not too bad or too excellent in rural area. Therefore, it is necessary to further strengthen the service management and implement service innovation in order to the sustainable development of rural supermarkets.

4.2 SUGGESTIONS

4.2.1 Perform management innovation and improve service image

By taking references from the successful management pattern and approaches of urban supermarkets, we can improve rural supermarkets’ shopping environment and convenience on the basis of rural conditions, guaranteeing customers’ satisfaction and loyalty. In rural supermarkets, the light should be bright, the signs should be lean and eye-catching, the salespersons should be wearing neat uniforms, and the shelves should be arranged appropriately. A comfortable environment could stimulate customers’ desire for buying. Maintain diversified payment methods and update the hard facilities frequently, such as tickers and shopping carts. Aim at the “one-stop” purchase and provide all kinds of commodities, including food, clothing, decorations, and daily appliances. Ensure customers can enjoy all the convenience of rural supermarkets. Besides, rural supermarkets must keep to their commitments and accomplish the work with high requirements. Guarantee fast and timely commodity return and exchange. As the saying goes, “success depends on details”. Make innovations from details. For example, adjust commodity structure periodically and meet customers’ constantly changing needs and hobbies. Offer special channels for the weak. Present some small knowledge cards or magazines at the checkouts. Provide shuttle vehicles for some festivals in rural area. We should run the rural supermarkets with the ideology of serving customers and ensure the image of supermarkets in the minds of customers.

4.2.2 Pay attention to employees’ knowledge reconstruction

In rural supermarkets, the employees are mostly from local area. Most of them did not get the chance of completing the college study for various reasons. However, they have the desire for knowledge deep down in the heart. Managers should pay attention to employees’ development and cultivation, offering relevant trainings for special techniques, service management, and CRM. Perform target trainings. For example, help cashiers to accelerate the scanning speed and make them be familiar with all kinds of payments. Give special trainings for people displaying the shelves. Find out management talents based on special positions and give them a chance of promotion. By means of investing in employees and helping them achieve the reconstruction of knowledge, rural supermarkets can stimulate the employees’ enthusiasm for their work, ensuring better services for customers.

4.2.3 Strengthen employees’ awareness of service

Typically, in order to increase sales, supermarkets arrange more salespersons at the center or the front, where the most popular or promotional commodities locate. While at the front of shelves with common commodities, only one or two salespersons are necessary. They can give immediate responses to customers’ needs. For this kind of arrangement, the precondition is that the salespersons must be familiar with supermarkets’ overall structure and knowledge of commodities. Once they catch the confusing faces of customers, they must take initiatives to offer their help. Ask whether the customer need help and give answer for any question with patience. Help employees build the awareness of service. Everything must take customers’ interests as the primary and fundamental point. Try to improve customers’ satisfaction and loyalty. Solve customers’ problems properly and timely. Each employee should focus on establish positive relationships with customers, serve them with passions, and communicate with them actively. Respect for customers and genuinely care about customers. Provide qualified services with positive attitudes. Train employees with capabilities of communicating and coordinating with customers. When customers give advices for certain employee’s services, the employee should take the advice and promise to make an improvement. Supermarkets should provide convenient ways for customers’ complaints. For example, give the free phone number for complaints and present detailed directions for customers how to make complaints. Improve the transparency of receiving and handling complaints and set up rewards for customer complaints. Construct the mechanism of encouraging employees to actively take and deal with customer complaints, so that customers will grow great enthusiasm for expressing complaints or getting consultation. By this way, supermarkets can collect more advices and serve customers better.

4.2.4 Provide personalized and humanized services

In the process of communicating with customers, the employees usually focus on promoting the commodity rather than emotional exchange, which might trigger the disgusting feelings among customers. The supermarkets should advocate the emotional services. As contacting with customers, employees should be active and enthusiastic, with smiles all the time, instead of blindly giving product bombing. Salespersons should establish a nice and friendly relationship with customers based on special knowledge and life experiences, cultivating a warm and kind communication atmosphere. Salespersons should introduce not only the name or the price of commodity, but also the ingredients, the main performance, the usage, and the maintenance. Different customers possess different expectations and requirements for commodities in supermarkets,

which require supermarkets segment customer groups, analyze the purchase behaviors and motives of different groups, understand their practical and potential needs, provide the right commodities to satisfy or exceed their needs and expectations. Provide some convenient services. For example, set up a playing zone at the toys' area. Ask one or two employees to be in charge of customers' parking and look after the cars for free. Build a seating area and automatic lockers.

Acknowledgments

The research findings of this paper are supported by 2011 Young Talents Support Project from HNU (11HSQNS19) and 2012 MOE (Ministry of Education in China) Youth Project of Humanities and Social Sciences (No.12YJC63 0299).

References

- [1] Liang N, An Y 2009 Study on the promotion of service quality of rural supermarket Chains *Agricultural Outlook* **12** 1-3 (in Chinese)
- [2] Man J 2013 Evaluation of Green building based on fuzzy comprehensive analysis *Electronic Test* **16** 31-2 (in Chinese)
- [3] Lv W 2013 A study of applying grey integrated assessment to cadre promotion *China Management Informationization* **16**(16) 60-1 (in Chinese)
- [4] Guo Y, Yang Y 2008 Research on comprehensive assessment model of service quality in rural supermarkets based on FAHP *Journal of Shijiazhuang Railway Institute (Social Sciences)* **2**(4) 10-8 (in Chinese)
- [5] Deng F 2011 Relationship of Service Quality and Customer Loyalty *Economy and Management Publishing House*: Beijing 56-7 (in Chinese)

Author



Meng Tao, born in July 1979, Xuzhou, China.

Current position, grades: lecturer at Huaiyin Normal University, Huai'an, Jiangsu, China.

University studies: master's degrees in Management Science and Engineering at Xi'an University of Technology of China in 2005.

Scientific interests: service quality, service management, service innovation.

Publications: 10 papers.