Proceedings of ICMMGH 2027 Symposium: Transforming Nutrition for Public Health Across the Life Course
DOI: 10.54254/2753-8818/2027.KL37190

The Impact of Basic Medical Insurance on Healthcare Utilization among Chinese Residents: An Empirical Study Based on CFPS Data

Pengyu Zhou

Politics and Public Management Department, Soochow University, Suzhou, China
2703905474@qq.com

Abstract. Ensuring that everyone has access to healthcare and receives equitable treatment is a crucial concern in health economics and public policy. Basic medical insurance is a key factor in lessening the financial strain of medical expenses for individuals and improving their access to care. However, whether participation in medical insurance actually leads to greater healthcare utilization across different population groups remains a significant research question. This study focuses on how basic medical insurance affects healthcare utilization among the Chinese population, using data from the China Family Panel Studies (CFPS). By applying descriptive statistical analysis and logistic regression models, this research examines the connection between basic medical insurance and healthcare utilization, while also taking demographic variables into account. The goal of this research is to determine if basic medical insurance boosts healthcare utilization and if its impact varies between urban and rural populations. This study can help us better understand the state of China's healthcare system today and provide feasible suggestions for future policy development and planning for the country. The results are intended to offer concrete evidence for better healthcare insurance policies, as well as for decreasing disparities in healthcare access and fostering long-term health improvements in China.

Keywords: Basic Medical Insurance, Healthcare Utilization, Health Economics, Health Policy, CFPS Data

1. Introduction

As the population ages, expanding medical insurance coverage has become a key policy direction in contemporary China [1]. Undeniably, significant progress has been made in the expansion of basic medical insurance coverage over the past two decades, which has now achieved the goal of covering the vast majority of the population. However, significant disparities still persist between urban and rural areas, different regions, and varying income levels [2]. These disparities are the primary targets for future efforts.

Previous research has primarily focused on the relationship between basic health insurance and medical insurance expenditures [3]. Meanwhile, attention paid to the relationship between an individual's participation in basic health insurance and their utilization of healthcare services

© 2026 The Authors. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).

DOI: 10.54254/2753-8818/2027.KL37190

remains limited [4]. Additionally, the utilization of medical services is influenced not only by participation in basic health insurance, but also by a multitude of other demographic or socioeconomic factors.

This study uses data from the CFPS and employs R to conduct binary logistics regression to investigate how participation in basic medical insurance affects the utilization of medical services. The findings aim to address two major questions: whether basic medical insurance actually enhances the utilization of healthcare services, and whether the differences are significant across different population groups. The results are intended to offer concrete evidence for better healthcare insurance policies, as well as for decreasing disparities in healthcare access and fostering long-term health improvements in China.

2. Methodology

This study is based on individual-level data from the 2022 China Family Panel Studies (CFPS) to examine the impact of basic medical insurance on residents' healthcare utilization. During the sample construction process, the raw dataset was filtered and cleaned according to our research objectives, including handling missing variables and recoding relevant variables. The study uses whether hospitalization occurred during the past 12 months as the measure of healthcare utilization, with participation in basic medical insurance as the core explanatory variable, and controls for individual characteristics and other related factors to reduce the impact of potential confounding factors on the estimated results.

Since the dependent variable "whether hospitalized" is binary, this study chooses a binary logistic regression model for estimation, analyzes the statistical relationship between basic medical insurance and hospitalization utilization, and tests the robustness of the explanatory variable results by gradually adding control variables.

2.1. Data source: CFPS and its brief introduction

The China Family Panel Studies (CFPS) is a major social science project implemented by the Center for Social Science Survey of Peking University [3], aimed at tracking and collecting data at the individual, family, and community levels to reflect changes in Chinese society, economy, population, education, and health, and to provide data for academic research and policy-making. It is a nationwide, comprehensive and long-term tracking survey project.

CFPS employs a multi-stage probability sampling design, covering 25 provinces, municipalities, and autonomous regions in China, with a population coverage rate of up to 94.5%. The types of questionnaires include household questionnaires, self-response questionnaires (for individuals aged 10 and above), parent-response questionnaires (for children aged 16 and below), and community questionnaires. The content covers various research topics such as economic activities, education, health, family relationships and dynamics, population migration, and other related areas. It essentially covers the main content of major international social survey projects (such as the American PSID, HRS, and NYLS).

The data provide a reliable foundation for academic research and public policy analysis, supporting extensive scholarly studies on China's social, demographic, economic, educational, health, environmental, and family-related issues, while also offering empirical support for policy research and formulation.

DOI: 10.54254/2753-8818/2027.KL37190

2.2. Variable definitions

The dependent variable in this study is *healthcare service utilization*, measured by whether an individual has been hospitalized during the past 12 months. Based on CFPS 2022 survey data, this study treats respondents' hospitalization status during the survey period as a binary variable, with hospitalization behaviour coded as 1 and non-hospitalization coded as 0. Since this variable contains only two possible outcomes, it is suitable for the estimation.

The independent variable or the core explanatory variable in this study is *basic medical insurance*. This variable is used to measure whether an individual is enrolled in the basic health insurance system,including various types of basic medical insurance coverage. This study assigns a value of 1 to individuals who participate in basic medical insurance and 0 to those who do not. This variable is used to test whether health insurance coverage affects residents' access to medical services.

To reduce estimation bias that may arise from differences in individual characteristics, this study also includes some demographic control variables, including age, gender, urban residence, education, and marital status. Age is measured using the respondents' actual age. Gender is coded based on the respondents' gender information (male/female). Urban-rural residence is used to distinguish the types of areas where individuals are located, in order to control differences in access to medical resources between urban and rural areas. Education, as an important indicator reflecting individual socioeconomic characteristics, is treated as a categorical variable and is controlled for across different educational levels. Marital status is also included as a categorical variable in the model to control for the potential impact of family support and social relationship factors on healthcare utilization.

All categorical variables are treated in regression analysis as dummy variables to avoid assuming linear relationships between different categories as shown in table 1.

Table 1. Definition of variables

Variable	Definition	Measurement
Hospitalization	Healthcare Utilization	1=Yes, 0=No
Insurance	Medical Insurance Coverage	1=Covered, 0=Not covered
Age	Age of respondent	Years
Gender	Gender	1=Male,0=Female
Urban Residence	Residence type	1=Urban, 0=Rural
Education	Education Attainment	Categorical
Marriage	Marital Status	Categorical

2.3. Empirical model

Since hospitalization is a binary variable in this study, i.e., whether an individual has been hospitalized during the past 12 months, this study employs a binary logistic regression model [4]. This model applies to situations where the dependent variable contains only two outcomes, and can estimate the impact of basic medical insurance coverage on residents' probability of using medical services.

The specific model is as follows:

DOI: 10.54254/2753-8818/2027.KL37190

$$\ln\left(\frac{P(\text{Hospitalization}_i=1)}{1-P(\text{Hospitalization}_i=1)}\right) = \beta_0 + \beta_1 \text{Insurance}_i + \sum_{k=1}^{k} \beta_k X_{ki} + \varepsilon_i \quad (1)$$

Here, Hospitalization_i indicates whether the i th individual has been hospitalized during the past 12 months; Insurance_i indicates whether an individual participates in basic medical insurance, which is the core explanatory variable of our study; X_i represents a series of control variables, as mentioned above. ε_i is the random error term.

This study mainly focuses on the estimated results of the coefficient β_1. If β_1 is significantly positive, it indicates that there is a positive correlation between basic medical insurance coverage and residents' hospitalization utilization, meaning that insured individuals have a higher probability of hospitalization.

To further test the robustness of the results, this study adopts a method of gradually adding control variables to establish multiple models. First, Model 1 includes only basic medical insurance variables to examine the basic relationship between insurance coverage and hospitalization behaviour; Model 2 includes individual demographic characteristic variables to control for the impact of individual differences on the estimation results.

3. Empirical results

3.1. Descriptive statistics

The study involves three types of variables: continuous variables, binary variables, and categorical variables. The tables 2-5 provide a brief overview of the basic characteristics of each variable.

Table 2. Continuous variables

Variable	Mean	Std. Dev.	Min	Max
Age	46.84	16.05	12	97

Table 3. Binary variables

Variable	Category	N	Percentage
Hospitalization	No	17600	89.4%
	Yes	2093	10.6%
Medical insurance	No	1698	8.6%
	Yes	17995	91.4%
Gender	Male	9900	49.7%
	Female	9793	50.3%
Urban Residence	Rural	9092	46.2%
	Urban	10601	53.8%

DOI: 10.54254/2753-8818/2027.KL37190

Table 4. Education

Education Level	N	Percentage
Illiterate/Semi-illiterate	3167	16.1%
Primary School	3684	18.7%
Junior High School	6292	32.0%
High school/Vocational School	3512	17.8%
College	1598	8.1%
Bachelor's degree	1310	6.7%
Master's degree	119	0.6%
Doctor's degree	11	0.1%

Table 5. Marital status

Marital Status	N	Percentage
Never married	3269	16.6%
Married	15138	76.9%
Cohabitation	77	0.4%
Divorced	479	2.4%
Widowed	730	3.7%

3.2. Regression results

Table 6. Logistic regression estimates of the association between hospitalization and medical insurance

Variables	Model 1
Medical insurance	0.56061(0.101)
OR	1.751
Constant	-2.65047(0.100)
P value	2.53e-08
Observations	19693
AIC	13307

Model 1 examines the relationship between basic medical insurance coverage and hospitalization without additional controls. The results in table 6 show that insurance coverage is positively associated with hospitalization [5]. The coefficient of medical insurance is statistically significant ($\beta=0.560$, $p<0.001$). In terms of odds ratios, individuals with medical insurance have approximately 1.751 times higher odds of hospitalization compared with those without insurance.

DOI: 10.54254/2753-8818/2027.KL37190

Table 7. Logistic regression estimates after adding several demographic variables

Variables	Model 2	Model 2 p value
Medical insurance	0.527(0.103)	<0.01
Age	0.038(0.002)	<0.01
Gender	-0.097(0.049)	0.047
Urban Residence	-0.0159(0.050)	0.769
Education	-0.050(0.013)	<0.01
Marital Status	-0.012(0.031)	0.683
Constant	-4.283(0.156)	<0.01
Observations	19693	/
AIC	12569	/

Model 2 further controls for demographic characteristics, including age, gender, urban residence, education, and marital status, while Model 1 only includes the key explanatory variables as shown in table 7. The new coefficient of medical insurance decreases slightly from 0.561 to 0.527 but remains statistically significant, suggesting that the association between medical insurance and hospitalization is still robust after accounting for individual characteristics.

Among all the control variables, age shows a significant positive association with hospitalization, indicating that older people are more likely to utilize inpatient healthcare services,which is consistent with real-world observations. Education is negatively associated with hospitalization, while urban residence and marital status do not show statistically significant results.

However, in the above analysis, education and marital status were treated as continuous variables along with other variables, which is not methodologically standard. To obtain more accurate estimation results, Model 2 is modified by treating education and marital status as categorical variables, and the results are presented in the table 8.

Table 8. Modification of Table F by treating education and marital status as categorical variables

Variables	Model 2(modified)	Model 2(modified)p value
Insurance	0.522(0.103)	<0.01
Age	0.038(0.002)	<0.01
Gender	-0.093(0.049)	0.057
Urban Residence	-0.028(0.050)	0.571
Education	Yes	/
Marital Status	Yes	/
Constant	-4.301	<0.01
Observation	19693	/
AIC	12575	/

DOI: 10.54254/2753-8818/2027.KL37190

4. Discussion

Even after accounting for individual factors such as age, gender, urban-rural residence, education level, and marital status, the study finds that having basic medical insurance still significantly correlates with being hospitalized. This suggests that medical insurance might lead to more people using healthcare services, which fits with the idea that insurance helps people access healthcare more easily [6, 7].

It is important to understand that the link discovered between medical insurance and hospitalization does not mean insurance itself causes people to become sicker or develop more diseases. Instead, it is because medical insurance helps lower the financial burdens of accessing healthcare [8]. For those without insurance, the cost of medical treatment, especially for something as expensive as a hospital stay, can significantly affect their decision to seek care. Basic medical insurance reduces out-of-pocket expenses, making it easier for people to afford medical care and increasing their chances of going to the hospital. In short, medical insurance does not just protect against financial risk; it also helps meet healthcare needs that people might have put off due to cost.

The study also found a strong correlation between age and hospital use, which is expected because older people generally have more health problems and require more medical care. As people get older, they are more likely to have chronic conditions and other health issues, leading to a greater need for hospital services. Interestingly, other factors, such as urban-rural residence or marital status, do not have a significant impact on hospital use. This implies that the effect of these demographic characteristics on hospital visits might be due to a combination of different influences.

In summary, this study highlights the importance of basic medical insurance in promoting healthcare equity and increasing the utilization of healthcare services [9]. Future policies should focus not only on expanding insurance coverage but also on the distribution of medical resources and the quality of care provision. This will help ensure that more people having insurance actually leads to better and more appropriate use of healthcare.

5. Conclusion

The findings offer several important policy implications. Firstly, it is crucial to continue expanding and maintaining basic medical insurance coverage to improve healthcare access and reduce disparities in healthcare utilization [10]. Secondly, policymakers should concentrate not just on enrolling more people in insurance, but also on enhancing the quality and efficiency of healthcare services,with a particular focus on vulnerable groups such as the elderly, who are in greater need of healthcare services.

However, the study has some limitations. Because the CFPS data includes information from various survey waves, the analysis can only show associations, not definitive cause-and-effect relationships, between medical care and hospitalization. Additionally, while demographic factors are accounted for, other potential influences such as health status, income, and healthcare availability might affect both insurance enrollment and healthcare utilization. Future research should consider using longitudinal data and including more socioeconomic and health-related variables to better understand the causal links.

In conclusion, this study underscores the significant role of basic medical insurance in making healthcare more accessible and provides valuable evidence for refining healthcare policies and resource distribution in China.

DOI: 10.54254/2753-8818/2027.KL37190

References

[1] Meng, Q., Mills, A., Wang, L., & Han, Q. (2019). What can learn from China's health system reform? *BMJ, 365*, I2349. DOI: 10.1136/bmj.I2349

[2] Xu, J., Tian, G., Sun, J., et al. (2023). Horizontal inequity trends of health care utilization in rural China after the medicine and healthcare system reform: based on longitudinal data from 2010-2018. *International Journal for Equity in Health, 22*, 90. DOI: 10.1186/s12939-023-01908-4

[3] Bie, F., Yan, X., Qiu, W., et al. (2024). Does supplemental private health insurance impact health care utilization and seeking behaviour of residents covered by social health insurance? Evidence from China National Health Services Survey. *International Journal for Equity in Health, 23*, 113. DOI: 10.1186/s12939-024-02158-8

[4] Fan, X., Su, M., Si, Y., et al. (2021). The benefits of an integrated social medical insurance for health services utilization in rural China: evidence from the China health and retirement longitudinal study. *International Journal for Equity in Health, 20*, 126. DOI: 10.1186/s12939-021-01457-8

[5] Xie, Y., Hu, J. (2014). An introduction to the China Family Panel Studies (CFPS). *Chinese Sociological Review, 47*(1), 3-29. DOI: 10.2753/CSA2162-0555470101

[6] Wooldridge, J. M. (2020). *Introductory economics: A modern approach* (7th ed.). Boston, MA: Cengage Learning. https://www.cengage.com/c/introductory-econometrics-7e-wooldridge/9781337558860

[7] Wu, R., & Ercia, A. (2021). Analysing the impact of private health insurance on inequalities in healthcare utilization: A longitudinal study from China. *Health Policy and Planning, 36*(10), 1593–1604. https://doi.org/10.1093/heapol/czab107

[8] Lin, L., & Zai, X. (2024). Assessing the impact of public insurance on healthcare utilization and mortality: A nationwide study in China. *SSM-Population Health, 25*, 101615. https://doi.org/10.1016/j.ssmph.2024.101615

[9] Wu, M., Huang, J., Fu, H., et al. (2023). Changes of equality of medical service utilization in China between 1993 and 2018: Findings from six waves of nationwide household interview survey. *International Journal for Equity in Health, 22*, 98. https://doi.org/10.1186/s12939-023-01909-3

[10] World Health Organization and World Bank. (2023). *Tracking universal health coverage: 2023 global monitoring report*. http://www.who.int/publications-detail-redirect/9789240080379