

Study on Satisfaction with Basic Public Services in Harbin City

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Abstract: The analysis of residents' satisfaction is one of the important indicators of the government's basic public service supply. In this paper, a questionnaire is selected to collect the satisfaction of residents in Harbin city about 22 basic public services in 9 aspects, and the factors affecting the satisfaction are analyzed empirically by factor analysis and multiple linear regression model, based on which countermeasures to improve the satisfaction of basic public services are proposed, so that the satisfaction of basic public services in Harbin city can be further improved.


1 INTRODUCTION

As the level of urbanization increases year by year, China is faced with the problem of insufficient demand for basic public services and insufficient supply of basic public services. Basic public services are the basic guarantee for the well-being of the masses, with the government as the main supply body, driving market resource allocation and guiding public welfare organizations to supplement the supply. Basic public services are directly related to the protection and improvement of people's livelihood, social equity and justice, the overall development of people and the overall progress of society. (Zheng 2017) In the 14th Five-Year Plan Work Report, it is clearly proposed to improve the national public service system, and it is emphasized that "we will speed up to make up for the shortcomings of basic public services, focus on strengthening the weaknesses of non-basic public services, and strive to improve the quality and level of public services". The Report on the Work of the Twentieth Five-Year Plan points out that we should focus on solving the urgent problems of the people, improve the basic public service system, raise the level of public services, enhance the balance and accessibility, and solidly promote common prosperity. This paper analyzes the basic public services into 9 primary indicators and 22 secondary indicators based on the National Basic Public Service

Standards (2021), and empirically analyzes the factors affecting satisfaction through factor analysis and multiple linear regression models to find the factors affecting the public satisfaction with basic public services in Harbin, and provides a reference basis for the government to formulate relevant measures.

2 RESEARCH DESIGN

In order to understand the residents' satisfaction with the provision of basic public services in Harbin, the population of the study was therefore chosen to be Harbin residents, including permanent residents, temporary residents and suburban permanent residents in the 18 administrative districts of Harbin. The survey was conducted by questionnaire method, and due to the epidemic, all questionnaires were collected online. 300 questionnaires were collected, of which 222 were valid, with an effective rate of 74%. The questionnaire design was divided into two parts, the first part consisted of 4 questions, mainly to understand the basic situation of the respondents, and some questions were set to filter invalid questionnaires, and also to analyze the group composition of the respondents. The second part, with 22 questions, was designed from 22 aspects in 9 dimensions, mainly to understand the comprehensive evaluation of the residents' satisfaction with the basic

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public service provision in Harbin, and factor analysis was used to assess the residents' satisfaction with basic public services.

Analyzed the factors influencing the satisfaction of Spanish citizens with public services through factor analysis and found that the reliability of public service supply and the convenience of access by users had a significant impact on the satisfaction of residents with public services. (Hu2018) Based on this, in order to understand the factors that affect the satisfaction of Harbin residents with basic public services, this paper uses multiple linear regression models for regression analysis. Factor analysis method refers to extracting common factors from the set of research variables, transforming a large number of measured variables into a number of comprehensive indicators, and achieving compression into a few variables that are easy to statistically analyze with minimum information loss. Multiple linear regression models refer to models containing multiple mutually exclusive variables with explanatory power. (Wei 2021) In this paper, in order to reflect the dynamic influence process of each variable on the dependent variable public service satisfaction, four regression analysis models are made by nesting, and then analyze the degree of influence of each variable on the dependent variable public service satisfaction.

3 ANALYSIS OF STUDY RESULTS

3.1 Analysis of Sample Characteristics

The numerical characteristics of the demographic variables can be seen according to the following analysis results, which reflect the distribution of the respondents of this survey. (Cai 2021) Based on the results of the frequency analysis of each variable, it can be seen that the distribution basically meets the requirements of the sample survey. Among the gender survey results, the proportion of males is 45% and the proportion of females is 55%. It basically matches with the actual gender ratio in Harbin, which indicates that the survey sample is of high quality in terms of gender ratio. In terms of the age distribution of the sample, the bulk of the sample covers the youth group aged 21-40 and the middle-aged group aged 41-60. Subjects in these two prime age groups think clearly and have a certain perception of satisfaction with basic public services. In terms of the education level of the sample, 28% of the total sample had completed only basic education. The sample size of the group

with higher education was 127, accounting for 72% of the total sample size. This is basically consistent with the average education level announced by Harbin City, reflecting the randomness and coverage ability of the questionnaire distribution. The occupational distribution of the sample shows that employees account for 41% of the total sample, and this group has the most exposure to basic public services, while other occupations have only partial access to basic public services, so the questionnaire in this paper is more convincing. Finally, the distribution of the sample by place of residence shows that more than 60% of the sample are permanent residents of the city, so this questionnaire is more accurate in reflecting the satisfaction of Harbin citizens with basic public services.

Table 1: Frequency analysis of demographic variables.

Variables	Options	Options
Gender	Male	45%
	Female	55%
Age	Under 20 years old	10%
	21-40 years old	68%
	41-60years old	17%
	61 years old and above	5%
Place of residence	Resident in the city	61%
	Suburban permanent residence	22%
	Temporary residence in the city	17%
Career	Students	28%
	Staff	41%
	Retirement	3%
	Unemployed	8%
	Individual / Freelance	21%
Academic qualifications	High school/junior high school and below	28%
	College	15%
	Undergraduate	43%
	Master and above	14%

3.2 Reliability and Validity Analysis

3.2.1 Reliability Analysis

Reliability is a method to test the reliability of the recovered sample of the questionnaire, that is, repeatedly testing the same object for several times, if the results obtained each time are consistent, then the reliability is high, and vice versa, then the reliability is low, so this method is commonly used in academia to test the reliability of the questionnaire before starting the next step of questionnaire analysis. There

are many methods of reliability testing, and in this paper, we choose the Cronbach's alpha coefficient method to test the reliability of this questionnaire sample, and the 9 dimensions of the second part of the questionnaire are analyzed separately by SPSS for reliability, and the conclusions are shown in Table 2. The reliability of this questionnaire is above 0.8, which indicates that the reliability of this survey is high and can be analyzed in the next step.

Table 2: Results of confidence analysis.

Variable	Cronbach's alpha coefficient
Satisfaction with early childhood education	0.838
Satisfaction with learning and education	0.861
Satisfaction with work	0.837
Satisfaction with medical care for the sick	0.883
Satisfaction with old age care	0.847
Satisfaction with housing	0.828
Satisfaction with support for the weak	0.840
Satisfaction with military service	0.824
Satisfaction with cultural and sports services	0.845
Overall Reliability Coefficient	0.887

3.2.2 Validity Analysis

Validity is also known as validity, which is commonly known as whether the results of the survey achieve the results that the questionnaire designer wants to achieve, and there are many methods of validity analysis. As shown in Table 3, the KMO of this survey questionnaire is 0.866 over 0.6, and the Bartlett significance level is 0 less than 0.05, which means that the validity is very good.

Table 3: KMO and Bartlett's test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.866
Bartlett's test of sphericity	Approximate chi-square	7601.014
	df	231
	Significance	0.000

3.3 Satisfaction Analysis

In order to measure the satisfaction of residents with

basic public services, this paper sets five options for each type of basic public services: "very satisfied", "relatively satisfied", "generally satisfied", "relatively dissatisfied" and "very dissatisfied". For each type of basic public service, five options are set: "very satisfied", "relatively satisfied", "generally satisfied", "relatively dissatisfied" and "very dissatisfied", which are assigned 5, 4, 3, 2 and 1 points respectively. If the proportion of respondents who chose "very satisfied" and "relatively satisfied" is taken as the index of satisfaction with each basic public service, we will have a column of satisfaction with basic public services. Then we get a histogram of residents' satisfaction with basic public services. The highest satisfaction rate is 77.31% for the military service, followed by 74.22% for the elderly service, with a small difference between the two. Among the nine types of public services, the satisfaction rate of housing services is significantly smaller, at 44.93%.

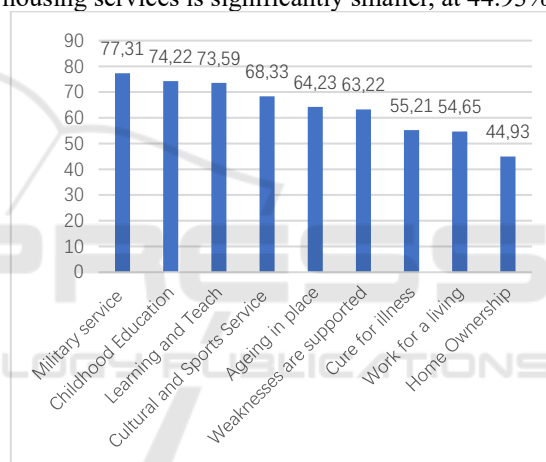


Figure 1: Basic public service satisfaction index.

This paper uses factor analysis to calculate the total score of residents' satisfaction with the above nine types of basic public services. It is a statistical analysis method that uses a few factors to describe the association between many indicators or factors, and a few less factors to reflect most of the information of the original data. The mathematical expression of the factor analysis model is:

$$X_i = \mu + a_{i1}F_1 + a_{i2}F_2 + \dots + a_{im}F_m + \epsilon_i, \quad (i=1, 2, \dots, p)$$

where X_i is the observed random variable, F_i is the i -th public factor, which is an unobservable variable, a_{ij} ($j=1, 2, \dots, m$) is the factor loading, and ϵ_i is the special factor, which is the part that cannot be included by the first m public factors.

As shown the table4, for the nine basic public service satisfaction variables, one common factor with eigenvalues greater than 1 was extracted by

applying the principal component method. Moreover, this one common factor can explain 69.37% of the total variance of the 11 variables. Overall, it has a high degree of concentration and the amount of information loss is within an acceptable range.

Table 4: Public factor analysis.

Common factor	Eigenvalue	Variance	Proportion	Cumulative variance
F1	6.86159	6.92047	0.6830	0.6937
F2	0.64112	0.05889	0.0583	0.7222
F3	0.58222	0.08087	0.0529	0.7661
F4	0.50135	0.05157	0.0456	0.7807
F5	0.44978	0.0497	0.0409	0.8216
F6	0.40008	0.01097	0.0363	0.8421
F7	0.38911	0.05855	0.0355	0.9233
F8	0.29181	0.03875	0.0365	0.9432
F9	0.27781	0.014	0.0153	1.0000

As shown in the figure below the table, a common factor extracted using the principal component method has high factor loading values on all nine basic public service satisfaction variables. Moreover, each of the basic public service satisfaction variables has a more balanced commonality on the common factor, and there is no significantly low commonality. Therefore, we saved the scores of the first common factor and, for comparison, multiplied its value by 100 as the total score of residents' satisfaction with the nine public services in Harbin, with higher scores indicating higher satisfaction as the dependent variable.

Table5: Analysis of dependent variables.

Variables	Factor Load	Commonality
Childhood Education	0.8028	0.3555
Learning and teaching	0.7962	0.366
Medical care for the sick	0.7466	0.4425

Table 6: Multiple linear regression analysis.

Independent variable	Benchmark Model	Access Model	Sense of fairness model	Cognitive degree model
Gender (M=0)	1.995	2.922	4.045	6.239*
	(-4.904)	(-3.806)	(-3.653)	(-3.614)
Age	0.982***	0.485***	0.311**	0.226*
	(-0.184)	(-0.144)	(-0.138)	(-0.137)

Cure for illness	0.7438	0.4468
Ageing in place	0.8085	0.3463
Work for a living	0.7304	0.4665
Weaknesses are supported	0.7809	0.3902
Military service	0.8331	0.3059
Cultural and Sports Service	0.7914	0.3737

In order to investigate the factors affecting the satisfaction of basic public services of Harbin residents, this paper uses a general multiple linear regression model with the score of satisfaction with basic public services as the dependent variable, and the basic variables of gender, age, education, occupation, and place of residence are statistically controlled, and the analysis focuses on the relationship between the sense of access, sense of fairness, and public policy awareness of Harbin residents on the dependent variable of satisfaction with public services. The mathematical expression of the model is as follows the mathematical expressions of the model are as follows.

$$y = b_0 + b_1x_1 + b_2x_2 + \dots + b_nx_n + e$$

In the above equation, y is the dependent variable, which in this paper is the public service satisfaction score, b0 is a constant term representing the base level at which all independent variables are 0 is the dependent variable, b1, b2, b3, bn are partial regression coefficients representing the average change in the dependent variable when the particular independent variable changes by one unit, given that the other independent variables take the same value. e is the sampling error term.

Based on the above ideas, the results of the multiple linear regression analysis made by using Stata 12.0 statistical software are shown in Table 6. In order to reflect the dynamic influence process of the respective variables on the dependent variable public service satisfaction, the author made four regression analysis models by nesting.

College(below high school/junior high school = 0)	-2.819**	-1.144	-4.377	-6.59
	(-6.018)	(-4.671)	(-4.489)	(-4.436)
Bachelor's degree or above	5.849**	-0.915	-4.708	-6.76
	(-6.992)	(-5.43)	(-5.219)	(-5.153)
Place of residence (suburb = 0)	6.932**	-4.368	-0.146	-0.0511
	(-4.658)	(-3.63)	(-3.499)	(-3.45)
Staff(student=0)	-11.07*	-3.457	-3.195	-0.924
	(-6.014)	(-4.673)	(-4.483)	(-4.431)
Unemployed/retired	-19.08***	-4.275	-4.491	0.0572
	(-5.73)	(-4.468)	(-4.287)	(-4.273)
Sense of Access		10.70***	8.723***	8.180***
		(-0.312)	(-0.339)	(-0.342)
Sense of fairness			7.976***	7.098***
			(-0.641)	(-0.643)
Policy Awareness				2.656***
				(-0.367)
Constant term	-53.86***	-347.2***	-385.0***	-377.2***
	(-12.36)	(-12.85)	(-12.69)	(-12.56)
Case items	1,849	1,849	1,849	1,849
R2	0.070	0.440	0.485	0.500

4 CONCLUSION

The results show that the regression has much higher explanatory power, with the R2 reflecting the regression's extraordinary explanatory power increasing from 0.07 to 0.44. Moreover, the variable of access to basic public services has a significant positive effect on satisfaction with basic public services, specifically, for the same value of other independent variables, the score of satisfaction with basic public services will increase by 10.7 points on average for every 1 point increase in the score of access to basic public services. Specifically, with the same values of other independent variables, for every 1-point increase in the basic public service access score, the basic public service satisfaction score will increase by 10.7 points on average. This means that the higher the farmers' sense of access to public services, the higher their satisfaction with public services. By adding a new independent variable, sense of fairness, to the access model, a multiple linear regression model of sense of fairness is obtained. (Cheng 2022) The results show that the explanatory power of the equation has improved significantly, with the R2 of the model increasing

from 0.44 to 0.485. Moreover, there is a significant positive relationship between perception of fairness and satisfaction with public services, specifically, for residents of Harbin City, every 1-point increase in perception of fairness score will increase their satisfaction with basic public services by 7.976 points on average. This indicates that the higher the sense of equity in basic public services, the higher the satisfaction with public services. (Ruan 2020) A multiple linear regression model of policy awareness was obtained by adding a new independent variable, public service policy awareness, to the model of perceived fairness. The results showed that the explanatory power of the equation improved significantly, with the R2 of the model increasing from 0.485 to 0.5. Moreover, policy awareness had a significant positive effect on public service satisfaction, specifically, for Harbin residents, each point increase in the awareness of basic public service policies would increase their public service satisfaction scores by 2.656 points on average. This means that the higher the residents' awareness of public service policies, the higher their satisfaction with public services.

5 SUGGESTIONS

5.1 Establishing a Diversified Supply Mechanism

Although the government department is the largest supply body of public services, responsible for coordinating the construction of basic public services around the world, but basic public services can not be provided by the government department only, in some cases the government department also exists dysfunctional phenomenon, inevitably brings the problem of inefficient supply, resulting in the phenomenon of waste of public resources. Therefore, the government of Harbin should prepare for the future, create a social environment conducive to the development and growth of various social organizations, encourage and support social capital forces to join the supply of basic public services, and at the appropriate time to introduce organizational competition mechanism, in order to promote social capital to join the supply of public services more vitality, and thus enhance the efficiency of the supply of basic public services.(Zhang 2019) At the same time, social capital should be given moderate preferences at the policy level, for example, in terms of capital loans, preferential treatment can be given to reputable enterprises by lowering loan interest rates and lowering loan thresholds, so as to better attract high-quality social capital to various aspects of basic public goods and services.(Siddiqui 2021)

5.2 Smooth Channels for Expressing Residents' Interests and Demands

Smooth channels for expressing public opinion can also help residents to play a supervisory role in the distribution of basic public service resources, prevent integrity risks in the distribution process by those who distribute benefits, and help government departments to divide the cake of basic public service resources well and form a reasonable distribution pattern that is fairly enjoyed by all. (Ren 2022) In the past, people used to express their opinions by putting their written letters into opinion boxes, but with the progress of the times, people have more convenient and efficient channels to express their opinions, such as through WeChat and e-mail, and these anonymous ways of expression can help farmers to express their opinions freely, which helps to eliminate the differences between residents and government departments, ease the conflicts between the government and the people, and form a harmonious social atmosphere.

5.3 Strengthening Farmers' Policy Awareness

Residents' awareness of basic public service policies determines the satisfaction of public services. Increasing the publicity of residents' basic public service policies is conducive to enhancing residents' awareness of the policies. (Wei 2014) Residents must know the policy in order to understand it, and then accept and comply with it. Therefore, government departments should strengthen the publicity of public service policies and optimize the way of public service policy publicity, so that public service policies can really penetrate into the hearts of the people.

REFERENCES

- Cai, Li-Hui & Hao, Yu-Kun. (2021). A study on the improvement of public service satisfaction under the indirect management approach of government. *Administrative Forum* (03), 30-40.
- Cheng, M.W., Li, D.Y. & Yang, W.R.. (2022). Does "household registration discrimination" exist in urban basic public services? *Journal of Tongji University (Social Science Edition)* (05), 104-114.
- Haiyang Ren, Hancong Zhu, Min Wang & Xuelei Zhang. (2022).Satisfaction Survey of Environmental Basic Public Services and Study on Influencing Factors in New-type Urbanization Areas. *IOP Conference Series: Earth and Environmental*.
- Hu Chenpei, Jiang Wei, Qiang Hengke & Xu Jing. (2018). Analysis of public service satisfaction and its heterogeneity in East China - based on fuzzy comprehensive evaluation method. *East China Economic Management* (08),34-40.
- Luo Wei & Li Yan. (2021).Basic Public Services, Financial Competition and Economic Growth of Urban Agglomeration on Yangtze River Delta Based on Big Data. *Journal of Physics: Conference Series* (4).
- Ruan Rongping, Zheng Fengtian & Liu Li. (2020). Has the "new agricultural insurance" improved the satisfaction of insured farmers with local government? *Journal of Public Administration* (03), 100-112+172.
- Siddiqui Saniya, Akhtar Mohammad Nadeem, Nejem Jamal K. & Alnoumasi Mastour Saud. (2021). Evaluating Public Services Delivery on Promoting Inclusive Growth for Inhabitants of Industrial Cities in Developing Countries. *CIVIL ENGINEERING JOURNAL-TEHRAN* (2).
- Wei Hu. Mei-ling Liu. (2014) Service-oriented Government, Public Satisfaction, and Opinion Poll. *The Journal of Jiangsu Administration Institute*
- Zheng JJ. (2017). Gender differences in the mechanisms of political participation and political communication on public service satisfaction--an empirical analysis based on data from 6159 Chinese citizen surveys. *Journal of*

Tsinghua University (Philosophy and Social Science Edition) (05), 164-171+199.

Zhang, Q. & Zhou, Z.. (2019). Public demands, perceived equilibrium and public service satisfaction - An analysis based on relative deprivation theory. Journal of Jianghai Studies (06), 90-95.

