The Study on Satisfaction with Government Purchase of Public Services
- Based on CHFS Microscopic Survey Data

Zhang Yanqiu¹,*

¹ School of Economics, Sichuan University, Chengdu, China
* 276659836@qq.com

ABSTRACT
The study on satisfaction of public service has direct bearings on evaluating social effect and governance performance of government purchasing of public services. Based on the data of China Household Finance Survey (CHFS2015), the paper takes the satisfaction of medical care, health services and labour employment services as the study objects and uses Ordered Probit model to test the impact of government purchasing on the satisfaction of public services. The research shows that urban communities purchase more services than rural communities in China. Government purchase has a significant positive effect on community residents' satisfaction with public service; The effect of service purchase on the satisfaction of public services is heterogeneous among regions. Compared with developed regions, service purchase has a stronger marginal effect on the less developed regions. Therefore, in order to further improve community residents' sense of achievement and satisfaction of governmental public services, the government should speed up transforming public service supply mode, constantly introduce social resources, and promote multiple supply of public services, in order to meet residents' service demands effectively and improve public governance performance.

Keywords: Government purchase, Public service, Satisfaction

1. INTRODUCTION
The government purchase of public services from social organizations refers to “the government gives the matters, originally organized directly by the government and providing services to social development and people's lives, to qualified social organizations or residents for completion. Based on the quantity and quality of services provided by social organizations, the government pays for the services with certain standards, which is a new type of government-provided public services undertaken by the government, entrusted to specific items, managed by contract, and delivered on evaluations.”[1]. Thus, the original intention of government to buy public services is to improve public service capacity and meet public demands. Currently, the principal contradictions in Chinese society have been transformed into the contradiction between the people’s growing need for a better life and the unbalanced and inadequate development. In the field of public service, the public need a richer type of public service and more satisfying public service capacity. In 2021, the “Recommendations of the CPC Central Committee on the Formulation of the 14th Five-Year Plan for National Economic and Social Development and the Vision For 2035” was issued by the CPC Central Committee, which calls for “providing smart and convenient public services with a focus on key areas such as education, health care, elderly care, child care, employment, recreation and sports and handicapped assistance, and promoting the universal application of digital services, so as to continuously enhance the public sense of benefits.” In consequence, China needs to expedite the reform and exploration on expanding social purchase of services, play the role of market mechanism, to improve the quality and efficiency of public service supply and enhance the public sense of contentment.

How to evaluate the performance of government procurement of public services is always a hotspot for scholars at home and abroad. Most scholars in foreign countries believe that the public service efficiency of the private sector is better than that of the public sector [2],
and a large number of empirical studies were carried out in fields of public infrastructure [3][4], education [5][6], healthcare [7][8][9] and others to support this standpoint; However, some empirical studies that do not show a clear conclusion that government purchases of public services are better at improving supply performance and reducing supply costs [10][11][12]. Domestically, researches on government purchase of public services mainly focus on the basic theory, status quo and mechanism of purchasing public services. Few empirical research is developed on the external purchase level and performance evaluation of public services. At present, the equalization of basic public services in China is shifting from “narrowing the financial gap among regions” to a new era of governance that “improves people's sense of gain” [13], and improving government capacity building [14] or third-party evaluation [15] are both necessary and effective means of performance evaluation. Due to the lack of data at the micro-individual level, the existing evaluation studies rarely involve empirical investigation and research on residents’ satisfaction with government purchases of services. In summary, the author uses CHFS2015 data to identify the effect of purchasing public services on resident satisfaction, taking the satisfaction of medical, health service and labor employment services as investigation objects, to evaluate the effectiveness of government purchase of public services, and put forward two propositions to be tested: first, with other factors controlled, government purchase of public services has a positive impact on community residents’ satisfaction with public services. Second, the impact of government purchase of public services on the satisfaction of public services is heterogeneous among regions, and the purchase of services has a stronger marginal effect on less developed regions than on developed regions. The propositions are based on the logical inference in literatures that the purchase of public services from social organizations (or the private sector) has a greater effect on developing economies, and that the purchase of services in our country may have a stronger effect on satisfaction of public services for residents of less developed regions.

2. THEORETICAL FRAMEWORK

The public recognition and support for the public management and public service efficiency of government is an important index of public service purchase effectiveness [16], but the “identity difference” between the government and the service purchaser will directly impact the effectiveness of public service purchase [17]. At present, major problems of China's public service purchase are supply and demand mismatch, supply deviation, uneven supply and weak supply competition [18]. In the process of government purchasing public services, government is both the buyer and the manager of public services. Due to the difference in understanding public needs, public service providers may find it difficult to effectively meet public needs by providing public services. While government can manage public service purchase projects base on public satisfaction to improve the government's public service level and actively respond to public needs.

Actually, the efficiency of government purchase of public services is a vital manifestation of the allocation effectiveness of the supply-demand relationship among government, market and the public. Government buys public service in the market base on diversified public needs. The main body of public service construction catches on the demand before public service deliver. The satisfaction evaluation of public service effectiveness is collected from the citizens for government to adjust services purchase according to the results of public satisfaction, so as to improve the capacity of public services.

![Figure 1 Research framework](image)

3. DATA AND VARIABLE SELECTION

Micro-individual, family and community samples are used in the paper, and the sample data are respectively from the individual, family and community questionnaire of CHFS2015 (China Household Finance Survey). In terms of satisfaction inquiry, the personal questionnaire asks about the satisfaction of multiple public service items, such as “community labor employment, elderly care, care of children and the disabled, medical care, sanitation, environmental renovation, cultural entertainment, public security management, and road building” . The scope of basic public services mainly falls into the following nine categories: community security and employment, medical and health care, public education, public management, recreation and sports, urban and rural communities, environmental protection, public safety, and transportation [19]. Considering the public service projects that are most accessible to community residents and have local characteristics, the explained variables selected in the empirical analysis are residents' satisfaction with medical care and labor employment, and the impact of purchasing public services on residents' satisfaction is investigated at the community level. Residents’ satisfaction level was rated as “very dissatisfied, dissatisfied, general, satisfied and very satisfied”.

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According to the sample selection above, through data quality control and sorting, samples that refused to answer (missing value) and did not touch the two public service projects were rejected, and the valid data of 1380 communities and 16,076 microscopic observation points were obtained. On the grounds of theoretical basis in literature review, when selecting explanatory variables of public service satisfaction, we firstly controlled variables of demographic economic characteristics of individuals and families, and the selection of these variables referred to existing studies [20]. At the personal level, variables include respondents’ age and square term, gender, education level, marital status, health status, whether they are members of the Communist Party of China (CPC), and whether they have local household registration. Studies have found that party members in cities are more likely to get higher income [21]. Meanwhile, in China, residents without local household registration can hardly enjoy the same education, medical and health care, employment and other services [22]. Controlling those variables can reduce the interference of individual characteristics on analysing influencing factors of public service satisfaction. At the household level, annual household income and consumption are controlled. At the community level, besides the most critical explanatory variables of whether the government buys public services, there are also variables of the total community income, the community population size, the number of projects undertaken by the higher-level government, the establishment of a permanent council, and the number of registered volunteers. Community economic and social development, democratic construction and other factors may affect residents’ subjective satisfaction.

4. EMPIRICAL ANALYSIS RESULTS AND ANALYSIS

4.1. The Basic Situation on Government Purchase of Public Service in China

The CHFS2015 Community Questionnaire inquires whether the community buys public services from social organizations, the start time of service purchase, the type of service purchase, etc. Approximately 7.5% of our communities buy public services from social organizations, with a higher proportion of urban communities than in rural areas. By city, the proportion of urban communities in first-tier cities is the highest, at 11%, and that of the third-tier cities is highest at 9.5%. The proportion of public services purchased by the whole community is not at the high end. The proportion of urban communities buying services is better than that of rural areas due to financial reasons while the third-tier cities have a relatively low urbanization rate and a higher proportion of rural buyers of services.

Figure 2 Proportion of Community Buying Public Services

Figure 3 The proportion of public service purchased by communities in the 1st-, 2nd- and 3rd-tier cities

Thirty-three percent of the communities started to buy public services in 2015, compared with 17 percent in 2009 and before. In terms of the types of services purchased, the majority include care for poor families and the elderly. Services for the elderly care is the most popular in urban communities, while rural communities mainly buy care services for the poor. China's purchase of public services mainly started from the “12th Five-Year Plan”. Aging population in urban communities, together with other reasons, leads to the purchase of elderly care services in urban communities, and poor family care services in rural.
4.2. Study on the Influence of Government Purchase on Public Service Satisfaction

4.2.1. Basic Regression Results

The explained variable in this paper is residents’ satisfaction with public services, which is an ordered and classified variable (1= Very dissatisfied. 2= Dissatisfied, 3= General, 4= Satisfied, 5= Very Satisfied). Ordered Probit model was adopted for regression analysis to observe the impact of purchasing public services on residents’ satisfaction as a whole, and the regression results were reported in Table 1. Table 1 shows that government purchase has a positive impact on the satisfaction of medical and health services at the significance level of 5%, and a positive impact on the satisfaction of labor employment services reaches a significance level of 10%. This shows that the community purchase of public services increases the probability of residents’ satisfaction with public services, that is, social organizations (or private sectors) are more able to provide socially desirable public services. It can be envisaged that the government can shift from providing public services directly to purchasing from social organizations. According to the community demands on public services, cooperative social organizations can be selected in a competitive way to provide public services. Thus, residents’ satisfaction with the public services of the whole community will be greatly improved.

Table 1. Regression results of Ordered Probit model on public service satisfaction

|                                      | Satisfaction with medical and health services | Satisfaction with employment services |
|--------------------------------------|-----------------------------------------------|--------------------------------------|
| Public services purchase (1=purchased| 0.107**                                       | 0.132*                               |
| 0=unpurchased )                      | (0.054)                                       | (0.071)                              |
| Age                                  | -0.019*                                       | -0.02                                |
| (0.01)                               | (0.013)                                       |
| Age squared                          | 0.000***                                      | 0.000***                            |
| (0)                                  | (0)                                           |
| gender (1=man 0=woman )              | -0.154***                                     | -0.210***                            |
| (0.045)                              | (0.06)                                        |
| Educational level (1= junior high school or below 2= high school/technical secondary school/vocational high school 3= junior college/university undergraduate 4= graduate degree or above) | -0.158***                                   | -0.127***                            |
| (0.033)                              | (0.045)                                       |
| Marital status (1=married 0= Unmarried, separated, divorced, widowed, etc. ) | -0.071                                        | 0.035                                |
| (0.069)                              | (0.09)                                        |
| Health condition (1=very bad 2=bad 3=average 4=good 5=very good ) | 0.103***                                     | 0.170***                            |
| (0.026)                              | (0.036)                                       |
| CPC member (1=Yes 0=No)              | 0.064                                         | 0.175**                              |
| (0.061)                              | (0.08)                                        |
| Residence of the town/street (1=Yes 0=No ) | 0.057                                        | 0.004                                |
| (0.057)                              | (0.076)                                       |
| Family annual income(log)            | 0.013                                         | 0.031**                              |
| (0.011)                              | (0.014)                                       |
Family annual expense (log) & 0.001 & -0.022 \\
& (0.023) & (0.031) \\
Community total income (log) & -0.01 & -0.002 \\
& (0.011) & (0.014) \\
Community population size (log) & -0.058* & -0.090** \\
& (0.034) & (0.045) \\
Number of projects undertaken by superior governments (log) & 0.022 & 0.053** \\
& (0.017) & (0.023) \\
Whether to establish a standing committee (1=yes = no) & 0.097 & 0.05 \\
& (0.073) & (0.105) \\
Number of registered volunteers (log) & -0.051*** & -0.034 \\
& (0.019) & (0.025) \\
& 0.025 & 0.023 \\

Note: (1) ***, ** and * represent significance levels of 1%, 5% and 10%, respectively. (2) Individual variables, family variables and community variables were controlled in the regression.

### 4.2.2. The marginal effect of government purchases of public services

The marginal effect of government purchases of public services is calculated from the model in Table 1, and the results are reported in Table 2. As can be seen, the marginal effect of purchasing public services on the satisfaction of labor and employment services is slightly better than that of medical and health services. When the community buys services, the marginal effect of “satisfied” with employment services increases by 0.0314, the marginal effect of “dissatisfied” decreases by 0.0171, the marginal effect of “satisfied” with health services increases by 0.0263, and the marginal effect of “dissatisfied” decreases by 0.0137. The purchase of public services by the community can meet the diversified needs of the public and contribute to the public’s satisfaction with employment and health care.

| Satisfaction level | Satisfaction with medical and health services | Satisfaction with employment services |
|--------------------|-----------------------------------------------|-------------------------------------|
|                    | Marginal effect | Standard error | 95% confidence interval | Marginal effect | Standard error | 95% confidence interval |
| Very satisfied     | 0.0163          | 0.0086         | (-0.0005, 0.0331)       | 0.0203          | 0.0115         | (-0.0023, 0.0429)       |
| Satisfied          | 0.0263          | 0.0131         | (-0.0010, 0.0517)       | 0.0314          | 0.0167         | (-0.0012, 0.0641)       |
| Average            | -0.0201         | 0.0105         | (-0.0408, 0.0005)       | -0.0231         | 0.0133         | (-0.0490, 0.0033)       |
| Unsatisfied        | -0.0137         | 0.0068         | (-0.0277, 0.0004)       | -0.0171         | 0.0091         | (-0.0349, 0.0007)       |
| Very               | -0.0088         | 0.0042         | (-0.0175, 0.0004)       | -0.0115         | 0.0060         | (-0.0231, 0.0002)       |
| Unsatisfied        | 0.025           | 0.023          |                           |                  |                |                         |

Note: The marginal effect of purchasing public services is significant at the 5% level of medical and health services, and at the 10% level of labor and employment services.

### 4.3. Interregional Heterogeneous Effects

With logical analysis in the literature review, the purchase of public services from social organizations (or the private sector) plays a greater role in developing economies. Therefore, in China, service purchase may have a stronger effect on residents’ satisfaction with public service in less developed areas. To test this point, “developed regions” and “undeveloped regions” were set respectively according to the actual per capita GDP of county-level regions in 2013. In order to fully capture the heterogeneity, two quantiles were set at 50% and 90% of per capita GDP, respectively. The 50% quantile of per capita GDP is 16,240 yuan, so the counties with per capita GDP greater than 16,240 yuan are defined as developed areas, and the counties with per capita GDP less than 16,240 yuan are defined as underdeveloped areas. The 90% quantile of per capita GDP is 63,502 yuan.
yuan, so counties with per capita GDP greater than 63,502 yuan are defined as developed areas, and the counties with per capita GDP less than 63,502 yuan are defined as underdeveloped areas. The regression results of Ordered Probit model are reported in Table 3.

Observing the significance level, it is found that the satisfaction of public services in developed areas does not significantly depend on whether they are purchased or not, whether they are in the 50% or 90% quantile. For less developed areas, service purchase has a significant positive impact on public service satisfaction. Looking at the size of the regression coefficient, it is found that the regression coefficient in the 50% sub-point is much higher than that in the developed area, compared with that in the 90% sub-point, indicating that in the very underdeveloped area, the satisfaction of public service significantly depends on the purchase of services.

### Table 3 Regression of public service satisfaction at different sub-points of per capita real GDP

|                        | Satisfaction with medical and health services | Satisfaction with employment services |
|------------------------|----------------------------------------------|-------------------------------------|
|                        | 50% DE | 90% DE | 50% UDE | 90% UDE | 50% DE | 90% DE | 50% UDE | 90% UDE |
| Purchase of public services | 0.039   | 0.172* | 0.045   | 0.131** | 0.032 | 0.272** | -0.091 | 0.174** |
| (0.070)                | (0.088) | (0.171) | (0.058) | (0.093) | (0.116) | (0.215) | (0.078) |
| Annual household income | 0.029** | -0.003 | 0.026   | 0.011   | 0.045** | 0.017   | 0.013   | 0.033** |
| (0.014)                | (0.018) | (0.032) | (0.012) | (0.019) | (0.023) | (0.043) | (0.015) |
| Annual household consumption | -0.011 | 0.028   | 0.083   | -0.016  | 0.009   | -0.054  | -0.003  | -0.020  |
| (0.029)                | (0.040) | (0.056) | (0.026) | (0.041) | (0.050) | (0.105) | (0.033) |
| Total community income | 0.001   | -0.034* |-0.047  | -0.009  | 0.015   | -0.038  | -0.038  | -0.010  |
| (0.013)                | (0.019) | (0.031) | (0.012) | (0.017) | (0.026) | (0.039) | (0.016) |
| Community population size | -0.085* | -0.052  | -0.250** | -0.037  | -0.179*** | -0.019  | -0.236  | -0.087* |
| (0.048)                | (0.050) | (0.120) | (0.036) | (0.065) | (0.066) | (0.160) | (0.048) |

Note: (1) ***, **, and * represent significance levels of 1%, 5%, and 10%, respectively. (2) To save space, variables at the individual level were not listed in the regression, only some family-level variables and control variables at the community level were listed. (3) DE is developed and UDE is undeveloped.

### 5. ROBUSTNESS TEST

Although a series of individual, family and community characteristics that may influence the satisfaction of public services are controlled in the regression, one problem with subjective evaluation is that the respondents may have “understatement” or “overstatement”. An easy way to rule this out is to re-assign the rating of the resident satisfaction when it is not possible to observe which individuals would “understate” or “overstate”. The rule for assignment is to combine “very satisfied” and “satisfied” with a value of 3, “general” to 2, and “very dissatisfied” and “dissatisfied” to 1. With the Ordered Probit model, it could be seen that the impact of community purchases on health and employment services remains significant, indicating that respondents “understated” or “overstated” satisfaction levels are not cause for concern.

### Table 4. Test results of “understated” or “overstated” satisfaction levels

|                        | Satisfaction with medical and health services | Satisfaction with employment services |
|------------------------|----------------------------------------------|-------------------------------------|
| Ordered Probit Model   | 0.117**                                      | 0.132*                             |
| Purchase of Public Service | ( 1=purchased )                             | ( 0.058 )                          |
|                        | ( 0=unpurchased )                           | ( 0.077 )                          |

Note: (1) *** represents significance levels of 1%.
Moreover, some special sample counties are excluded, including 5% of the least developed areas, 5% of the most developed regions. Corresponding sample regression and respective results show that the empirical conclusions are not affected. While only cross-sectional data for 2015 is used in this article, the stability of whether communities are buying public services is guaranteed, since it is not just about 2015 purchases. Meanwhile, as to whether the conclusion of this paper will be challenged by the potential endogeneity problem, we think that endogeneity is not the main problem facing this paper. Firstly, the purchase or direct delivery of public services in China is almost determined by the community, the grass-roots government or the central government, which means that the purchase of services is to a large extent an exogenous variable. Secondly, a number of community-level, family-level and individual-level variables were controlled in the regression analysis, which greatly alleviated the effects of endogenous bias.

6. CONCLUSION AND POLICY PROPOSAL

This paper uses nested data from the community, family and micro-individual samples of CHFS2015 to verify the basic assumption that the purchase of public services by our government can significantly improve the level of residents’ satisfaction with public services. With China's economy and society entering a new stage of modernization, residents' demand for public services is becoming more diversified and personalized. Government must speed up the transformation of providing public services, explore the effective means of modern governance at the grass-roots level, transform from the monopoly of public services to the purchaser, constantly introduce social resources, promote the diversified supply of public services, adopt the mechanism of competition and contract outsourcing, build a healthy contractual relationship, and strive to provide public services meeting residents’ demand. However, it cannot be ignored that the Chinese government started late in purchasing public service. There are still some difficulties facing the government purchase of public service decided by immature purchase mechanism and less empirical researches, such as the transaction cost control by introducing competition mechanism, supervision and management of trustors, conflicts of interest or corruption during purchase, lack of authoritative policies and regulations, as well as a post-evaluation mechanism for purchasing service. Therefore, it is necessary to establish scientific procedural standards, objective performance evaluation methods and strict supervision and management system to evaluate the implementation by regularly investigating residents’ satisfaction with public services, to correct execution deviations without delay, to form an integrated chain of information collection and feedback, and to continuously improve the modernization ability and level of government functions.

Meanwhile, China is a large country with obvious regional and urban-rural development differences, which also, to a certain extent, determines the difference in the quality and efficiency of public service supply. This paper also validates the hypothesis that the purchase of public services in less developed areas has a greater effect on the improvement of residents' satisfaction. Based on sample data, government purchase of public services started relatively late in China. The proportion of government purchases of public services in relatively developed areas such as first-tier cities is obviously higher than that in less developed areas. However, it cannot be ignored that rural areas in less developed areas quickly join the ranks of public service purchases, reflecting the strong demand for public services. In less developed areas, restricted by economic development and governance, government's ability to directly provide public services and the service quality are constrained, making it difficult to meet the residents' growing demand for public services. Sometimes, some “face-saving projects” or corruption may even occur due to “political achievements”, resulting in public dissatisfaction. By introducing market forces through the competition mechanism, improving the efficiency and quality of public service supply in underdeveloped areas, increasing policy support such as transfer payment to underdeveloped areas and further expanding the service scope, residents' satisfaction can be quickly improved, which also will effectively narrow the gap between the level of public service supply between less developed and developed regions, improve people's sense of gain, happiness, and achieve the goal of equalization of public services in regional and urban and rural areas.

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