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PAPER

Research on the Influencing Factors of Farmers' Choice of Medical Treatment in Health Stations under the Background of Rural Medical Insurance—Taking Guangdong Province as an Example

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ABSTRACT

This paper examines the decision-making process of farmers when selecting medical treatments at health stations. The purpose is to establish a more rational and scientific rural medical insurance system and to adapt the system to the current external environment. This will enable the system to fully utilize its potential and benefit the rural medical insurance sector. Innovation. This paper adopts a combination of literature review, field investigation, descriptive research, and statistical analysis to examine the medical treatment choices made by farmers in Guangdong Province under the rural medical insurance system. The hardware and software facilities of village health stations have a significant impact on farmers' choice of medical treatment. Among them, the number of doctors is significantly positively correlated, while the facility investment in health stations is significantly negatively correlated. From this, it can be seen that farmers are more concerned about whether they can access medical services in a timely manner, but they have a negative reaction to the high cost of medical expenses at health stations. This paper proposes a rational allocation of resources for medical and health stations through the reform of the rural medical insurance system. The aim is to improve the level of rural medical and social security.

KEYWORDS

rural medical insurance system, medical choice health station, rural medical social security

1 FORMULATION OF THE PROBLEM

Since the introduction of the New Rural Cooperative System in 2003, the government has placed significant emphasis on rural healthcare. In order to meet the increasing healthcare needs of farmers, the government has consistently increased

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its national healthcare expenditure since 2012. During this period, the proportion of national financial healthcare expenditure to the total national financial expenditure has also risen, from 5.75% in 2012 to 7.82% in 2020, representing a cumulative increase of 2.02%. These figures demonstrate the government's commitment to improving rural healthcare. In Guangdong Province, for example, the total financial expenditure in 2020 will be 174,307,900,000,000 yuan. The financial expenditure on healthcare in Guangdong Province will reach 177,299,000,000 yuan, accounting for a high proportion of 10.17%. This increase may be attributed to the impact of the new crown epidemic, which has led to a significant rise in healthcare spending in both urban and rural areas. Normalized and extraordinary nucleic acid testing has been a key factor contributing to the cumulative increase of 1.03% between 2019 and 2020. The per capita healthcare expenditure for farmers in 2020 was 1,418 yuan, representing a year-on-year decrease of 0.03%. Additionally, the expenditure of the national health insurance fund amounted to 2103.21 billion yuan, also showing a year-on-year increase. The increase of 0.08% reflects the national finance's importance in protecting the health insurance system for farmers and the national commitment to the "Three Rural Areas." "In 2016, the State Council issued the Opinions on Integrating the Basic Medical Insurance System for Urban and Rural Residents. This marked the end of the urban-rural divide in medical insurance, as it unified the reimbursement drug catalog, standardized access to medical care, and reduced the gap in treatment between urban and rural areas. As a result, farmers' medical care received fair protection." From 2016 to 2020, the state's financial expenditure on healthcare subsidies for urban and rural residents will reach 14,484 billion yuan. This goal is to alleviate the financial burden of healthcare on both urban and rural residents. However, the increased financial investment in public healthcare institutions may result in their excessive expansion. This could lead to the acquisition of expensive healthcare facilities and the addition of new healthcare units, ultimately increasing the cost of healthcare services for the public or reducing the cost-effectiveness of healthcare. Consequently, farmers may experience a lack of access to healthcare services, which could further exacerbate the overall shortage of healthcare services. And to a certain extent, they cause problems in farmers' choice of medical care and do not accurately reflect the universal role of the health insurance system's protection.

In the context of rural health insurance, the increase in government financial expenditure has significantly boosted the participation rate of farmers and improved their overall well-being. However, it remains unclear whether this actually alleviates the burden of healthcare expenses for farmers and encourages them to seek medical treatment at health centers. What are the factors influencing farmers' choice of healthcare centers?

2 THEORY AND ASSUMPTIONS

2.1 Rationale

Feasibility theory, first proposed by scholar Amartya Sen in the 1970s, is widely used in the field of welfare economics. According to Sen, feasible ability refers to the potential of individuals to achieve a variety of functional activities that can meet the various needs outlined in Maslow's Hierarchy of Needs Theory. To sum up, the theory of feasible ability refers to the idea that a person can experience substantive freedom, which is different from nominal freedom. Feasibility is

determined by the combination of a person's individual capabilities and the resources available to them. It represented the actual activities and behaviors that a person is capable of performing. Specifically, this concept is manifested in three ways. First, each person has different needs, and personal choices do not solely aim to maximize utility or benefits. Second, individuals can enjoy varying levels of welfare based on their personal endowments. Third, the degree of freedom in choosing varies among individuals, which can result in differences in welfare.

This paper utilizes the theory of feasibility to analyze the issue of healthcare choices among farmers. It begins by examining the factors that influence farmers' healthcare decisions and exploring the challenges they face in accessing healthcare.

2.2 Perspectives and assumptions

Based on research experience from field visits to 14 districts in Guangdong, the team of this paper categorized the prevailing contradictions under the new rural cooperative system as follows:

Contradiction between the coordination of major diseases and the prevalence of minor diseases. Under the current medical compensation policy, there is a prominent contradiction between the system's design, which prioritizes the coordination of major illnesses, and the focus on minor illnesses for livelihood issues. From the perspective of top-level policy designers, implementing a policy that primarily focuses on underwriting major illnesses can help address the shortage of funds. This policy would establish a safety net to cover the health risks faced by villagers, effectively mitigating the social problems that arise from major illnesses. It would also alleviate social pressure and provide the necessary time to accumulate resources for the gradual implementation of a comprehensive medical insurance policy that is suitable for the vernacular society. However, the reality is often the opposite. In rural areas, the primary concern often revolves around the common illnesses that affect the majority of villagers on a daily basis. The rural health insurance system, which is designed to protect against major diseases, often fails to effectively allocate health resources [1].

From an evolutionary perspective of diseases, it is often observed that major diseases in villages stem from a lack of timely and effective treatment for minor diseases. Over time, these minor diseases can evolve into major ones, requiring government intervention. This situation leads to a waste of public medical and health resources and funds without effectively preparing for future challenges. From the perspective of promotion insurance, the rural health insurance system has not fully incentivized villagers to participate due to the fact that only about 28% of the hospitalization medical costs can be compensated. This means that the system is not maximizing its potential benefits. According to statistics, the actual benefit coverage of the rural health insurance system (i.e., the percentage of villagers suffering from serious illnesses who can enjoy the benefits of the health insurance system) is less than 5% of the country [2]. From the perspective of the insured population, the rapid urbanization process is undoubtedly depleting the young workforce in rural areas. The rural health insurance system holds little significance for healthy young individuals, particularly in the current situation where local governments are striving to prevent unscrupulous individuals from exploiting loopholes in the rules to access the medical insurance fund. This is done to preserve the limited amount of the medical insurance fund or because a unified standard system for the allocation and utilization of the medical insurance

fund has not yet been established. Under the unified standard system, the one-size-fits-all policy adopted by the local government of "reimbursement for medical consultations outside the local area" undoubtedly further discourages villagers from participating in the insurance system and hinders the promotion of the rural health insurance system [3].

The contradiction between market-oriented and public medical care. From a market-oriented perspective, the flourishing of capital will inevitably lead to the disorderly expansion of capital. Additionally, due to the high degree of barriers in the medical field itself, health institutions will inevitably exploit the compensation system of major disease coordination to generate income [4]. Therefore, in this context, the more favorable the conditions of village and township health stations, the easier it is for them to gain an advantageous position under the present compensation system of major disease coordination. This allows them to further obtain financial benefits, human resources, and other resources. This will further lead to intense competition among health centers. On one hand, there will be blind increases in the number of medical equipment and high-priced medicines that exceed the actual demand. There will also be an uncontrolled expansion of health centers, including the occupation of neighboring land. On the other hand, health centers that are already in superior condition will take advantage of the high barriers in the healthcare field to avoid regulation. This will make it even easier for peasants, who already have a relatively low level of knowledge, to become the main beneficiaries of overpriced prescriptions and unnecessary treatment for minor illnesses [5]. Finally, due to the limitations of fixed-point medical care, health stations with better facilities will attract more patients and create a ripple effect. This leads many patients to travel long distances in search of better medical conditions, disregarding the availability of local health stations. As a result, the effective coverage area of local health stations is significantly reduced, leading to unhealthy competition among health stations and exacerbating the wastage of public medical resources [6].

The contradiction between voluntary and involuntary rejection. As for the discussion on the selection of medical care within the framework of the rural health insurance system, this paper is structured as follows:

According to Zhang Naiying et al., farmers will maximize their medical benefits by participating in the New Rural Cooperative Medical Insurance Scheme (NRCMI) based on the assumption of rational decision-making. They will choose to participate in the Rural Medical Insurance Scheme (RMSI) only if their own valuation of medical costs exceeds the government's valuation of their medical costs [7]. This reflects the farmers' rationalization of the benefits of participating in the NRHI and seeking medical care through rural health insurance. Ning Manxiu et al. conducted empirical tests that revealed unequal utilization of the NRHI among farmers. They found that farmers in varying income brackets have different levels of healthcare service utilization within the context of rural health insurance. These findings suggest that farmers' healthcare choice behavior is influenced by their utilization of the NRHI [6]. This reflects the fact that, even within the NRHM system, farmers may face challenges in accessing medical care due to factors such as unequal spending on medical costs and uneven utilization of medical services. Jia Hongbo argues that there is a need to enhance farmers' well-being and their access to rural medical insurance. This can be achieved by improving the farmers' ability to choose medical care, increasing the reimbursement ratio of medical insurance to cover their actual medical expenses, optimizing the financing system of rural medical insurance, and actively promoting reforms in medical policies and systems [8]. Ma Chao et al. conducted an empirical study on the farmers' selection of medical

care within the integrated urban-rural health insurance system. They utilized the double difference method and found that the integrated urban-rural health insurance system had a notable positive impact on the increased medical visits and medical expenses of farmers [9]. Zhu Fengmei conducted a quasi-natural experiment to empirically analyze the impact of the urban-rural health insurance system on the demand for medical services among farmers in a Chinese city from 2009 to 2014. The study's results indicated that the integration of urban and rural health insurance significantly increased medical expenses for the rural elderly population. Overall, the policy had a greater positive effect on the elderly population, aligning with expectations [10]. Ma Wanchao et al. utilized the DID model to examine the effects of the urban-rural health insurance system on farmers' utilization of health care services, cost utilization, self-assessed health, and objective health. The study analyzed two-period panel data from CFPS and discovered that the integration of urban-rural health insurance has a substantial positive influence on farmers' utilization of health care services, cost utilization, self-assessed health, and objective health. This impact is particularly pronounced among the high-income group and the elderly sick population [11].

In order to improve medical services, farmers are reluctant to sacrifice their rational human identity when making choices. The health care problems faced by farmers within the rural health insurance system still exhibit characteristics of refinement, direction, and depth as time progresses. In the current era of surplus capital for farmers, transportation issues are intertwined with the country's investment in infrastructure and the improvement of residents' quality of life. This highlights the significance of addressing the "Three Rural Issues" and the "Three Rural Issues." For farmers with surplus capital, the transportation problem tends to be alleviated through investments and improvements in infrastructure, a focus on improving residents' quality of life, and addressing the "Three Rural Problems." Comparatively speaking, the factors that originally influenced the promotion of rural medical insurance in the past have changed today. Farmers now pay more attention to the quality of medical services they can receive, the cost-effectiveness of medical services, and other demand-side issues. With the improvement of medical services in big cities, farmers living in remote mountain areas will choose where to seek medical treatment based on factors such as the quality of care, distance, time, and labor costs. Generally, when farmers make decisions about medical treatment, major diseases are given priority, while minor ailments are considered as the basis. Therefore, the widespread implementation of rural health insurance has also set the stage for the future distribution of benefits in the healthcare system. This paper aims to address the issue of medical treatment choices from the perspective of farmers. This paper focuses on farmers' perspectives on their choice of medical care. Accordingly, this paper presents the following hypotheses:

H1: In the context of the rural health insurance system, wealthier farmers are more likely to disregard the "proximity principle" and seek medical services at health centers with better conditions, driven by the assumption of rational decision-making and the desire for better medical care.

On the premise that hypothesis H1 is valid, this paper aims to explore the issues related to farmers' choice of medical care. It also proposes hypotheses H2, H3, H4, and H5 regarding the factors that influence farmers' decision-making process when it comes to medical care.

H2: Farmers will pay attention to the size of the health center because it directly impacts the capacity to accommodate patients. A larger health center indicates a greater of farmers accessing healthcare services.

H3: Farmers will appreciate the investment in medical equipment at the health center because a health center with a substantial investment in medical equipment will indicate, to some extent, an improvement in medical facilities. This, in turn, will encourage farmers to seek medical treatment at the center, where they can receive better medical services.

H4: Farmers will value the present of a sufficient number of doctors in the health center because it will facilities their access to timely health services.

H5: Farmers will pay attention to the qualifications of the doctors in health centers because the qualifications of the doctors will reflect their technical expertise to a certain extent. Farmers tend to choose health centers with highly qualified doctors in order to receive better medical services.

3 DATA AND METHODS

3.1 Data sources

The data in this paper was collected from a field research database of towns and villages in eastern, western, and northern Guangdong Province. The team for this paper visited these areas during the period of 2020–2021. In order to ensure the completeness and feasibility of the data, this paper processed the medical data of a total of 150 villages and towns. Villages and towns with residual values of the main variables were excluded from the sample group, resulting in 131 remaining villages and towns. The medical data of these 131 villages and towns were then assigned a seven-point scale based on factors such as resident population, investment in medical and healthcare station facilities, area of the village healthcare station, number of doctors, doctor's qualifications, and approximate number of people treated annually. This seven-point scale (D = 1 – 7) was used to facilitate the construction of econometric models for empirical evidence in econometric analysis.

3.2 Model construction

Firstly, we include the approximate annual number of consultations as an explanatory variable, the resident population as a control variable, medical equipment investment, the number of doctors, and doctors' education as additional explanatory variables. The model is represented by equation (1).

$$Y = \beta + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \tag{1}$$

The constant term represents the approximate number of consultations per year. The residuals represent the resident population, the investment in health center facilities, the size of the village health center, the number of doctors, and the qualifications of the doctors.

3.3 Variable setting

This paper assigns values from 1 to 7 to the explanatory variable "annual approximate number of medical consultations" based on seven equal parts. The ranges are as follows: 0–1999 = 1, 2000–2999 = 2, 3000–3999 = 3, 4000–4999 = 4, 5000–5999 = 5, 6000–6999 = 6, and 7000 and above = 7 (unit: people). The paper also sets the resident population as the control variable and assigns values from 1 to 7 based on the same proportion. The ranges for the resident population are as follows: 0–1999 = 1, 2000–2999 = 2, 3000–3999 = 3, 4000–4999 = 4, 5000–5999 = 5, 6000–6999 = 6, and 7000 and above = 7 (unit: people). Additionally, the paper assigns values from 1 to 7 to the inputs of medical and health station facilities on a seven-point scale. The ranges for these inputs are as follows: 0–4.9 = 1, 5–9.9 = 2, 10–14.9 = 3, 15–19.9 = 4, 20–24.9 = 5, 25–29.9 = 6, and 30 and above = 7 (unit: ten thousand yuan). For the village health station area, the paper assigns values from 1 to 7 based on the ratio of seventy-fourths. The ranges for the village health station area are as follows: 0–49 = 1, 50–99 = 2, 100–149 = 3, 150–199 = 4, 200–249 = 5, 250–299 = 6, and 300–349 = 7 (unit). Finally, the paper assigns values from 1 to 7 to the number of doctors based on the ratio of seventy-fourths. For values of 7 or less, the value remains unchanged. However, for values greater than 7, it is fixed at 7. This is because there is a shortage of doctors in most village health stations, so the measurement of the operation is biased towards this setting. This education level of the doctors is assigned based on a ratio of seventy-fourths from 1 to 7. Specifically, village doctors are assigned a value of 1, junior high school and secondary school graduates are assigned a value of 2, high school graduates are assigned a value of 3, specialists are assigned a value of 4, college graduates and specialists with additional qualifications are assigned a value of 5, bachelor's degree holders and university graduates are assigned a value of 6, and practicing assistant physicians are assigned a value of 7. Additionally, there is a random perturbation term included. The specific scales are shown in Table 1 below.

Table 1. Scale

Variable Names	Numerical Range	Assign a Value
Approximate number of consultations per year Y resident population X_1	0–1999 persons	1
	2000–2999 persons	2
	3000–3999 persons	3
	4000–4999 persons	4
	5000–5999 persons	5
	6000–6999 persons	6
	7000 persons and above	7
Health post facility inputs X_2	0–49,000 yuan	1
	50,000–99,000 yuan	2
	100,000–149,000 yuan	3
	150,000–199,000 yuan	4
	200,000–249,000 yuan	5
	250,000–299,000 yuan	6
	300,000 yuan and above	7

(Continued)

Table 1. Scale *(Continued)*

Variable Names	Numerical Range	Assign a Value
Area of medical and health stations X_3	0–49m^2	1
	50–99m^2	2
	100–149m^2	3
	150–199m^2	4
	200–249m^2	5
	250–299m^2	6
	300–349m^2	7
Doctor's degree X_4	rural doctor	1
	junior high school, secondary school, adult secondary school	2
	senior high school	3
	specialized training school	4
	three-year college – three-year college + X	5
	undergraduate, university	6
	medical assistant	7

3.4 Empirical method

In this paper, the sample data from 131 villages and towns was analyzed using the multiple linear regression method. The software tool used for the calculations was Stara, which served as an auxiliary tool for calculation and regression analysis. The calculation method involves conducting descriptive statistics and analyzing the VIF values to determine the basic characteristics of the data and identify any issues of multicollinearity. The model formula (1) was then imported to analyze the significance of X. If X is significant, it means that X has an influence on Y. Then, the direction of the influence relationship is determined as either positive or negative, and the degree of influence of X on Y is compared and analyzed. If X has a significant influence on Y, it is important to analyze the positive and negative directions of this influence relationship. Additionally, it is necessary to compare and analyze the degree of influence that X has on Y. In order to summarize the findings, dummy variables (DUMMY) can be assigned values, and a binary logit analysis can be conducted. This will help to prove the empirical results through a robustness test.

4 EMPIRICAL RESULTS

4.1 Descriptive statistics

The sample size of the data used in this paper is 131. Table 2 below shows the mean, standard deviation, minimum, and maximum values for the resident

population, area of health stations, investment in medical equipment, number of doctors, doctor's education, and approximate number of consultations per year.

Table 2. Descriptive statistics

Variable Name	Sample Size	Average Value	Standard Deviation (Statistics)	Minimum Value	Maximum Values
Permanent population	131	1.573	1.117	1	6
Area of health stations	131	2.382	0.988	1	7
Health post inputs	131	1.458	0.947	1	7
Number of doctors	131	1.237	0.721	1	6
Doctor's degree	131	2.626	1.198	1	7
Approximate annual number of patients	131	1.420	1.067	1	7

4.2 Covariance test

To address the issue of covariance, this paper utilizes the Stata measurement software to conduct a VIF test on the elements of each variable. The test results, presented in Table 3 below, indicate that the VIF value for each variable is less than 4. This finding aligns with the covariance test and confirms that there is no covariation among the variables.

Table 3. Covariance test

Variable Name	VIF	1/VIF
Area of health stations (area)	2.915	0.343
Number of doctors (num doctors)	2.754	0.363
Health post inputs (invest)	1.328	0.753
Doctor's degree (degree doctors)	1.265	0.791
Resident population (people)	1.077	0.929
Average VIF	1.868	–

4.3 Multiple linear regression

Introducing the model equation (1), the "reg" command was used to perform multiple linear regression analysis for each variable element using the econometric software Stata. The results of the analysis are presented in Table 4 below.

Table 4. Multiple linear regression

Variant Y	Regression Coefficient	(Statistics) Standard Deviation	T-Value	P-Value	95% Confidence Interval	Tolerance Interval	Significance
Resident population	0.147	0.057	2.58	0.011	0.034	0.259	**
Area of health stations	0.001	0.106	0.01	0.989	–0.208	0.21	
Health post inputs	–0.175	0.074	–2.35	0.021	–0.322	–0.027	**
Doctor's degree	0.096	0.057	1.67	0.097	–0.018	0.209	*
Constant term (math.)	–0.135	0.195	–0.69	0.49	–0.522	0.251	
Dependent variable Y sample mean		1.420		Dependent variable Y standard deviation		1.067	
R-square		0.590		sample size		131	
F-test		35.905		Prob > F		0.000	
Model fit goodness-of-fit (AIC)		283.018		Bayesian test (BIC)		300.269	

Notes: ***p < .01, **p < .05, *p < .1.

As shown in Table 4 above, the variables "health post inputs" (Invest) and "number of doctors" (num doctors) have a negative and positive significant impact, respectively. This indicates that the approximate number of consultations per year (Y) is significantly influenced by the level of health post inputs (invest) and the number of doctors (num doctors), as demonstrated in the final specific analysis.

First, the regression coefficient for health station inputs (Invest) is –0.175** with a p-value of 0.021, which is less than the significance level of 0.05. This indicates that investment in healthcare station facilities (Invest) has a significant negative effect on the approximate number of people treated per year (Y) at this health station. Therefore, this finding does not support hypothesis H3.

Second, the regression coefficient for the number of doctors (num doctors) is 1.07***, with a p-value of 0 < 0.01. This indicates that the number of doctors (num doctors) has a highly significant positive effect on the approximate number of consultations (Y) per year in this health post, which supports hypothesis H4.

Third, the regression coefficient value of the resident population (People) is 0.147** with a p-value of 0.011, which is less than 0.05. This indicates indicating that the resident population (people) has a significant positive effect on the approximate number of people treated per year (Y) in this post. However, it should be noted that the variable item considered is a control variable in paper, and therefore, it is not the main focus of the concern paper.

Fourth, the model has a sample size of 131, where Prob > F = 0. This indicates that the model validity test has passed. The model's R-squared value is 0.590, suggesting that the investment in health post facilities (invest) and the number of doctors (num doctors) can influence the approximate number of annual consultations (Y) by approximately 59%.

In summary, hypothesis H4 is supported, and the empirical results reject hypotheses H1, H2, and H3.

4.4 Robustness check

In order to test the scientific validity and rationality of the model, as well as improve its explanatory power based on empirical results, this paper will increase the sample size of the independent variables to 255. The additional samples will be sourced from the research database of the paper's team, specifically from the townships of Jiexi Township and Dengbai District. The empirical results will be analyzed using a multivariate logit regression with a dummy variable, DUMMY, results of this analysis are presented in Table 5 below.

Table 5. Binary logit regression

DUMMY	Regression Coefficient	(Statistics) Standard Deviation	T-Value	P-Value	95% Confidence Interval	Tolerance Interval	Significant Degree
Resident population	0.28	0.232	1.21	0.227	–0.174	0.734	
Area of health stations	–0.497	0.342	–1.46	0.146	–1.167	0.172	
Health post inputs	1.082	0.545	1.99	0.047	0.014	2.15	**
Number of doctors	–1.016	0.478	–2.13	0.033	–1.952	–0.08	**
Doctor's degree	–0.173	0.186	–0.93	0.353	–0.539	0.192	
Constant term (math.)	2.906	0.695	4.18	0	1.544	4.268	***
Dependent variable Y sample mean		0.863		Dependent variable Y standard deviation		0.345	
R-square		0.116		sample size		255	
Chi-square (math.) test		23.613		Prob > chi2		0.000	
Model fit goodness-of-fit (AIC)		283.018		Bayesian test (BIC)		300.269	

Notes: ***p < .01, **p < .05, *p < .1.

where DUMMY is 0 if the approximate annual number of consultations (Y) is greater than the resident population (people), and 1 otherwise.

As shown in Table 5 above, the p-value of the resident population (people) is 0.227, which is greater than 0.05. This indicates that the relationship between the approximate number of consultations per year and the resident population of the locality is practically insignificant. On the other hand, the regression coefficient value of the number of doctors (num doctors) is –1.016**, and the p-value is 0.033, which is less than 0.05. This suggests that the number of doctors (num doctors) has a significant positive effect on the approximate number of patients (Y) in this health station. Additionally, the regression coefficient value of the health station facility investment (invest) is 0.182**, and the p-value is 0.047, which is also less than 0.05. This indicates that the health station facility investment (Invest) has a significant impact. The negative effect on the annual approximate number of patients (Y) treated at this health station. In conclusion, it is consistent with the aforementioned empirical results.

4.5 Main issues

First, farmers are more likely to visit health posts that have more doctors and fewer deficiencies in medical facilities. At the individual level, farmers enrolled in

the rural health insurance system tend to choose health centers with more doctors and less investment in medical equipment. This may be because farmers prioritize access to medical services over the availability of medical equipment. Health centers that heavily invest in medical equipment may not necessarily provide good medical services if there is a lack of doctors who know how to use the equipment. Alternatively, doctors who are qualified to use the medical equipment may be transferred to county hospitals, further reducing the chances of obtaining good medical services. Obtaining good medical services is more likely for farmers at health centers with a larger number of doctors. Consequently, farmers, disregarding the "principle of proximity," choose to seek medical treatment at health centers that are in good condition. This decision goes against their rational behavior as human beings.

Second, health centers are susceptible to excessive competition for public healthcare resources in the absence of regulation. At the institutional level, farmers' choice of healthcare based on rational human considerations may lead to the unhealthy, unbalanced, and inadequate development of health centers. In the context of providing comprehensive coverage for the rural health insurance system, some healthcare centers may adopt strategies to enhance their competitive advantages and offer their own medical services. However, this can lead to excessive competition for public health care resources in the absence of proper supervision. The aim is to achieve higher benefits and incomes and to establish a favorable position within the coordinated compensation system for major illnesses. At the same time, due to the significant barriers and specialization within the medical field, government regulators often struggle to effectively supervise overpriced medicines, excessive prescription costs, and minor illnesses. These behaviors are difficult to prevent in the realm of people's livelihoods, and regulators can only address some of the loopholes in the medical insurance system after the fact. On this basis, the competition between rural health centers results in a situation where the stronger centers become even stronger, which leads to excessive waste or overuse of medical resources in the public healthcare sector.

Thirdly, there is a lack of personnel qualified as general practitioners in health stations. At the government level, there is a lack of training for general practitioners in health stations. According to research results, most rural health stations have only one doctor, and these doctors typically have only secondary school or high school education. As a result, they lack the necessary skills to operate high-end medical equipment. Additionally, government-funded medical equipment often goes unused due to a shortage of doctors and their lack of expertise. Therefore, it is crucial for the government to increase its investment in the quality training of general practitioners and provide rural doctors with training opportunities and opportunities for career advancement.

Fourth, the infrastructure of health stations is too outdated. At the unit level, the health station generally has basic medical conditions. According to research results, the general area of a health station is usually less than $100m^2$, with an investment of 100,000 yuan or less in facilities. These conditions do and do not support the smooth operation of the health station. Therefore, the government should increase support for the rural medical system and allocate resources in a scientific and reasonable manner. This will help create a safety net system for rural healthcare and lay a solid foundation.

4.6 Policy recommendations

The government still needs to develop appropriate policies to effectively distribute healthcare resources in the public healthcare sector. This is necessary to address the issue of excessive waste and overuse of healthcare resources, particularly in

terms of personnel and resources at health stations. These resources should be allocated based on the specific needs of each township. Additionally, the government should implement a policy that promotes the rational use of strong and large stations while ensuring that weak and small stations receive adequate attention and support. In this way, the issue of strong and large stations being overutilized while weak and small stations are left unattended can be alleviated. Specific policy recommendations are as follows:

Changing the compensation system to prioritize the prevention and treatment of minor illnesses instead of focusing on the coordination of major illnesses. This reform focuses on implementing medical performance. In order to address the issues in the field of healthcare for farmers, it is necessary to effectively address the problem of medical costs for farmers. To a certain extent, the compensation system based on major illnesses will bring about two significant problems. First, the compensation ratio is low, with most farmers only benefiting from the system at a rate of approximately 28%. Furthermore, the compensation itself is random, primarily due to the irregularity of financing sources and compensation phases. Second, farmers in different regions have a higher likelihood of experiencing a return to poverty due to illnesses caused by the same major diseases. The second reason is that farmers in different regions are more likely to fall back into poverty due to the same major disease. Therefore, in order to strengthen government-led response units at the village and township levels, it is important to establish a healthcare protection network that safeguards the lives and health of farmers. In this regard, a prevention and treatment model that focuses on minor illnesses can effectively address the daily medical needs of farmers. It can also reduce the randomness and inconsistency of the compensation ratio, and most importantly, this reform can, to some extent, reduce the occurrence of unnecessary treatment for minor illnesses and improve the new rural cooperative medical care system.

Emphasizing a policy-based allocation system that prioritizes the principle of healthy competition. The government should streamline the allocation of resources in the public healthcare sector through policies and promote fair competition among medical and healthcare facilities. The underutilization of medical resources in public healthcare has become a pressing social issue. To address this phenomenon, the government should dispatch expert investigation teams to visit and conduct research at medical and healthcare stations that primarily serve farmers. By understanding the specific situation, these teams can effectively coordinate efforts to address the underutilization of medical resources in the region. Programs aimed at coordinating the main activities, along with supplementary and complementary measures, are essential for organic coordination. Simultaneously, it is crucial to effectively manage the ideological aspects of the coordinating party and establish relevant institutional safeguards. This will ensure that the coordinating body has the power to prevent rent-seeking behavior and effectively supervise all three parties involved.

Advocating for a talent system that prioritizes general practitioners and emphasizes the township-controlled, village-employed approach. In order to improve the quality of doctors, the government should establish a platform and allocate funds for the enhancement of rural doctors' skills. It should also encourage the development of rural doctors into general practitioners by offering various incentives, such as online and offline training, assessments for professional titles, and financial support for medical assistance. To address the shortage of doctors, the government can collaborate with large hospitals to establish internship programs. This initiative would encourage interns to gain practical experience at the grassroots

level. Additionally, the government should establish a system where interns are assigned to towns and villages, allowing them to fully immerse themselves in the community for one year. After completing three years of internships, interns should be given preferential treatment and financial incentives to either return to the city or continue working in rural areas. For instance, the local government can adopt a town government as the administrative unit responsible for overseeing the medical establishment. In this way, unified management can be implemented. Furthermore, interns who have completed more than one year of service can receive preferential treatment in terms of promotion priority, children's education, and housing arrangement. Similarly, interns who have completed more than three years of service can be provided with incentives in the form of financial allocations from the government for healthcare services. Additionally, it is mandated that the allocation of funds and the number of beneficiaries should be based the settlement units, ensuring sufficient support is provided.

4.7 Future outlook

With the reform of the medical system, the government's control over medical resources will be further strengthened. The advantage of large medical complexes in monopolizing medical resources by exploiting policy loopholes will gradually diminish. Additionally, the government's reform of the medical system and the enhanced supervision of medical care will lead to a gradual reduction in the display between medical complexes of different levels. The reform of the urban and rural medical insurance systems will further unify the scope and strength of medical insurance coverage, and it will also help reduce the irrational use of medical resources. Although there are still variations in the strengths and weaknesses of medical centers, the implementation of designated medical care will gradually enhance the extent and effectiveness of their services. This will enable them to fulfill their intended roles within the urban and rural medical insurance systems. In addition, the government plans to reform the three-year training policy in the future, taking into account the actual financial situation of local areas. This includes providing doctors in the training period with a reasonable income guarantee, respecting their legitimate labor rights and interests, encouraging doctors from urban medical complexes to work in township medical complexes to complete their training, and increasing the remuneration for positions after the training period.

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