BRICS JOURNAL OF ECONOMICS
DOI 10.3897/brics-econ.7.e153592
2026 Volume 7 Number 3

Evaluation of healthcare inequality in China using CHIP 2018

Alexandra Morozkina[I], Alina Semenova[I]

I *HSE University, Moscow (Russia)*

Corresponding author: Alexandra Morozkina (a.k.morozkina@gmail.com)

Academic editor: Sheresheva M. | Received 21 March 2025 | Accepted 30 December 2025 | Published 16 October 2026

Citation: Morozkina, A., & Semenova, A. (2026). Evaluation of healthcare inequality in China using CHIP 2018. *BRICS Journal of Economics, 7*(3), 129–145. https://doi.org/10.3897/brics-econ.7.e153592

Abstract

This paper examines health inequality in China, focusing on disparities in healthcare costs among different population groups and regional inequalities in health expenditures. Despite significant progress towards universal health coverage, challenges remain, particularly for low-income and rural populations. The study utilizes data from the China Household Income Project (CHIP) 2018, analyzing household income, healthcare expenditures, and health status across urban and rural areas using the Concentration Index adapted for the healthcare sector. The findings reveal that rural residents spend a larger share of their income on healthcare compared to urban residents, highlighting systemic inequalities in access to health services. The Concentration Index analysis indicates high levels of inequality in health expenditure that surpass income inequality levels. The study underscores the need for targeted policy interventions to address these disparities, particularly in light of ongoing healthcare reforms aiming to improve access to healthcare services and their and affordability, and mitigate the impact of the COVID-19 pandemic.

Keywords

healthcare inequality, income inequality, regional inequality, Gini coefficient, Concentration Index, Chinese households, China

JEL: N/A.

Copyright *Alexandra Morozkina, Alina Semenova.* This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Introduction

Health inequality is one of the global challenges identified in the UN 2023 Sustainable Development Goals. It refers to differences in access to healthcare services along geographical and socioeconomic lines, as it is clear that populations with low incomes or those living in remote and hard-to-access areas are less likely to receive high-quality healthcare. Public policies vary between countries, with some providing wider social access to health care through public insurance coverage and others emphasizing private health services and insurance.

At the global level, the goal is to achieve universal access to health care by 2030, and to improve affordability of healthcare services by reducing the proportion of families with high healthcare costs. However, according to the latest available data, 57% of the world's population in 2021 still did not have access to basic healthcare services (WHO 2022). A detailed study of best practices is necessary to develop strategies for achieving the set goals.

In 2021, the Chinese government released the 14th Five-Year Plan for National Economic and Social Development (2021-2025) and Vision 2035 for the People's Republic of China. These documents set out goals for improving income equality and strengthening the healthcare system. According to the current plan, disposable income per capita is expected to increase in line with economic growth in China. The country has also adopted the Healthy China Initiative, which aims to ensure universal access to healthcare services.

China adopted the goal of universal health coverage as a national priority and has made significant progress over the past two decades. According to the World Health Organization (WHO), for many indicators related to child and maternal health as well as communicable diseases, the coverage is over 70%, and for some indicators it is over 90% (Yip et al., 2023). Yet, there are several challenges related to inequalities in access to health care, which also affect other indicators of the Sustainable Development Goals, primarily qualitative health indicators. Yang & Kanavos (2012), Zhou et al. (2016) and Nie et al. (2022) have proven that there is a correlation between poor health and low income. There is also a correlation between the level of health service consumption and the region of residence. Residents of eastern China use more health services compared to residents of central and western regions (Zhu et al., 2017). This is largely due to inequalities in the distribution of healthcare resources (Zhang et al., 2017).

In this paper, the main focus will be on the inequality of healthcare costs among different population groups in China. It will also look at regional inequalities in health expenditure. The study will complement the existing work on this topic using new data that has not been presented in previous studies.

Peculiarities of healthcare system in China

In China, health inequalities grew throughout the 1990s-2000s (Wang & Yu, 2015), leading to the need for full-scale healthcare reform. After the 17th Congress of the Communist Party of China in 2007, the Ministry of Health of the People's Republic of China announced a new policy to reduce inequalities in access to health care and to increase the availability of health services (Chen & Gao, 2008). In 2009, a large-scale healthcare reform was launched aiming to improve the accessibility of healthcare services. Since then, the Chinese government has significantly increased investment in health care, expanded insurance coverage of services, and invested in infrastructure. Over the past 15 years, various measures have been implemented to improve the accessibility and affordability of healthcare services in China, including the policy of zero markup on medicines. (Chen et al., 2021). In 2016, the Healthy China 2030 program was adopted, which aims to "accelerate the expansion of high-quality healthcare resources and balance the distribution of such resources among different regions" (Yang, 2016).

Today, health insurance in China is divided into two types. The first type is health insurance for urban workers funded by employee and employer contributions. This is known as UEBMI. The second type is health insurance for both urban and rural residents, which is provided by the government and is known as the URRBMI program. The second type of insurance is for those residents who are not classified as formally employed workers (Zhang et al., 2023). Both insurance plans operate under a fee-for-service system: the patients pay for medical services in full, and the insurance company then reimburses them for some or all of those costs. Differences in the way the two programs are funded result not only in differences in the amount of reimbursement, but also in the scope of health care coverage. The urban workers' insurance plan offers a much broader range of benefits and reimburses larger amounts than the rural and urban residents' plan. (Zhang & Coyte, 2020).

Research review

Health inequality in China is a complex and multifaceted problem, the study of which has attracted increasing research attention. Yin et al. (2018) examined the impact of public health inequality on the spatial accessibility of healthcare facilities in the country. Having analyzed data from 2,859 counties, they revealed significant differences in the accessibility of health services, especially between eastern and central regions compared to western regions.

Jin, Cheng et al. (2015) focused on spatial inequalities in access to health services using Deqing County as an example. The results of examining the differences between urban and rural areas indicated that people in the capital city had significantly better access to healthcare services, emphasizing the need for policies to support remote and lower-income areas in terms of health care.

Jin, Wang et al. (2015) assessed the level of inequality in the distribution of medical resources across different geographic areas. According to their study, the geographical Gini coefficients show significant differences in the availability of medical services between regions, which can be largely attributed to the low population density in areas with lower levels of accessibility.

A study by Dong et al. (2021) continued this theme by emphasizing the significant regional differences in the distribution of health care resources between urban and rural regions of Shanghai. The authors point out the need for targeted interventions to address inequalities, such as increasing financial investment and improving transport infrastructure, in order to help bridge the gap in access to healthcare resources.

Economic factors certainly have a substantial impact on the health of people in China. Cai et al. (2017) reveal a pattern of pro-rich inequality, where high income and education levels lead to better health outcomes, while low income and poor living conditions have detrimental effects. The authors emphasize the need to optimize health insurance coverage and improve housing conditions in rural areas. In their 2021 study, Cai et al found that people with a higher income tend to report better health compared to those with a lower income.

Another factor of health inequality in China is the impact of local policy decisions, which is discussed by Chen et al. (2018). The study shows that the pursuit of economic growth by local officials and the inefficiencies of the fiscal transfer system lead to interprovincial inequalities in health. The results indicate the need for improved fiscal capacity among local governments to help ensure a more equitable allocation of health resources.

The study by Shen & Tao (2022) examines the relationship between the spatial accessibility of healthcare facilities and population behavior. The authors emphasize that, while accessibility affects the number of healthcare visits, patients' preferences for high-quality facilities and amenities also play a significant role.

It is clear that both the region of residence and the income level have a significant influence. The present study investigates how these two elements influence household spending on healthcare.

Methodology and data

The China Household Income Project 2018 (CHIP) data are used in this study. The data for CHIP were collected through a series of questionnaire-based surveys in rural and urban areas conducted in 1988, 1995, 2002, 2007, 2013, and 2018. The questionnaires were offered to individual members of households and to households as a whole. The survey included data on economic status, employment, education level, sources of income, and household expenditure. Personal interviews with households in both urban and rural areas of China were used for data collection. The survey participants included both local and immigrant households.

In total, 21,381 households were interviewed (households that did not provide information required for the survey were excluded). Of these, 9,284 (43%) were rural households and 12,097 (57%) urban households. Given that, as of 2018, 62% of China's population lived in urban areas and 38% lived in rural areas, the survey sample can be considered representative.

The GRP data were taken from the website of China's National Bureau of Statistics. Data on the number of hospitals and doctors came from the 2019 China Medical Market Panoramic Survey and Development Outlook Forecast Report.

To measure income-related inequality in healthcare expenditure, the study uses the Concentration Index, which is a Gini-type measure that assesses how unequally healthcare expenditures are distributed across households ranked according to income. Unlike the standard Gini coefficient, which measures overall inequality without reference to socioeconomic ranking, the Concentration Index explicitly accounts for the income distribution and therefore allows for the identification of pro-rich or pro-poor inequality in healthcare expenditures (Wagstaff et al., 1991).

Households were ranked in ascending order by household income and grouped into income quantiles. The index was calculated using the following discrete formulation:

$$C = 1 - 2\sum_{i=1}^{n} x_i cumy_i + \sum_{i=1}^{n} x_i y_i$$

x_i — share of the i-th group in the volume of household income

y_i — share of the i-th group in the volume of healthcare expenditures

$cumy_i$ — accumulated share of the i-th group in the volume of health expenditures

The value of the index ranges between −1 and 1. A positive value of C indicates a pro-rich distribution, where healthcare expenditures are concentrated among higher-income households, while a negative value indicates a pro-poor distribution. A value of zero corresponds to perfect equality in the distribution of healthcare expenditures across income groups.

Results

To initiate the analysis, a survey of the general health of the population was conducted, based on three factors: the frequency of doctor's visits, the overall health status and the prevalence of chronic illnesses. Data for the analysis were collected from responses to questions about these factors:

- Have you seen a doctor in the last three months? (Including outpatient and inpatient treatment)
- Your current state of health (compared to people your age)
- Do you have any physical disabilities or chronic illnesses?

Table 1 shows the average values of household responses for each group. The population was divided into 5 groups according to the income quantile to which they belong.

The table shows that the frequency of visits to a doctor is not related to income and is approximately the same in urban and rural populations. Nevertheless, it is interesting to note that, on average, the rural population of China assesses their health status better than the urban populations in each quantile. It is also important that there is a tendency for the health status of people to deteriorate when income levels decrease, both in urban and rural areas. This trend is also seen in responses regarding chronic diseases: as income levels fall, more residents have chronic conditions, regardless of whether they live in urban or rural areas. It is an interesting fact that, although rural residents on average rate their health better than urban residents, they are more prone to chronic diseases.

Table 1. Health status of urban and rural Chinese residents in 2018 by income quantile.

Income Quantile	Doctor visits on a scale of 1 to 3*		Health status on a scale of 1 to 5**		Chronic diseases on a scale of 1 to 3***	
	Urban	Rural	Urban	Rural	Urban	Rural
Lowest 20%	1.32	1.37	1.99	1.33	1.24	1.40
Second 20%	1.30	1.34	1.87	1.30	1.19	1.31
Third 20%	1.32	1.33	1.84	1.28	1.17	1.31
Fourth 20%	1.32	1.32	1.81	1.28	1.16	1.26
Highest 20%	1.33	1.33	1.74	1.27	1.14	1.24

Source: Compiled by the author based on CHIP 2018 data. * Rating was done by the interviewee on a scale of 1 to 3, where 1 - did not visit a doctor in 2018, 2 - sought outpatient services, 3 - was hospitalized. ** Rating was done by the interviewee on a scale of 1 to 5, where 1 is excellent, 2 is good, 3 is average, 4 is poor, and 5 is very poor. *** Rating was done by the interviewee on a scale of 1 to 3, where 1 is no, 2 is yes, but it does not affect work, study, or livelihood, 3 is yes, and it does affect work, study, or livelihood.

Now the focus is shifted to healthcare spending in China. The study examines average urban and rural household income, average total household expenditure, and average healthcare expenditure in China for the year 2018, categorized by income quantiles.

Table 2. Average income, expenditure, and health expenditure of urban and rural households in 2018 by income quantile

Income Quantile	Type	Total observations	Average household income	Average household expenditure	Average expenditure on healthcare	Share of health expenditure in total expenditure
Lowest 20%	Urban	1,749	18,686	38,053	3,805	10.0%
Lowest 20%	Rural	11,804	19,490	31,808	3,286	10.3%
Lowest 20%	**Urban and rural**	**13,553**	**19,386**	**32,614**	**3,353**	**10.3%**
Second 20%	Urban	4,362	46,844	45,552	4,044	8.9%
Second 20%	Rural	9,191	44,698	39,557	4,166	10.5%
Second 20%	**Urban and rural**	**13,553**	**45,389**	**41,486**	**4,127**	**9.9%**
Third 20%	Urban	7,562	71,398	58,412	4,461	7.6%
Third 20%	Rural	5,991	68,941	51,201	5,787	11.3%
Third 20%	**Urban and rural**	**13,553**	**70,312**	**55,224**	**5,048**	**9.1%**
Fourth 20%	Urban	10,316	105,924	74,952	5,493	7.3%
Fourth 20%	Rural	3,237	103,288	62,761	6,530	10.4%
Fourth 20%	**Urban and rural**	**13,553**	**105,294**	**72,041**	**5,740**	**8.0%**
Highest 20%	Urban	11,914	214,859	122,772	8,297	6.8%
Highest 20%	Rural	1,638	189,592	81,780	7,607	9.3%
Highest 20%	**Urban and rural**	**13,552**	**211,805**	**117,817**	**8,213**	**7.0%**
Overall result		**67,764**	**90,435**	**63,836**	**5,296**	**8.3%**

Source: Compiled by the author based on CHIP 2018 data.

Table 2 shows the income and expenditure of Chinese households by income quantile. Here, the total number of rural and urban households is used to define a quantile. This allows us to compare the proportions of health spending for urban and rural families in the same quantile of income.

Table 2 shows that rural residents spend a significantly larger share of their expenditure on healthcare than urban residents in almost all quantiles, except 5 (from 81 to 100%), where the difference is only 0.3 percentage points. At the same time, the difference between urban and rural residents in the second and third income quantiles (41 to 60%) is the largest. Thus, urban residents with approximately the same income as rural residents spend 3.7 percentage points less on health care than rural residents.

The next step in the analysis involves examining distributions of quantiles separately for urban and rural households.

Table 3. Average income, expenditure, and health expenditure of urban households in 2018 by income quantile

Income Quantile	Average household income	Average household expenditure	Average expenditure on healthcare	Share of health expenditure in total expenditure
Lowest 20%	41,834	44,495	3,909	8.8%
Second 20%	74,617	60,305	4,652	7.7%
Third 20%	101,664	72,785	5,429	7.5%
Fourth 20%	139,825	90,987	6,615	7.3%
Highest 20%	258,891	141,248	9,134	6.5%

Source: Compiled by the author based on CHIP 2018 data.

Table 3 shows that average health expenditure for urban households increases as income increases, indicating that higher-income households spend more on health care in absolute terms. This is natural, as people with more income have the ability to choose more costly health services and facilities.

As for the proportion of healthcare spending in total spending, it can be seen that, as income levels decrease, Chinese urban households spend a larger proportion of their income on health services. Richer households spend a smaller share of their expenditure on healthcare, although their absolute healthcare expenditure is larger.

However, such a trend is not observed among rural residents. The share of healthcare expenditure from total household expenditure ranges from 10.3% to 10.9%, and there is no clear dependence on the income level. This indicates that, regardless of the income level, the proportion of healthcare spending remains relatively stable. However, in absolute terms, health spending decreases as income decreases.

On average, rural residents spend a greater proportion of their income on healthcare than do urban residents in every quantile. This is because China's healthcare system in rural areas is inferior to that in urban areas.

Overall, the data show that rural households in China face unequal income distribution and significant healthcare costs, which account for a large portion of their total expenditure, regardless of their income level. These differences may indicate disparities in access to healthcare services and insurance coverage.

Table 4. Average income, expenditure and health expenditure of rural households in 2018 by income quantile

Income Quantile	Average household income	Average household expenditure	Average expenditure on healthcare	Share of health expenditure in total expenditure
Lowest 20%	11,892	30,282	3,210	10.6%
Second 20%	29,752	33,896	3,512	10.4%
Third 20%	43,639	38,812	4,060	10.5%
Fourth 20%	62,400	48,766	5,324	10.9%
Highest 20%	120,340	65,775	6,759	10.3%

Source: Compiled by the author based on CHIP 2018 data.

It is clear from the preliminary analysis that there is inequality in access to healthcare in China. This overall inequality is assessed by using the concentration index, which is calculated based on household income, healthcare indicators and the distribution of healthcare expenditure relative to income.

Table 5. The Concentration Index to estimate the level of health expenditure inequality in China in 2018

Concentration Index total	Concentration Index for urban households.	Concentration Index for rural households
0.62	0.63	0.6

Source: Constructed by the author based on CHIP 2018 data.

Table 5 shows that inequality in income-related access to services is high in China. At the same time, values of the Concentration Index are higher than the conventional Gini coefficients calculated to measure inequality among the Chinese people. While the standard Gini coefficient measures overall income inequality, the Concentration Index captures income-related inequality in healthcare expenditure. The comparison of these two measures does not imply direct numerical equivalence but provides contextual insight into whether inequality in healthcare expenditure exceeds general income inequality. The results show that the Concentration Index for healthcare expenditure is substantially larger in magnitude than the standard income Gini coefficient reported by the National Bureau of Statistics (0.47 in 2018), suggesting that healthcare expenditures are more unequally distributed across income groups than income itself.

The empirical results presented in Tables 2-5 show consistently higher shares of health expenditure in rural household budgets across nearly all income quintiles, suggesting a failure of financial protection for a significant segment of the population. This finding cannot be fully explained by health status alone, given that rural residents reported better self-assessed health on average (Table 1). This points to a disparity that is fundamentally institutional in nature.

The high pro-rich concentration of health expenditure (0.62), which exceeds the Gini coefficient for general income, indicates that healthcare systems may amplify underlying economic inequality, rather than mitigate it. A plausible primary driver for this effect is the two-tier structure of insurance. This is consistent with the premise that the Urban and Rural Resident Basic Medical Insurance (URRBMI), the main scheme for rural residents, provides weaker financial shielding than the Urban Employee Basic Medical Insurance (UEBMI).

The evidence suggests that the higher financial burden on rural households is not just a correlate of lower income, but also a possible consequence of a policy that creates different levels of financial security. The system seems to translate the general goal of "universal coverage" into a complex reality of financial risks.

The Concentration Indexes estimate inequality in access to healthcare across China's regions, but some indexes may be less representative due to lack of data from certain areas. Table 6 shows that the Concentration Index reflecting inequality in health expenditure varies significantly across regions, from 0.17 in Hainan to 0.71 in Ningxia Hui Autonomous Region.

Regions with low numbers of observations (less than 100) were excluded. The index did not change much anymore, varying from 0.68 in the Henan province to 0.58 in the Heilongjiang Province. Such high indexes reflect high levels of inequality in health spending. This may be partly because some of the interviewees do not use healthcare services in principle. However, it is impossible to determine whether this was due to the fact that there has been no need for health services, or because services are too expensive or unavailable, which is often the reason for not using health services in China (Xu & Shelley, 2023).

Heilongjiang Province has the lowest concentration index among provinces with more than 100 observations. At the same time, according to a study by Fudan University (Wang et al., 2024), the province has historically had one of the best UHC (Universal Health Coverage) index scores, which includes indicators of financial stability and health coverage in the region. As of 2018, Heilongjiang Province was one of the five regions in China with a higher number of public hospitals compared to private hospitals (580 vs 525). The other four regions are: Tibet, Qinghai and Xinjiang, Uygur Autonomous Region, Guangxi, Zhuang Autonomous Region. However, there are not enough data to discuss the validity of their calculated Concentration Indexes. According to Table 6, people in Heilongjiang Province also assess their own health negatively, even though they do not visit doctors as frequently as residents of other regions.

Table 6. Concentration Indexes for Chinese household health expenditure in 2018 by region and GRP per capita

Region	Concentration Index	Number of observations	GRP per capita in 2018.
Ningxia Hui AR	0.71	14	49,614
Henan	0.68	1961	50,714
Jiangsu	0.67	1600	110,508
Zhejiang	0.65	25	93,230
Hebei	0.64	208	43,808
Hubei	0.63	1508	71,097
Shaanxi	0.63	60	61,115
Shanxi	0.63	1351	45,517
Anhui	0.63	1349	56,063
Liaoning	0.63	1280	54,657
Beijing	0.62	1024	150,962
Qinghai	0.62	4	46,854
Inner Mongolia	0.62	1045	66,491
Shandong	0.62	1661	66,284
Jiangxi	0.61	100	50,347
Yunnan	0.61	978	44,446
Gansu	0.60	996	32,178
Hunan	0.60	1460	54,763
Guangdong	0.60	1552	81,625
Chongqing	0.60	990	68,460
Sichuan	0.59	1826	51,658
Heilongjiang	0.58	112	38,199
Guangxi Zhuang AR	0.57	79	39,837
Guizhou	0.57	52	40,271
Jilin	0.56	60	44,925
Xinjiang Uygur AR	0.54	13	51,238
Fujian	0.54	32	94,719
Tianjin	0.51	18	95,689
Shanghai	0.46	12	145,767
Tibet	0.26	3	44,051
Hainan	0.17	8	50,263

Source: Compiled by the author based on CHIP 2018 data.

Sichuan Province and Chongqing Central City also have comparatively low indicators (0.59 and 0.60, respectively). This is due to the recent development policy of the western regions (Wang et al., 2024). At the same time, private hospitals significantly outnumber public hospitals in these regions'; their residents rate their health status around the median and visit doctors more frequently than residents in Heilongjiang Province.

It is an interesting fact that the central government city of Beijing, which is China's richest region, has a fairly high concentration index compared to other regions. In 2018, Beijing had the highest number of medical staff per 1,000 people at 11.9 medical laborers/person, while the Chinese average is only 6.8 and the eastern provinces 7.2. In Shanghai, a similarly wealthy central city, the number of medical personnel per 1,000 people is only 8.1. Much of this difference can be attributed to the high level of private healthcare in Beijing. In 2018, there were 217 publicly-funded hospitals and 431 privately-run hospitals in Beijing. The number of publicly- and privately-owned hospitals in Shanghai was almost equal (181 vs 177), and, overall, China had more privately-operated hospitals than publicly-run ones (20,977 to 12,032). By 2021, the number increased further to 24,766 for private hospitals and decreased slightly to 11,804 for public ones.

Table 7. Health status of urban and rural residents in China in 2018 by region

Region	Doctor visits on a scale of 1 to 3*	Health status on a scale of 1 to 5**	Chronic diseases on a scale of 1 to 3***
Inner Mongolia	1.28	1.46	1.26
Shandong	1.29	1.49	1.19
Gansu	1.35	1.49	1.32
Jiangsu	1.26	1.49	1.23
Anhui	1.25	1.50	1.21
Hubei	1.33	1.53	1.30
Yunnan	1.31	1.53	1.19
Hainan	1.36	1.55	1.09
Hunan	1.32	1.58	1.34
Henan	1.38	1.58	1.28
Guangdong	1.37	1.59	1.11
Fujian	1.30	1.61	1.08
Shanxi	1.28	1.62	1.26
Sichuan	1.40	1.67	1.26
Guizhou	1.26	1.71	1.19

Region	Doctor visits on a scale of 1 to 3*	Health status on a scale of 1 to 5**	Chronic diseases on a scale of 1 to 3***
Chongqing	1.38	1.74	1.23
Liaoning	1.22	1.74	1.28
Shaanxi	1.32	1.77	1.22
Guangxi Zhuang AR	1.40	1.77	1.14
Shanghai	1.33	1.80	1.20
Xinjiang Uygur AR	1.47	1.80	1.07
Qinghai	1.60	1.80	1.20
Heilongjiang	1.23	1.80	1.24
Hebei	1.36	1.82	1.24
Beijing	1.37	1.83	1.32
Jilin	1.33	1.85	1.24
Zhejiang	1.25	1.85	1.23
Jiangxi	1.31	1.87	1.09
Ningxia Hui AR	1.19	1.88	1.06
Tibet	2.00	2.00	1.00
Tianjin	1.54	2.33	1.29

Source: Compiled by the author based on CHIP 2018 data. * Rating was done by the interviewee on a scale of 1 to 3, where 1 - did not visit a doctor in 2018, 2 - sought outpatient services, 3 - was hospitalised. ** Rating was done by the interviewee on a scale of 1 to 5, where 1 is excellent, 2 is good, 3 is average, 4 is poor, and 5 is very poor. *** Rating was done by the interviewee on a scale of 1 to 3, where 1 is no, 2 is yes but it does not affect work, study or livelihood, 3 is yes and it does affect work, study or livelihood.

There is no clear relationship between the level of inequality in health expenditures and the geographical location of a region. The calculated interregional Gini coefficient for average household healthcare expenditures is 0.17, indicating a comparatively even distribution of financial outlays across provinces. This measure reflects the realized outcome of healthcare-seeking behavior, constrained by both medical need and the homogenizing financial pressure of standardized national insurance co-payment structures.

However, this finding stands in sharp contrast to the well-documented high levels of inequality in access to healthcare infrastructure. For instance, Jin et al. (2015) report a Gini coefficient of 0.616 for the distribution of healthcare facilities per capita. This disparity highlights a fundamental difference between the financial aspect of healthcare (costs) and its material aspect (resource availability). Whereas the former demonstrates relative equality, the latter exposes a profoundly uneven basis.

This disjunction points to a significant implementation or translation gap within the healthcare system. The national insurance framework, particularly the URRBMI, may succeed in distributing the financial burden of basic care more evenly, but it fails to equalize the capability to convert that coverage into timely and appropriate services. This is theoretically consistent with models where financial coverage is a necessary but insufficient condition for effective access, which also requires adequate local supply, geographic proximity and administrative effectiveness.

Therefore, the core policy challenge has been reframed. It concerns not only distributing financial risks more evenly (the goal of insurance design), but also ensuring that healthcare entitlements are actually realized through healthcare system. The reconciliation emphasizes the need for a dual-level approach to policy, as proposed in the conclusion.

Conclusions

This study reveals a pronounced pro-rich inequality in healthcare financial burden in China, measured by both the share of household expenditure and a high concentration index for health spending. The core finding is that rural households bear a disproportionately high financial burden compared to their urban counterparts within the same income quintile. We argue that this is not a spontaneous economic phenomenon, but a direct consequence of flaws in institutional design in the health insurance system. In particular, the weaker financial protection provided by the Urban Resident Basic Medical Insurance compared to Urban Employee Basic Health Insurance is a major factor. The fee-for-service reimbursement model exacerbates these flaws, creating liquidity barriers for the poor.

These findings underscore the need for policy interventions that go beyond general calls for equality to target specific design features that contribute to financial risk. Simply increasing aggregate health spending is not enough if the institutional structure of the insurance system continues to allocate resources unevenly.

This study also shows that the proportion of spending on health care among the rural population is greater than that among urban populations. At the same time, for the poorest sections of the population this proportion is almost equal. This also indicates income disparity, which partially reflects the characteristics of the healthcare system in China.

The country therefore needs a comprehensive approach to addressing this issue at a policy level. It is important to note that, compared to 2018, measures have been implemented to develop the healthcare system. Many of these measures relate to the response to the COVID-19 pandemic and include not only short-term response measures, but also increased investments in healthcare and medical research (Cheng et al., 2021). With the release of the new CHIP 2023 data, it will be possible to assess the effectiveness of these measures and their contribution to reducing inequality.

In July 2024, the Chinese government announced plans to further deepen its healthcare reform and expand insurance coverage for health services. The government will pay more attention to technological advancements in health care and work to reduce the cost of medicines and healthcare services (Gov.cn, 2024). These measures are expected to improve health care in the country, but, to reduce health inequality, the country will need targeted institutional reforms. Priority should be given to strengthening the URBMI scheme. To achieve this goal, it will be necessary (1) to significantly increase government subsidies for its funding pool, in order to reduce the benefit gap between URBMI and UEBM, (2) to expand its catalogue of covered services and medicines, and (3) to pilot and promote direct payment systems at the service point in order to remove the financial exclusion barrier of upfront payments. Without reforms aimed at addressing the core design of the insurance system, financial protection disparities are likely to persist despite broader investments in health care.

While national reforms are essential for strengthening the URRBMI framework, their success will depend on effective local implementation. Regional governments should be supported and held accountable for translating improved insurance designs into tangible benefits. Local policy should involve not only fiscal equalization but also optimizing the mix of local providers and strengthening oversight over reimbursement practices to ensure equitable financial protection of residents in rural areas and informal workers.

References

Cai, J., Coyte, P. C., & Zhao, H. (2017). Decomposing the causes of socioeconomic-related health inequality among urban and rural populations in China: a new decomposition approach. *International Journal for Equity in Health*, 16(1), 128. https://doi.org/10.1186/s12939-017-0624-9

Cai, W., Deng, Y., Zhang, Q., Yang, H., & Huo, X. (2021). Does Income Inequality Impair Health? Evidence from Rural China. *Agriculture*, 11(3), 203. https://doi.org/10.3390/agriculture11030203

Chen, J., Lin, Z., Li, L., Li, J., Wang, Y., Pan, Y., Yang, J., Xu, C., Zeng, X., Xie, X., & Xiao, L. (2021). Ten years of China's new healthcare reform: a longitudinal study on changes in health resources. *BMC Public Health*, 21(1), 2272. https://doi.org/10.1186/s12889-021-12248-9

Chen, T., Wang, Y., Luo, X., Rao, Y., & Hua, L. (2018). Inter-provincial inequality of public health services in China: the perspective of local officials' behaviour. *International Journal for Equity in Health*, 17(1), 108. https://doi.org/10.1186/s12939-018-0827-8

Chen, Z., & Gao, Q. (2008). Health reform and development with Chinese characteristics: ensuring medical and healthcare services for each and every citizen. *Qiu Shi*, (1), 35-38.

Cheng, Z. J., Zhan, Z., Xue, M., Zheng, P., Lyu, J., Ma, J., Zhang, X. D., Luo, W., Huang, H., Zhang, Y., Wang, H., Zhong, N., & Sun, B. (2021). Public Health Measures and the Control of COVID-19 in China. Clinical Reviews in Allergy & Immunology, 64(1), 1–16. https://doi.org/10.1007/s12016-021-08900-2.

Dong, E., Xu, J., Sun, X., Xu, T., Zhang, L., & Wang, T. (2021). Differences in regional distribution and inequality in health-resource allocation on institutions, beds, and workforce: a longitudinal study in China. *Archives of Public Health*, 79(1), 78. https://doi.org/10.1186/s13690-021-00597-1

Gov.cn (2024) *China to deepen medical, healthcare reform in 2024.* https://english.www.gov.cn/policies/policywatch/202407/09/content_WS668c753cc6d0868f4e8e8ff7.html

Jin, C., Cheng, J., Lu, Y., Huang, Z., & Cao, F. (2015). Spatial inequity in access to healthcare facilities at a county level in a developing country: a case study of Deqing County, Zhejiang, China. *International Journal for Equity in Health*, 14(1), 67. https://doi.org/10.1186/s12939-015-0195-6

Jin, J., Wang, J., Ma, X., Wang, Y., & Li, R. (2015). *Equality of medical health resource allocation in China based on the Gini Coefficient Method*. https://pmc.ncbi.nlm.nih.gov/articles/PMC4441957/

Nie, P., Clark, A. E., D'Ambrosio, C., & Ding, L. (2022). Income-related health inequality in urban China (1991–2015): The role of homeownership and housing conditions. *Health & Place*, (73), 102743. https://doi.org/10.1016/j.healthplace.2022.102743

Shen, Y., & Tao, Y. (2022). Associations between spatial access to medical facilities and health-seeking behaviours: A mixed geographically weighted regression analysis in Shanghai, China. *Applied Geography*, (139), 102644. https://doi.org/10.1016/j.apgeog.2022.102644

Wagstaff, A., van Doorslaer, E., & Paci, P. (1991). On the measurement of horizontal inequity in the delivery of health care. *Journal of Health Economics*, 10(2), 169–205. https://doi.org/10.1016/0167-6296(91)90003-6

Wang, H., & Yu, Y. (2015). Increasing health inequality in China: An empirical study with ordinal data. *The Journal of Economic Inequality*, 14(1), 41–61. https://doi.org/10.1007/s10888-015-9315-1

Wang, Y., Wang, R., Jiang, M., & Ying, X. (2024). Provincial inequality of China's progress towards universal health coverage: An empirical analysis in 2016-21. *Journal of Global Health*, (14), 04122. https://doi.org/10.7189/jogh.14.04122

WHO (2024). *Aligning for country impact: 2024 progress report on the Global Action Plan for Healthy Lives and Well-being for All*. https://iris.who.int/bitstream/handle/10665/376857/9789240094949-eng.pdf?sequence=1

Xu, C., & Shelley, M. (2023). The affordability of access to healthcare for older adults in China. *Economic and Political Studies*, 12(4), 441–462. https://doi.org/10.1080/20954816.2023.2249715

Yang, L. (2016). *Zhonggongzhongyang guowuyuan yinfa '"jiankang zhongguo 2030" guihua gangyao' zhongyang youguan wenjianzhongguozhengfu wang. [The Central Committee of the Communist Party of China and the State Council issued the "Healthy China 2030" Planning Outline.]* Gov.ch. http://www.gov.cn/zhengce/2016-10/25/content_5124174.htm

Yang, W., & Kanavos, P. (2012). The less healthy urban population: income-related health inequality in China. *BMC Public Health*, 12(1), 804. https://doi.org/10.1186/1471-2458-12-804

Yin, C., He, Q., Liu, Y., Chen, W., & Gao, Y. (2018). Inequality of public health and its role in spatial accessibility to medical facilities in China. *Applied Geography*, (92), 50-62. https://doi.org/10.1016/j.apgeog.2018.01.011

Yip, W., Fu, H., Jian, W., Liu, J., Pan, J., Xu, D., Yang, H., & Zhai, T. (2023). Universal health coverage in China part 1: progress and gaps. The Lancet Public Health, 8(12), e1025–e1034. https://doi.org/10.1016/s2468-2667(23)00254-2

Zhang, L., Chen, R., & Fang, Y. (2023). Effects of Urban and Rural Resident Basic Medical Insurance on Healthcare Utilization Inequality in China. *International Journal of Public Health*, (68), 1605521. https://doi.org/10.3389/ijph.2023.1605521

Zhang, T., Xu, Y., Ren, J., Sun, L., & Liu, C. (2017). Inequality in the distribution of health resources and health services in China: hospitals versus primary care institutions. *International Journal for Equity in Health*, 16(1), 42. https://doi.org/10.1186/s12939-017-0543-9

Zhang, Y., & Coyte, P. C. (2020). Inequality of opportunity in healthcare expenditures: evidence from China. *BMC Health Services Research*, 20(1), 379. https://doi.org/10.1186/s12913-020-05252-z

Zhou, Z., Fang, Y., Zhou, Z., Li, D., Wang, D., Li, Y., Lu, L., Gao, J., & Chen, G. (2016). Assessing Income-Related Health Inequality and Horizontal Inequity in China. *Social Indicators Research*, 132(1), 241–256. https://doi.org/10.1007/s11205-015-1221-1

Zhu, D., Guo, N., Wang, J., Nicholas, S., & Chen, L. (2017). Socioeconomic inequalities of outpatient and inpatient service utilization in China: personal and regional perspectives. *International Journal for Equity in Health*, 16(1), 210. https://doi.org/10.1186/s12939-017-0706-8