

Lei Zhu

**A Review of Rural Healthcare System
Weaknesses in China**

**Moving toward Universal Coverage by Applying the
Benchmarks of Fairness**

**Oslo and Akershus University College of Applied Sciences,
Faculty of Social Sciences**

Abstract

This thesis is the first review of China's rural health care system in the context of the latest healthcare reform settings, which applies the *Benchmarks of Fairness*. The *Benchmarks of Fairness* is a tool designed to evaluate issues related to health equity by indicating the factors that need to be improved in order to achieve fair health services.

Accompanying by the rapid economic growth since 1980s, the health status of the whole population has been improved greatly, while some negative effects also appeared, particularly the rising medical spending, and the health inequalities between rural and urban areas. Chinese government has made many efforts to shorten the gap. The government reasserted its role in the health sector in 2009, and provided a huge investment into its healthcare system reform which attempts to achieve the universal health coverage by 2020.

Currently, the fragmented national health insurance schemes in China have achieved an increasingly broad yet fairly superficial coverage, with various health benefits package. The 97.48% rural population was covered by the New Rural Cooperative Medical Scheme (NRCMS) in 2011. However, the out-of-pocket payment is still a big burden for rural patients, especially for the poor. There are still many problems which need to be resolved.

This thesis provides an overview of weaknesses in the rural healthcare system of China despite aspirations for universal coverage. I first present a brief description of the background, the key concepts and definitions. Then I review the present situation of healthcare in rural China, by introducing NRCMS, showing the condition from both supply and demand side, presenting the health service implementation and utilization. There are several reasons that limitations in the rural healthcare system persist, which

I will analyze in this thesis, including market failure and the absence of the government, inequalities in social determinants of health, and unfairness in health care. I discuss the fairness issue with specific reference to Daniels et al.'s (2000) *Benchmarks of Fairness*.

Literature review is used as the main methodology, and some statistical reports are also used as needed. Though it is underfunded and the reimbursement rate is low, NRCMS is successful in some extent. Nevertheless, in order to shorten the rural-urban gap, more improvements are needed and some challenges are still existing, especially the cross-sector cooperation and the dual rural-urban social institute.

Key words: health equity, fairness, weaknesses, universal coverage, health care in rural China, NRCMS, Benchmarks of Fairness.

Acknowledgements

First of all, I would like to thank my supervisor Professor Berit Bringedal who guided my studies and offered me many valuable ideas and constructive comments along the way. Throughout our many discussions she helped me strengthen my writing as well as my ability to think independently and critically about rural healthcare in China. In addition, I am deeply grateful to all my professors, especially Ivar Lødemel and Einar Øverbye, as well as colleagues from the MIS-2012 class in HiOA, especially Gagan Chhabra, Sattwick Dey Biswas, Eli Bolkesjø Williams, Esmeralda Rama, and the course coordinator Stuart Deakin. I learned a lot from my one year as a student in Oslo.

It would not be possible without the help and support from the School of Social Development and Public Policy (SSDPP) at Beijing Normal University. I really appreciate the support from Professor Xiulan Zhang, Vice Dean Haiyan Li, and Dr. Xinsong Wang. I would love to share my experiences with SSDPP. Following the commitment, I return to SSDPP after one year study and re-step into the work life.

Last but not least, I would like to say “Tusen takk¹” to my parents, my family and my friends in Beijing. It was my first time to fly abroad. I spent the 30-year’s birthday in Toyen, Oslo. It was the special year in my life. It means a lot. During the thesis writing, I got many support and guidance from Terry, Max, Eric, and Karl. Many thanks to all of them.

Now, I am finishing the thesis writing. That means I am going to start a new journey.

1 “Thank you” in Norwegian.

Contents

1. Background and rational.....	1
1.1 Introduction	1
1.2 The health delivery system in China	2
1.3 The latest health care system reform in China	3
1.4 Previous research on this topic and the contribution of this study	4
2. Research aim and research questions	6
3. Key concepts and definitions.....	7
3.1 Health system, health care system.....	7
3.2 Universal coverage	9
3.3 Health equity, health inequity, health inequality and health disparity	10
3.4 Social justice in health care	11
3.5 Benchmarks of Fairness	12
4. Methodology.....	13
4.1 Data sources and data analysis	13
4.2 Study limitations and assumptions	14
4.3 Ethical considerations.....	15
5. The present situation of healthcare in rural China.....	15
5.1 A brief history of healthcare in rural China.....	15
5.2 The current situation of healthcare in rural China.....	18
5.2.1 The New Rural Cooperative Medical Scheme (NRCMS)	18
5.2.2 The supply side.....	20
5.2.3 The demand side.....	22
5.2.4 Health service implementation and utilization	23
5.3 Factors underlying limitations in the healthcare system	24
5.3.1 Market failures and insufficient government stewardship	24
5.3.2 Unequal distribution of social determinants of health.....	26
5.3.3 Unfairness in health care	27

6.	The unfairness discussion by the Benchmarks of Fairness	29
6.1	Benchmark 1: Intersectoral public health.....	29
6.2	Benchmark 2: Financial barriers to equitable access.....	31
6.3	Benchmark 3: Non-financial barriers to access	32
6.4	Benchmark 4: Comprehensiveness of benefits and tiering	34
6.5	Benchmark 5: Equitable financing	36
6.6	Benchmark 6: Efficacy, efficiency, and quality of care.....	38
6.7	Benchmark 7: Administrative efficiency.....	40
6.8	Benchmark 8: Democratic accountability and empowerment.....	41
6.9	Benchmark 9: Patient and provider autonomy	42
7.	Conclusion.....	44
	References	46
	Abbreviations	53
	Appendix: The Benchmarks of Fairness (US version and the new version).....	54

List of Tables and Figures

Tables:

Table 1:	The distribution of health workers in China in 2005.....	21
Table 2:	The income and medical expenditure in rural and urban areas in 2008	32
Table 3:	The number of medical professionals and doctors per thousand people in rural and urban areas in 2000, 2005, 2008, and 2011	33

Figures:

Figure 1:	The WHO health system framework.....	8
Figure 2:	The inter-connected relationship between the six building blocks in WHO health system framework.....	9
Figure 3:	The Benchmarks of Fairness.....	13
Figure 4:	The relationship between economic growth and health care in China	25

1. Background and rational

1.1 Introduction

During the past three and half decades, China has experienced great economic growth which lifts millions of people out of poverty and contributes to the overall improvement of health status of the whole population (Liu et al. 2008). The life expectancy rose from 67.77 in 1981 to 74.83 in 2010 and, the Infant Mortality Rate (IMR) dropped from 32.89‰ in 1990 to 13.93‰ in 2010². However, in the case of health, some negative effects have been accompanied by the economic development since the early 1980s, while many of the benefits have been concentrated in urban areas. Uneven growth and fragmentation has led to a variety of spatial and social disparities. In addition, it is neither clear to what extent the rise in health costs has resulted in better healthcare nor whether these resources are being allocated efficiently. Meanwhile, the health inequalities appeared and have been gradually deteriorating since the early 1990s.

Currently, there is a large gap between rural and urban areas in China. The ratio of urban to rural per capita health spending was less than 2 in the early 1990s, but increased to 3.63 in 2000, then declined to 2.67 in 2010, due to the implementation of the New Rural Cooperative Medical Scheme (NRCMS) and the recent reforms (Eggleston 2012). The life expectancy in rural areas is still significantly lower than it in urban areas. Furthermore, child mortality rate under-five in poorest rural area was six times higher than that in richest cities (64 vs. 10 per 1000 birth) in 2000-2004. Similarly child stunting and underweight in rural areas was 3-time higher than that in urban areas in 2002 (Tang et al. 2008). The performance of China's health system was ranked by WHO as the lowest in the world regarding to health equity: "urban residents who make up only about 20% of China's total population enjoy about 80% of the national health resources" (Li, Zhang, and Tian 2006).

To improve China's rural health system, the NRCMS was launched in 2003, funding by

² Data from Nation Bureau of Statistics of China (Accessed on 29 October 2013). Available at http://www.stats.gov.cn/tjsj/tjgb/rkpcgb/qgrkpcgb/201209/t20120921_30330.html (in Chinese)

the central and local governments and the individuals through premiums. Thereafter the issue of medical treatment for rural residents was alleviated. The NRCMS expanded rapidly between 2004 and 2007. Chinese government spent an additional CNY 850 billion (USD 125 billion)³ on its latest 3-year health care reform plan launched in April 2009, which aims to achieve comprehensive universal health coverage by 2020, both for its urban residents and rural population (Yip et al. 2012).

According to *China Health Statistics Yearbook 2012*, the population coverage was 97.48% under NRCMS in 2011, while the coverage rate was 68.46% in urban medical insurance schemes (Ministry of Health 2012). As we all know that health insurance plays a significant role for the population health. Does these data mean that the health care in rural areas is better than it in urban China now? Why the health gap still exists? How is the accessibility and affordability of healthcare for rural residents who are mostly covered by the NRCMS? Despite the rapid expansion of insurance coverage, there was no evidence that NRCMS participation has relieved financial burden measured by out-of-pocket expenditures among rural patients (Lei and Lin 2009). There is a great need and necessary to look at the weaknesses of healthcare in rural China, as well as the reasons.

1.2 The health delivery system in China

Generally, there are three layers in the health delivery system of China – both rural and urban areas. Of which, essential health care in rural areas is provided through a three-tiered system, including rural doctors (called barefoot doctors before 1980s) in village clinics, Township Healthcare Centers (THCs) and county hospitals. Meanwhile, to ensure a higher quality of medical care, China has also established many large and comprehensive hospitals integrating medical service, scientific research, teaching and emergency service in different regions, usually located in cities.

Unlike OECD and other developed countries in which doctors are self-employed as general practitioners (GPs), doctors in China are mainly employed in public sectors. The

³ The central government is responsible for 40%, while the local governments are responsible for 60%.

reward of health workers in public hospital is based on the professional rank fixed salary and additional drug profits⁴, and other “gray” revenues in some cases. Guiding by the market-oriented running mechanism, the payment in private hospital is performance-based, but most of the private hospitals are not designated as the public health insurance scheme providers (Qin, Li, and Hsieh 2013). Before the economic reform in 1978, there were no private clinics or hospitals. Private for-profit health facilities came into the health care field as the “open door policy”⁵. The absolute number of private hospital is 7,068 in 2009, accounting for one third of all hospitals. However, the 89.2% hospital employees are from public hospitals that provide more than 90% health services in China (Qin, Li, and Hsieh 2013). In other words, the public hospitals dominate the medical care in China. Excitingly, the Third Plenary Session of the 18th Central Committee of the Chinese Communist Party has further encouraged and supported the private capital investment in healthcare, which will give a boost to the development of the medical and health undertakings.

In rural areas, county hospitals are perceived to provide the best medical care at the highest price, while the village clinics provide the basic health care at the lowest price. THCs and county hospitals are owned by the government, whereas there are many private village-level clinics. There are no significant differences between private and public village clinics, except for the responsibility of immunization and other public health services (Dongfu Qian 2009).

1.3 The latest health care system reform in China

Although awareness of problems in the healthcare system began in the 1980s, by and large, it was the severe acute respiratory syndrome (SARS) crisis, which broke out in 2003, that drove Chinese policy makers to directly confront the problems in the health care system as a whole (Eggleston 2012). “Too difficult to see a doctor, and too expensive to see a doctor” (*kan bing nan, kan bing gui*) was the best summary of the situation in the beginning of 21st century, which was mainly the result of lack of health insurance, rising health care costs,

⁴ It was 15% of the drugs price since 2006, but it was canceled in 2012.

⁵ It means the economic reform launched in 1978.

and the fragmented health services delivery system (Liu et al. 2008, Yip and Hsiao 2008). Hence, the State Council Health-Care Reform Leading Group was formed in September 2006 aiming to establish a more effective, affordable and equitable health-care system (Liu et al. 2008). The Chinese ex-President Hu Jintao stressed the need “to build a safe, effective, convenient and inexpensive medical care network covering both urban and rural residents”⁶ at the Political Bureau of the Central Committee of the Communist Party of China workshop in October 2006. He promised a bigger government role (Yip and Hsiao 2008). With the great economic success, China has the fiscal capacity to improve its health sector and to reform its health care system.

The new round health care reform announced in 2009 clearly reasserted the government role in the health-related sectors, backed by strongly political and financial support. It provided CNY 850 billion (USD 125 billion) to the three-year health reform plan during 2009-2012, and has been coordinated not from the Ministry of Health⁷, but rather from a special unit directly under the State Council (the Health Reform Office of the State Council). The National Development and Reform Commission and the Ministry of Finance are key players in almost all aspects of this reform (Eggleston 2012). It aims to establish universal coverage that provides “safe, effective, convenient, and affordable basic health services” to all urban and rural residents. It consists of five specific areas or major targets: (1) expand insurance coverage for both rural and urban population; (2) increase government spending on basic public health services, especially in low-income regions; (3) establish primary-care facilities at grassroots level - reinforce community health centers in urban areas and THCs in rural areas; (4) reform the pharmaceutical market and establish a national essential drug system; (5) pilot reform of public hospitals (Yip and Hsiao 2009, Chen 2009).

1.4 Previous research on this topic and the contribution of this study

There are plenty of studies on China’s health care and its reform. *The Lancet* launched a

⁶ *Xinhua News Agency*. Available at: http://english.gov.cn/2006-10/24/content_422227.htm
Accessed on 29 June 2013.

⁷ Ministry of Health (MoH) renamed National Health and Family Planning Commission since March, 2013.

special issue of “Health System Reform in China”⁸ in October 2008, and a theme issue of “Universal Health Coverage”⁹ in September 2012. However, most of the previous studies mainly focused on the overall health care system and criticize the economic indicators, such as financing, dysfunctional payment system, high out-of-pocket health expenditure and inefficiency; many studies discussed the access and delivery of health care in rural/urban areas; and a small number concentrated on the theme of equity, but are largely limited to regional disparities and different socio-economic groups (Tang et al. 2008, Yip et al. 2012). Many studies touch on the issue of social justice in the health care system, but few studies have explicitly used an overall framework for thinking about limitations. This thesis is an attempt to get at notions of justice by specifically using this sort of overarching framework to discuss rural-urban disparities.

One potentially useful tool for understanding and assessing the fairness in healthcare systems is called the *Benchmarks of Fairness*. The *Benchmarks of Fairness* developed by Norman Daniels et al. (2000) is a policy tool to assess and compare the fairness of health care systems among countries or within a country. If we say the tool describes an ideal system, then we can use it to explore the disadvantages or weaknesses in the healthcare system. There are nine benchmarks, each of which has various criteria for evaluating specific aspects of fairness in health care proposals or systems (Daniels et al. 2000). This tool has been used in evaluating the equity effects of rural medical scheme in Yunnan province, China. They found the financial obstacles for the very poor, overcharging for drugs, and the inadequate funding of the programme (Daniels et al. 2005). Regrettably, the relevant literature on this study is very limited. No more details and data about this evaluation are available or found during the thesis writing. Moreover, the rural medical scheme is being rolled out and consolidated gradually in the past years. It has also been used to review health inequity in China by using IMR as the health indicator, but limited to five benchmarks due to the available data (Chen 2012). What is true is that these

⁸ *The Lancet*. Available at: <http://www.thelancet.com/series/health-system-reform-in-china>
Accessed on 12 May 2013.

⁹ *The Lancet*. Available at: <http://www.thelancet.com/themed-universal-health-coverage>
Accessed on 26 May 2013.

benchmarks are not equally comparable. Some limitations in the rural healthcare system are neither working well in the urban one. As a result, the nine benchmarks are not all easy to compare and relevant to the urban-rural distinction. But In this thesis, I am still attempting to discuss the weaknesses in rural healthcare system by using each benchmark to draw some inspirations for the further study. This may be the first comprehensive review of health equity and fairness in the context of China's latest health care reform, which applies all nine benchmarks.

2. Research aim and research questions

The economic development and health status in rural China is lagging behind the cities for many years and in many ways. The urban population exceeded the rural population for the first time in 2011, which implies that urbanization has reached 50% (Gong et al. 2012). But it includes the migration population with the number of 158.63 million¹⁰ (11.8% of the total population of China) in 2011, those float to the cities for the better economic opportunities but are registered in rural areas. Hence, the rural health service is the key component of the whole health system in China.

The policy and academic communities are becoming increasingly interested in the Chinese healthcare and its reform (China News 2011, Xinhua Web 2005).When we see that some people pay extra money to get a scarce expert admission (*zhuan jia hao*) or a bed in the crowded large hospitals with high-quality in cities, while others have to forgo the health care due to the unaffordable high medical cost. I am always asking myself: "How does it happen? Why it happens? Is it tolerable?" It is not merely the matter of affordability. Then, what is it? What are the underlying reasons which have contributed to this issue? Is it the concern of health equity and fairness? There is no easy answer to these questions. But analyzing this issue will enhance our understanding of health care in rural China. This thesis attempts to answer these questions.

¹⁰ According to *China's migrant workers survey monitoring report (2011)*. National Bureau of Statistics of China. Available at: http://www.stats.gov.cn/tjfx/fxbg/t20120427_402801903.htm (in Chinese) Accessed on 22 May 2013.

Since 1950s, the health care schemes in rural and urban China have presented some differences (see section 5.1). Chinese government has introduced a couple of health care reform initiatives in both rural and urban areas (Meng and Tang 2010). The government is pouring more and more money into health care in rural areas, and the aim of universal health coverage seems like that it is going to remove the health care gap between rural and urban China. In this thesis, I will present the situation of healthcare in rural China, explain the causes shaping this situation, and discuss the fairness compared with the healthcare in urban areas. I would like to raise the research questions in a way of scientific logic, from description to explanation, and to analysis. The research findings might eliminate the weaknesses in rural healthcare and lead to the improvement of the health status for rural residents. Moreover, it will guide me to the further study in this field.

- ❖ Research Question 1: *What is the situation of healthcare in rural China? And why?*
- ❖ Research Question 2: *Is universal coverage the best indicator of distributive fairness according to the framework of Benchmarks of Fairness?*

3. Key concepts and definitions

3.1 Health system, health care system

In *The World Health Report 2000 Health Systems: Improving Performance*, the term *health system* is defined as “all the activities whose primary purpose is to promote, restore or maintain health” (The WHO 2000). Traditionally, *health system* has a broader meaning than *health care system*, as the latter deals more specifically with how health care is delivered, not the many factors (outside the formal health care system) that are related to health outcomes. The report *Everybody’s Business: Strengthening Health Systems to Improve Health Outcomes: WHO’s Framework for Action* provided an expanded definition of *health system* as consisting “of all organizations, people and actions whose primary intent is to promote, restore or maintain health” (The WHO 2007). In this thesis, the terms *health care system* and *health system* will be used interchangeably.

As shown in Figure 1, the WHO health system framework consists of six system building

blocks (service delivery, health workforce, information, medical products, financing, leadership and governance) and four overall goals/outcomes (improved health, responsiveness, social and financial risk protection, improved efficiency) (The WHO 2007). In this framework, (1) good *health services delivery* should be effective, safe, of high quality, and with minimum waste of resources; (2) health professionals and staff in a well-performing *health workforce* are sufficient, fairly distributed, competent, responsive and productive to achieve the best health outcomes; (3) a well-functioning *health information system* is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health systems performance and health status; (4) *medical products, vaccines and technologies* should be essential and with assured quality, safety, efficacy and cost-effectiveness; (5) a good health *financing* system can ensure people are protected from financial catastrophe or impoverishment due to medical spending; (6) *leadership and governance* involves ensuring strategic policy framework exist and are combined with effective oversight, coalition-building, appropriate regulations and incentives, health system design, and accountability (The WHO 2007).

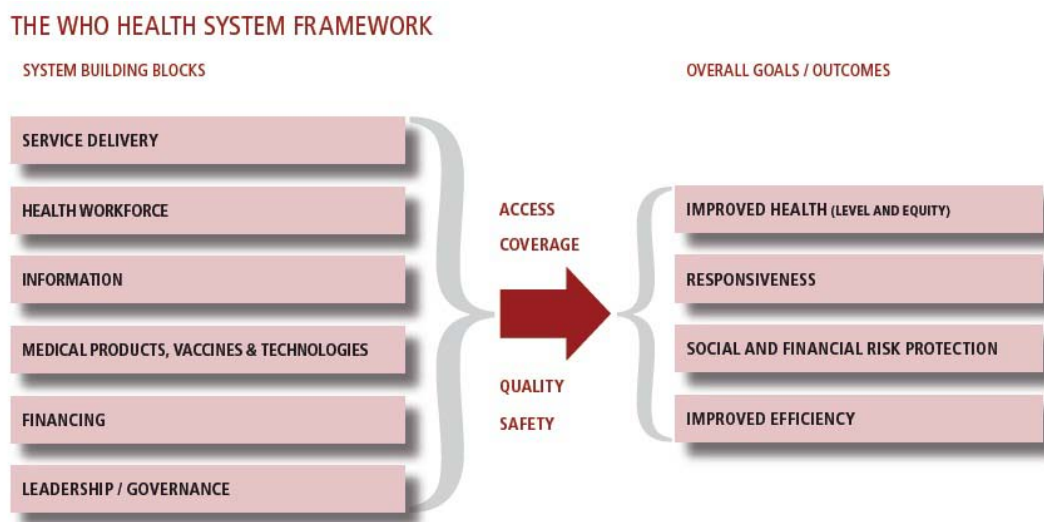


Figure 1: The WHO health system framework

Source: *The WHO report Everybody's Business: Strengthening Health Systems to Improve Health Outcomes: WHO's Framework for Action, 2007*

In section 6, I will merge the six building blocks with the fairness discussion. It is worthy to understand the “multiple and dynamic relationship” between the six building blocks as shown in Figure 2. The well-functioned inter-connections strengthen the system

performance which is essential to improve the effectiveness and achieve better health outcomes.



Figure 2: The inter-connected relationship between the six building blocks in WHO health system framework

Source: The WHO report *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes: WHO's Framework for Action*, 2007

3.2 Universal coverage

According to the WHO, *universal coverage*¹¹ (UC), or universal health coverage (UHC), is defined as “ensuring that all people can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship. This definition of UC embodies three related objectives: (1) equity in access to health services-those who need the services should get them, not only those who can pay for them; (2) the quality of health services is good enough to improve the health of those receiving services; and (3) financial-risk protection to ensure that the cost of using care does not put people at risk of financial hardship.” Simply speaking, the universal coverage includes who is covered, for which services are they covered, and with what level of financial contribution? (Savedoff et al. 2012)

Generally, when we say the coverage of health insurance, we use percentage of the total

¹¹ The WHO website. Available at: http://www.who.int/health_financing/universal_coverage_definition/en/ Accessed on 26 May 2013.

eligible population as the indicator. For instance, 90% is covered by the NRCMS. Here, it means the population coverage and the enrollment rate. The universal coverage in healthcare not merely means population coverage. The WHO provides a three-dimension concept of universal coverage: breadth in terms of population, depth in terms of service and benefits, and height in terms of financial protection (Meng and Tang 2010). The three dimensions are consistent with the objectives in the definition of universal coverage. Regarding to universal coverage, rights, enrolment and utilization of healthcare services all come with limitations (Savedoff et al. 2012). However, the evidence suggests that broader health coverage generally leads to better access to necessary health services and health improvements, particularly for the poor (Moreno-Serra and Smith 2012).

3.3 Health equity, health inequity, health inequality and health disparity

There are different ways to use the concepts of “health equity”, “health inequity”, “health inequality”, and “health disparity” in academic literatures. “Health inequality” and “health disparity” frequently denote the same and are used interchangeably (Braveman 2006). Here, we can simply understand them as health differences. According to Sen (2002), health equity is a multi-dimensional concept. It includes “concerns about achievement of health and the capability to achieve good health”. It also includes the fairness and nondiscrimination in the delivery of health care. Health equity is closely connected with a large issue of justice and fairness in social arrangements. In this paper, we look at the issue of health equity through health care, because health care is the process aspect of justice and equity in light of the health resources allocation (Sen 2002a).

In the special issue “Health System Reform in China” of *The Lancet*, Tang et al. (2008) also provided the concepts of “health equity” and “equity in health care”. They defined *health equity* as “Everyone could attain their full health potential and no-one should be disadvantaged from achieving this potential because of their social position or other socially determined factors”, and *equity in health care* as “One aspect of the larger concept of health equity, equity in health care implies fair arrangements that allow equal geographic, economic, and cultural access to available services for all in equal need of

care.”

In the WHO programmes, the influential claim is that health inequalities count as *health inequities* when they are *avoidable*, *unnecessary*, and *unfair* (Daniels, Kennedy, and Kawachi 2004). For example, if systematic differences in health for different groups of people are avoidable by reasonable action, their existence is unfair. This imbalance is called health inequity by the Commission on Social Determinants of Health. The reduction of health inequity is an “ethical imperative” (Marmot et al. 2008).

In this thesis, *equity* is defined as ensuring that people have equal access to health services as needed, which entails adequate spending for quality health services at different levels of health facilities.

3.4 Social justice in health care

People, both rural residents and urban residents, should have the same right to meet their health care needs regardless of their income, age, gender, race, location, and other characteristics. Health care needs are those things we need in order to “maintain, restore, or provide functional equivalents to normal species functioning.” They include “adequate nutrition, shelter; sanitary, safe, unpolluted living and working conditions; exercise, rest, and some other features of life-style; preventive, curative, and rehabilitative personal medical services; non-medical personal and social support services” (Daniels 1985). A good health care system provides equal opportunity for everybody in need, minimizes class inequality and any kinds of discrimination (Light 2000).

In Rawls’s *Theory of Justice*, he used the notion of the “the veil of ignorance” as a rule by which people in society could decide what is fair and just. As a thought experiment, it provided one way that people could think about the minimum needs that should be met by society given that individuals do not know what sorts of aptitudes and attributes they will possess prior to being born. He argued that social rules or arrangements should not disadvantage the worst off pertaining to the “primary social goods”, for instance, income

and wealth, food, and shelter (Rawls 1971). Daniels (1985) extended Rawls's theory to health care through its "fair equality of opportunity principle". He emphasized the equal and fair access to opportunity for the needed medical services – preventive health care, rehabilitative services, cure services, and mentally medical care (Light 2000). From the equity perspective, one of the main concerns is whether the disadvantaged groups can benefit from the health insurance by improving the health care access and health services utilization (Liu et al. 2012).

3.5 Benchmarks of Fairness

As a broader concept than equity, the concept of *fairness* includes equity in access to health care, equity in financing, and equity in health outcomes; and efficiency in management and allocation the constrained resources; also accountability to the public; and appropriate forms of patient and provider autonomy as well (Daniels et al. 2000). This broader concept of *fairness* has similar considerations to the basic attributes of the *ends* for a good public service introduced by Julian Le Grand, which constitutes quality, efficiency, responsiveness, accountability and equity (Grand 2007).

Benchmarks of Fairness was initially developed and presented in the United States in 1992 for the first Clinton Administration, with an ethical rationale and the theory of justice in health care. It was the first time that a moral philosophical concept transposed into social benchmarks. The US *Benchmarks of Fairness* has ten benchmarks, while the revised one has nine (Appendix). The new *Benchmarks of Fairness* were revised to adapt for use in countries at different levels of development by teams with various backgrounds collaborators from Colombia, Mexico, Pakistan, and Thailand. They held two-week long workshops in 1999 to develop nine benchmarks by using each country as a "case study" (Daniels et al. 2000, Light 2000).

The *Benchmarks of Fairness* is a generic matrix for assessing the fairness of health sector reform in developing countries. Each benchmark specifies a key component of the fair health sector design and, in turn each benchmark contains the specific criteria to achieve

the goal. Hence, it can be used in evaluating the comprehensive health reforms at national and sub-national level through scoring the selected evidence-based health indicators (Harvard School of Public Health). The “capacity building” feature is attractive since it uses local evidence to improve the fairness of healthcare systems (Daniels et al. 2005).

The nine benchmarks are: intersectoral public health; financial barriers to equitable access; non-financial barriers to access; comprehensiveness of benefits and tiering; equitable financing; efficacy, efficiency, and quality of health care; administrative efficiency; democratic accountability and empowerment; patient and provider autonomy. As shown in Figure 3, the first five benchmarks concern on “equity”, the sixth and seventh benchmarks focus on “efficiency” and, the eighth and ninth benchmarks point to “accountability” (Daniels et al. 2005).

Box 1. The nine main Benchmarks of Fairness and their corresponding key objective of fairness	
Benchmark	Objective of fairness
B1 Intersectoral public health	Equity
B2 Financial barriers to equitable access	
B3 Non-financial barriers to access	
B4 Comprehensiveness of benefits and tiering	
B5 Equitable financing	
B6 Efficacy, efficiency and quality improvement	Efficiency
B7 Administrative efficiency	
B8 Democratic accountability and empowerment	Accountability
B9 Patient and provider autonomy	

Figure 3: The Benchmarks of Fairness

Source: Norman Daniels et al., *Bulletin of the World Health Organization*, 2005

The benchmarks will be used as a tool to discuss the fairness in Chinese health care system. Not like scaling the benchmarks in most studies, I will not score the criteria in each benchmark because of the subjectivity.

4. Methodology

4.1 Data sources and data analysis

Previous studies provide rich data. The main methodology in this thesis will be literature

review. The literature includes academic articles, the research reports from the World Health Organization, and some Chinese statistical reports. Among electronic databases explored, PubMed (1966-July 2013) was searched for English articles in peer-reviewed journals. Additionally, Google Scholar, Springer, and JSTOR were also utilized, as needed.

Search terms included combinations of the following terms: “health care/health service/health system/healthcare system/health care system”, “rural China/urban China”, “review/comparison/difference/gap”, “universal coverage”, “justice/equity/fairness” and “health equity/health inequity/health inequality/health disparity”. The reference lists of earlier reports and included studies were also examined. Studies that solely investigated the health system abroad were excluded. Articles that focused on treatment, or included other medical and psychiatric conditions, were excluded.

In addition, I refer to some reports from the website of the WHO. For example, *The World Health Report 2000: Health Systems: Improving Performance*, and *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes: WHO's Framework for Action*, etc. The statistical data are mainly from *China Health Statistics Yearbook*, *The Report of Health Workforce in China 2006*, *The Research on Health Services of Primary Health Care Facilities in China in 2008*, *An Analysis Report of National Health Services Survey in China 2008*, and the website of National Bureau of Statistics of China.

4.2 Study limitations and assumptions

My thesis is mainly focusing on the rural weaknesses compared to urban areas, the general differences between rural and urban areas because of the dichotomy of health care system. The region difference and the diversity among the provinces is not my main concern in this thesis. The general differences shown in this paper will give us a whole picture of the health care system in China.

The policy analysis in this thesis is based on available data and limited knowledge, and it is from an outsider's perspective, rather than the policy makers (policy supply-side and

policy start-point) or the beneficiaries residents (policy need-side and policy end-point). As the author, I was born in a small village, and have worked in Beijing for more than seven years but as an outsider of the public institution. I experienced the differences between rural and urban life. Hence, the bias is not completely eliminated.

Among several possible weaknesses of my thesis is its broad scope, which may too ambitious for a 40-page master degree thesis. It would be more interesting and impressive to make a deep discussion on a specific aspect of the Chinese health care, either in rural or in urban areas. Such as village doctor in rural China, health-seeking behavior among rural residents, the utilization of the urban employee basic health insurance, and the immunization of the migrant children, etc. However, the review of the overall picture is needed and necessary for the further study and research. It would be the basis for my further education and study.

4.3 Ethical considerations

In my thesis, I will not collect first hand data by survey and/or interviews. There is no ethical issue during my thesis writing. I do not need to submit the research proposal to the Institutional Review Board (IRB).

5. The present situation of healthcare in rural China

5.1 A brief history of healthcare in rural China

China has the biggest population on the planet, and also has the largest human migration in the history. Urban population rose from 191 million in 1980 to 622 million in 2009 (Gong et al. 2012), which is closely connected with the economic reform launched in 1978. The migrant groups contribute to the economic growth in cities, and vice versa, economic development improves the rural-to-urban migration. Compared with the fast urbanization, it is in the stark contrast that the dichotomous rural-urban classification and social management system has not changed or improved institutionally. Surely, the health care system is one of the victims. The economic structure in China highly influenced its health

care system essentially in the way of financing which is related to payments and out-of-pocket medical spending, health workforce, drugs and medical equipment products, health seeking behavior. Almost each article talking about Chinese health care changing begins with the economic reform and its great influence on healthcare.

To understand the weaknesses of rural health care in contemporary China, we need to trace back to 1950s - the years after the establishment of the People's Republic of China (in 1949). Before the economic reform, almost all rural population was covered by the Cooperative Medical System (CMS); while the Government Insurance Scheme (GIS) and Labour Insurance Scheme (LIS) provided almost free health care to the employees in the government agencies and state-owned enterprises in cities, and the dependants were partly covered by both the schemes as well (Tang et al. 2008). The CMS in rural China was universal and successful by ways of community organizing and cooperative methods of financing (Hsiao 1984). Under the communist ideology and the planned economy, the communes system and barefoot doctors played a significant role in the primary health care in rural areas. From 1949 to 1981, the average life expectancy rose from 35 to 68 years, infant mortality declined from 250 to 40 deaths per 1000 live births¹² (Hsiao 1984). The CMS in pre-reform China was viewed as “a superior health performer” for other developing countries (Sadel 1993, Tang et al. 2008) even though it provided a low-level universal health care.

Economic reform in late 1970s and early 1980s brought profound changes to the Chinese society by influencing the agricultural production, privatization and further decentralized public financing system (Hsiao 1984). The health facilities turned into profit-seeking orientation for the financial survive since the government reduced the health care funds (Yip and Hsiao 2008). This resulted in the great financial difficulties in accessing health services, especially for the rural poor (Liu et al. 2012). Not surprisingly, the out-of-pocket payment as a percentage of total health spending rose from 20% to 60% during 1978-2002

¹² The data is inconsistent. The infant mortality rate decreased from 400 to 48 per 1,000 babies. In Chan, Chak Kwan, Ngok, King Lun, and Phillips, David. 2008. *Social Policy in China: Development and Well-being*. P117. Bristol: The Policy Press.

(Yip and Hsiao 2008). The rural cooperative medical system collapsed as the communes system broke down; meanwhile the barefoot doctors that provided the primary health care for rural population in the CMS became private practitioners to make a living, or left their medical position and engaged in the farming activities due to the increasing agricultural productivity. As a result, only 6.6% of the rural population was covered by 1998 (Gao et al. 2002). Out-of-pocket spending on medical care pushed people into poverty. According to the 1998 National Health Services Survey, out-of-pocket spending on health care raised the poverty rate from 7% to more than 10% in rural area, which means the proportion living in poverty increased by 44% due to the out-of-pocket medical spending (Liu 2004). In a word, the profit-oriented health sector reforms resulted in great financial difficulties, especially for the rural poor.

Based on the market failure and the absence of the central government role, the first National Health Conference was held by the Central Party Committee and the State Council in 1996 to draft general guidelines for health care system development towards the 21st century (Gao et al. 2002). This conference was partly driven by the evidence studies of the Harvard School of Public Health and led to the establishment of the present rural health care system - the NRCMS (Hsiao 2004). In cities, a new Urban Employee Basic Medical Insurance (UEBMI), to which employees and employers contributed jointly, was introduced in 1998 to replace the GIS and LIS. It covers employees in both public and private enterprises (Tang et al. 2008, Liu 2002). The Urban Resident Basic Medical Insurance (URBMI) was developed in 2007 for other urban residents without formal employment, such as children, students, seniors, and the disabled, with substantial subsidies from central and local governments and modest contributions from individuals (Lin, Liu, and Chen 2009, Jin Ma 2008, Long et al. 2013). The coverage of eligible people was estimated to have reached 93% by 2010 (Juyang Xiong 2013).

In rural areas, the State Council announced *the Decision on Further Strengthening Healthcare in Rural Areas* in October 2002, which can be viewed as the milestone for the

rural healthcare. Driven by both “harmonious society”¹³ government objective and the rural population health needs, the government has put efforts into strengthening rural health services and shortening rural-urban gap by introducing NRCMS in 2003, and subsidizing more and more expenditure to it in which more than 96% of the rural population is covered (data from 2011) (Liang et al. 2012).

Today, the fragmented and complicated national health insurance system in China mainly consists of three parts: Urban Employee Basic Medical Insurance (UEBMI), Urban Resident Basic Medical Insurance (URBMI), and New Rural Cooperative Medical Scheme (NRCMS), in which the benefits package vary widely (Yip et al. 2012) and, there are many differences between rural and urban in terms of financing, organizing, benefits level, etc. To achieve the goal of “Healthy China 2020”, it would be one of the most important points to remedy the weaknesses in rural healthcare.

5.2 The current situation of healthcare in rural China

5.2.1 The New Rural Cooperative Medical Scheme (NRCMS)

The NRCMS is the major medical insurance scheme in rural China. According to *China Health Statistics Yearbook 2012*, there were 97.48% rural population (832 million, 2637 counties) covered by NRCMS in 2011, and 14.72 million person-time involved in medical assistance (Ministry of Health 2012). Like many reforms start with small-scale policy experiments before proceeding to national roll-out, the central government launched the NRCMS pilots in 300 rural counties in 2003 (Chen et al. 2011). It is running by the health sectors of different levels - from the ministerial level, to provincial level, and to the county level which has the freedom to set the benefits level and reimbursement ceiling while it has lower power and diverse level of resources. It expanded during the following years, and 2729 counties were covered in 2008 (Ministry of Health 2012).

The NRCMS is a government-run, voluntary insurance scheme and, financed by combined contributions from central government, local government, and individual households (Shi

13 It is a political doctrine in China's Communist Party. It was laid out by ex-President Hu Jintao in 2006.

et al. 2010, Liang et al. 2012). It aims to protect households from falling into poverty due to the catastrophic health expenditure, and the principle objective is to provide universal coverage and to improve the equity of access to health care (Liang et al. 2012). It is a crucial step to reduce the rural-urban gap and inequity of access to health care for rural population (Yang 2013). The annual premium RMB 50 (Chinese Yuan) in the western and central provinces in 2006 consists of RMB 20 from central government, RMB 15-20 from local government and RMB 10-15 from individual household; while in the eastern and coastal region, the premium is mainly from the local government. It increased to RMB 60, RMB 60, and RMB 30, respectively by 2010 (Yip and Hsiao 2008, Qiu et al. 2011).

Local governments (county-level) have the freedom to choose the benefit package and set the reimbursement rate and ceiling. And the outpatient care was included since 2007. However, studies show that inpatient care and higher level health facilities benefit disproportionately the rich or the better-off. It is because the reimbursement rate is higher in village clinics and township health centers (35-60%) than the county facilities (25-40%) and city hospitals. Poor people might forgo seeking doctor when they have serious sickness (Yang 2013). The average reimbursement rate for outpatient care is only 10%¹⁴ in NRCMS (Yang 2013). Most importantly, there is long way to go to achieve the main goal of preventing rural residents from falling into poverty due to catastrophic illness. With the dramatic expanding in coverage between 2004 and 2007, evidence shows that the reimbursement rate is falling as the medical expending increasing. It was around 19% when the medical care expending is between 200 Yuan and 2,000 Yuan, but only 8% when the expending was more than 10,000 Yuan in 2007 (Hongmei Yi 2009). It is consistent in Zhang's survey conducted in 2007 shows that 77% of those who received reimbursements incurred medical costs of less than 2,000 Yuan (Zhang, Yi, and Rozelle 2010).

The NRCMS is a popular programme in rural communities, and it has made a tremendous progress in rural healthcare system. Even the participant rate and the real reimbursement rate are increasing gradually, many studies suggest that the role of current NRCMS

¹⁴ It is 20% at public village clinics and 15% at township health centers in other study (Dongfu Qian 2009).

programme on protecting patients from falling into poverty due to catastrophic medical expenditure is far from needed to achieve its objective (Zhang, Yi, and Rozelle 2010). The progress is slow, and the real universal health coverage will take time if the dualistic public policies continue to favor urban over rural areas.

5.2.2 *The supply side*

The Research on Health Services of Primary Health Care Facilities in China (2008) showed that there were 613,855 village clinics. However, there were still 10.8% villages without clinics. The private village clinics accounted for 30% during 2005-2008. There were 10-30 beds in most township hospitals. In some places, dilapidated and unsafe buildings were serving as medical care places (2,594,000 square meters in township hospitals). 98.3% of the township hospitals and 64.3% of the village clinics were covered by the NRCMS. But, 27% of the township hospitals and 9.6% of the village clinics were in deficit (Center for Health Statistics and Information 2009b).

The distribution of health workers is not even between rural and urban areas of China. It is disproportionate compared to the population. As shown in Table 1, the number of health workforce in rural China is lower than it is in urban areas. There were 3 million professionals practicing in urban areas in 2005, compared with 1.45 million practitioners in rural China. In all four categories of health practitioners shown in Table 1, two-thirds of the healthcare workforce was distributed in urban areas. In addition, the educational or skill level of rural health workers is inferior to those in urban areas. While 22.0% of health professionals¹⁵ in urban areas possessed a bachelor degree or above only 6.8% of rural professionals had this level of education (Ministry of Health 2007b).

There is a strong urban bias in the distribution of medical professionals (Anand et al. 2008). The licensed doctor density in urban areas is more than twice that in rural areas,

¹⁵ Health professionals include doctors, nurses, pharmacists, laboratory technicians, clinical radiologists, and other technical staff with advanced education (Anand et al. 2008).

and the nurses density is 3.4 times¹⁶ difference between urban and rural areas. Data in 2005 also show that 43% of the urban doctors have a college education or above, compared to 13% in rural areas; while 53% of urban doctors and 79% of rural doctors have secondary school level¹⁷, respectively. Hence, the disadvantaged areas have both lower quantity of health workers and less-educated workforces (Anand et al. 2008).

A new study conducted by China Institute of Health (2013) states that village doctors in rural China are facing increased percentage of aging, partly because 45.3% of them were barefoot doctors and they have to practice in the clinics to earn a living without the support of national pension. In addition, due to the low salary and less opportunity, few young medical graduates supplement the rural health workforce, which result to the shortage of professional workforce in rural areas. Moreover, gender imbalance in village doctors is a barrier for women seeking maternal and gynecological care due to the customs (Xu et al. 2013).

Table 1: The distribution of health workers in China in 2005

Category	Urban N (%)	Rural* N (%)	Not-for-profit N (%)	For-profit** N (%)
Health worker	3.71 (68.3)	1.72 (31.7)	4.59 (84.6)	0.48 (8.9)
Professional	3.00 (67.4)	1.45 (32.6)	3.76 (84.4)	0.44 (9.9)
Doctor	1.29 (66.6)	0.65 (33.4)	1.58 (81.6)	0.22 (11.4)
Nurse	1.00 (74.4)	0.35 (25.6)	1.22 (90.7)	0.10 (7.6)
Doctor-Nurse Ratio***	1.29	1.87	1.29	2.16

“N” represents how many millions of the corresponding health workforce.

“%” represents the percentage of the corresponding health workforce.

“Doctor” includes licensed doctors and licensed assistant doctors.

* In the county-level and lower-level.

** There is a third category called others, not be shown in the table.

*** The ratio is calculated by the exact numbers in the report.

Data source: *The Report of Health Workforce in China 2006*, pp9-16.

¹⁶ In China, either rural area or rural population is larger than urban one, so the ratio here regarding to the density is bigger than the urban-rural ratio (1.98 for doctor and 2.86 for nurse) according to data in Table 1.

¹⁷ In Anand et al.’s study, college level refers to bachelor’s education or higher, while secondary school level includes secondary schools, secondary technical schools, and junior colleges.

Typically, health spending has grown faster than income. The wider range of health care services and the changing of medical practices (advanced medical technologies and new drugs) are the major factors that contribute to the increasing health spending (Savedoff et al. 2012). In OECD countries (excluding the USA) health spending per person grew by an average of 3.8% annually between 1970 and 2002, while it was 4.5% in low-income countries during 1995-2009 (Savedoff et al. 2012). During 2000-2010, the annual average growth rate in real health spending per capita was 10.9% in China, compared with 5.6% in Asia, at a higher rate than overall economic growth (OECD/WHO 2012). However, the relatively modest share of China's GDP (5.01% in 2010) spending on healthcare is far less than it in OECD countries (9.5% on average). Now, the public spending accounts for a little over half of China's total health spending, but still significantly lower than that in OECD countries with 72% on average (Eggleston 2012).

5.2.3 *The demand side*

According to the sixth national population census¹⁸ in 2010, there are 1,339,724,852 in total, among which 67.4 million (50.32%) are living in rural areas. In the context of rural China, the health resources with quality or reputation concentrate in towns or cities, rather than villages. According to the empirical study of Dongfu Qian (2009) conducted in Gansu Province¹⁹, China, some patients prefer to visit the county hospitals with more distant, better reputation (or quality), and higher price²⁰ if the health status is such poor that only the county hospital can treat their illness. There is an urgent need to improve the health services in rural areas. The infant mortality and maternal mortality was 17.0‰ and 34.0‰ per 100,000 in rural in 2009. It was 6.2‰ and 26.6‰ in urban. It was lower in Shanghai²¹ than the national level (Yuan Zhaokang et al. 2012).

One of the challenges for China's healthcare system is the health transition that it is undergoing, both in terms of epidemiology and demographics. The proportion of over

¹⁸ Data from National Bureau of Statistics of China

Available at: http://www.stats.gov.cn/tjfx/jdfx/t20110428_402722238.htm Accessed on 31 October 2013.

¹⁹ It is one of the poorest provinces in China, located in northwest China, with many mountainous areas.

²⁰ Indirect costs (transportation, gifts and opportunity costs) are not included in the data.

²¹ The most economically developed area.

60-year and over 65-year is 13.26% and 8.87%, respectively. The World Bank has predicted that the over-60 elderly will be more than 400 million by 2050. The chronic diseases increased as a proportion of all deaths from 41.7% in 1973 to 74.1% in 2005. The mortality pattern in rural areas differs from it in urban areas. For instance, rural areas have higher mortality from infectious diseases, maternal and perinatal conditions, cerebro-cardiovascular causes, chronic obstructive pulmonary disease, oesophageal cancer, cervical cancer, and injury (data in 2004-2006) (Yang et al. 2008). The major behavioral risk factors caused increasing non-communicable diseases are as follows: dietary changes (decreased cereal intake and increased fat intake, high salt intake), overweight and obesity due to reduced physical activities, and tobacco consumption (Yang et al. 2008).

In addition, the traditional family-care systems are becoming more fragile because of the graying population, one-child policy, and dual roles of Chinese women as both workers and careers. In some regions, young population move to cities to find jobs, leaving the elderly and the children behind in rural areas called “empty nest village”. It requires the rural healthcare system more capacity to cope with the health-related risks. Furthermore, relating to the inter-migration, sexually transmitted diseases have been rebounding due to the increase of migration population and commercial sex. Again relating to the migration groups, half of the increased measles cases in the past few years occurred in the migration family, because of the lower immunization coverage and lower antibody concentration among the migration children (Wang et al. 2008).

With respect to the demand side of the healthcare equation, rural China is suffering a triple burden of disease – infectious diseases, non-communicable diseases, and rural-to-urban migration related diseases and challenges.

5.2.4 Health service implementation and utilization

Liu et al. (2008) used available data to measure the effective coverage of health interventions in China. The data they used are China’s most important data sources which include China National Health Services Survey (in 1993, 1998, and 2003), 2004 China

Adult Chronic Diseases Risk Factors Surveillance Survey, and China Statistics Digest. They identified four major types of health interventions as the indicators of health-system coverage: (1) curative interventions to treat different diseases (e.g., tuberculosis treatment and hypertension control); (2) preventive interventions (e.g., immunization); (3) behavioral interventions (e.g., smoking cessation); and (4) inter-sector public health interventions (e.g., safe drinking water, sanitary toilet). According to Liu et al.'s study (2008), China's urban health-care system has done better than the rural system on almost all the coverage indicators, except for the coverage of tuberculosis treatment (data from 2003 and 2004) which might be partly explained by the fact that rural population is less mobile than the urban counterparts (Liu et al. 2008).

According to the National Health Service Survey in 1998, the two-week outpatient utilization rate was only 13% in poor rural areas, and 71% of the patients gave up the inpatient services because of the lack of affordability (Zhang et al. 2006). Data show that the utilization of inpatient services increased among all socio-economic groups. But the impact on reducing the risk of catastrophic out-of-pocket medical expenses is very limited. The reimbursement played a more role in rich areas than poor areas (Chen et al. 2011).

5.3 Factors underlying limitations in the healthcare system

As we have seen, the performance of China's health care system is strongly dependent on its economic structure, and highly favors the urban residents. Economic reform in 1980s indeed brought the unprecedented economic growth in China, but also generated some problems greatly influenced the health care. Tang et al. (2008) argued three main factors shaping the health inequalities: market failures and insufficient government stewardship, inequalities in social determinants of health, and unfairness in health care. We can see the relationship in Figure 4.

5.3.1 Market failures and insufficient government stewardship

Health services delivery is a key process through which "health system can contribute to the improvement of population health and reduction of health inequalities" (Liu et al.

2008). Yip and Hsiao (2008) argue that the root cause of the rapid cost inflation in China is “the irrational and wasteful health care delivery system”. Since the 1990s, the marketization and commercialization were gradually introduced into the medical and health field, accompanying by the decrease of government responsibility. In recent years, Chinese government has also noted “contradictions and problems” of the market economy (Tang et al. 2008). In 2008, the Chinese government stated that the fully market-oriented medical and healthcare system is a wrong guidance, which distorted the non-profit feature of medical care and ignored the responsibility of the government (Chen and Gao 2008).

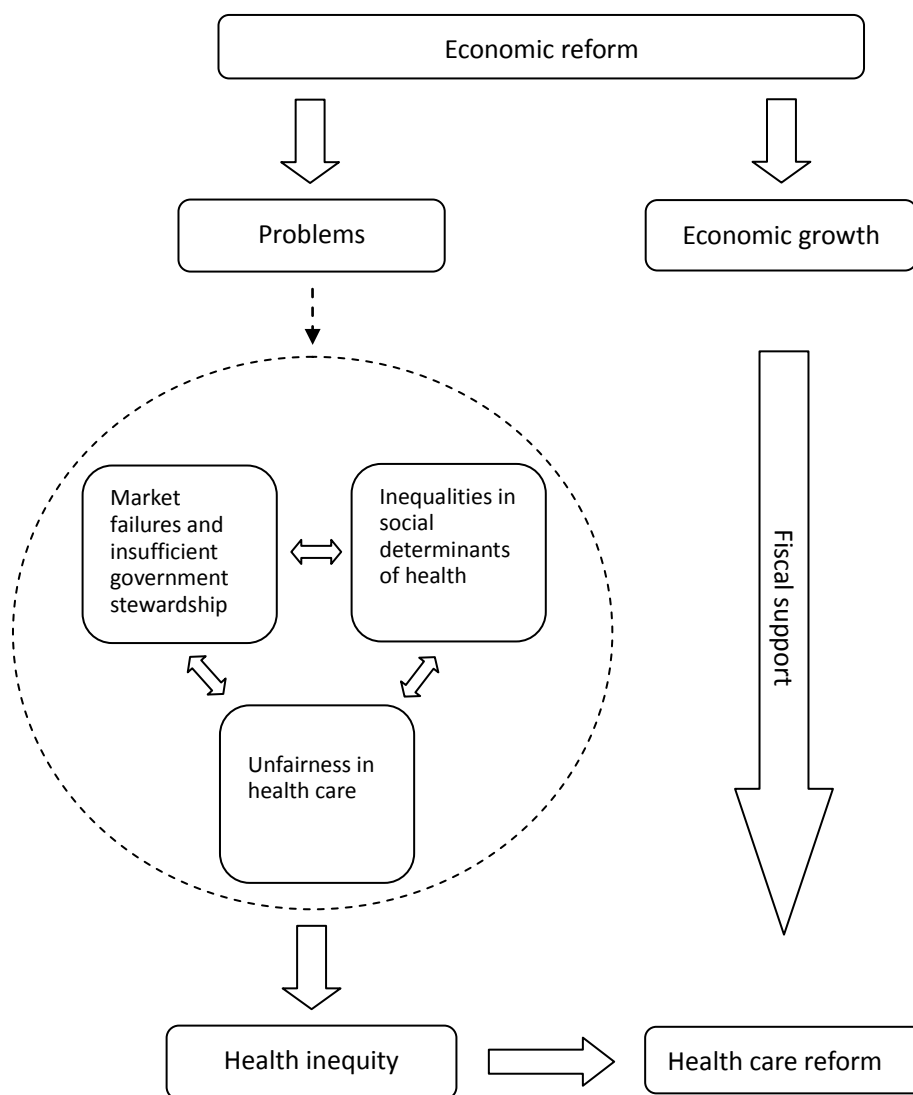


Figure 4: The relationship between economic growth and health care in China

In China, the local governments are responsible for the education, health care and other social services, but lack of public finance and sufficient power. Hence, the health

disparities are shown with the diverse wealth levels (Tang et al. 2008). Bloom (2011) discussed Chinese health care system from a different perspective - the institutional arrangements. He states the performance of health care system is highly path dependent, and strongly influenced by the institutional arrangements and the relationships between the relevant actors (Bloom 2011).

The lack of government financial support led to the collapse of CMS in rural China at the end of 1970s followed the result of dramatically increasing medical costs (Zhang et al. 2006). If the health care cost was justifiable, it would not increase so rapidly. Additionally, due to the information asymmetry, health care providers can use their knowledge to persuade patients to spend more on unnecessary medical services, which lead to better health gains but mostly paid by out-of-pocket (The World Bank 2005). It was the economic incentive more than the moral issue. Furthermore, government financing as a proportion of total health expenditure decreased from almost 40% in the early 1980s to 18% in 2005, while out-of-pocket payments rose from 20% to more than 50% in the same period (Ministry of Health 2007a). The valuable lessons from the old rural health insurance (CMS) are: (1) economic incentives to the health personnel, (2) the necessity of establishing a universal and compulsory financial system for health care, (3) increasing health care demand due to higher income, (4) pricing structure influences the demand and need (Hsiao 1984).

5.3.2 Unequal distribution of social determinants of health

The benefits of economic growth in China are not distributed equitably. The *Wilkinson hypothesis*, or *relative income hypothesis*, states that health depends on the degree of income inequality in a society. That is, for any given level of income, the more equally distributed this income is the higher will be the average standard of health (G.Wilkinson and Pickett 2009, Wilkinson and Pickett 2006).

Disparities in income and wealth between urban and rural areas has widened substantially. The ratio of urban to rural for mean household per capita incomes (relative gap) increased

from 2.35 in 1995 to 2.38 in 2002, which is high by international standards; while the difference between urban and rural mean incomes (absolute gap) climbed from 2,514 Yuan to 4,584 Yuan during the same period (Terry et al. 2006). In 2009, China's rural-urban wealth gap reached the maximum since its economic transformation three decades ago, with the per capita income being RMB 17,175 (USD 2,500) in urban areas, against only RMB 5,153 (USD 755) in rural areas (Liu 2010).

Living conditions vary greatly between areas of different affluence, as well as among different groups. Access to safe drinking water and sanitation is 96% and 90% in large cities, but merely 30% and 10% in poor rural villages (Tang et al. 2008). Migration groups in cities tend to be living in worse conditions than the urban counterparts. For instance, some of them are living in the crowded dwellings, and others are living in the humid basement. The major factors, including poverty, poor living conditions, and lack of essential antenatal and postnatal care, are leading to the very high maternal mortality rates in Beijing and Shanghai for migration women. Data show that it was 48 deaths per 100,000 compared with 1.6 per 100,000 among resident women in Shanghai in 2005, and 42 compared to 18 per 100,000 among local women in Beijing in 2004 (Tang et al. 2008).

The fiscal capacity of local government is largely dependent on its economic level since the decentralization of the fiscal system in China (Blumenthal and Hsiao 2005). Public spending was 48-time higher in the richest counties than it was in the poorest ones in 2003, and the provincial difference was more than eight times (Tang et al. 2008). Here, we will not list all the aspects relating to the social determinants of health, such as working conditions, environmental pollution, food, education, and unemployment, those are distributed unequally.

5.3.3 Unfairness in health care

An adequate and appropriately allocated health workforce will play a pivotal role in the health care system. However, there is a maldistribution of health human resources between rural and urban areas as shown in section 5.2.2. Low salary in rural areas prevents young

professionals from joining the health workforce in less developed areas. The same thing happened in history when skilled health workers left rural areas and new graduates were unwilling to serve in rural areas (Gong Youlong 1997). But the case is not only happening in China. There is evidence that skilled professionals in the developing countries tend to move to developed countries where they can get more opportunities and higher payment (Chen et al. 2004). Anand and others study shows that many medical graduates are not employed as health workers, which implies a less than optimal allocation of the health educational investment, the need for improved health educational programmes matched with the healthcare needs and better coordination between health and education sectors. In addition, the severe maldistribution of medical professionals between rural and urban areas can be corrected only if effective incentives are created in rural health workplaces (Anand et al. 2008).

The financing of NRCMS is too small to achieve the objects of preventing rural residents from impoverishment due to the catastrophic illness. Most of the studies show that the impact of NRCMS on health outcome is limited (Liang et al. 2012). From the example of the NRCMS, we can easily see that the population coverage is really high (nearly 100%), but the benefits coverage and the risk protection function of the concept of universal coverage is still falling far away (Hongmei Yi 2009). Moreover, almost all of the leaders from local governments regard the healthcare coverage as one important indicator for the government performance, because Chinese central government excessively pursues the aim of universal coverage, especially the high percentage numbers. It is undoubted that the official coverage figures may mask the risk of certain vulnerable groups (Xu and Yang 2009). In this sense, universal coverage could be a misleading indicator of distributive fairness if we are blind by the solely high population coverage rate.

Furthermore, the gap between rural and urban areas is also highly connected with the taxation system which leads to the shortage of funds in rural areas. For instance, the health benefit for its urban residents and rural residents was 28.61 Yuan and 2.52 Yuan, respectively, in Liaoning Province in 2003. The difference was 11 times (Center for Health

Statistics and Information 2009b). The burden of medical expenditure crowds out other social services, such as education for the children, which has the potentially negative influence on the human capital and well-being (Wang, Zhang, and Hsiao 2006). As the main concern in this paper, the unfairness factor will be discussed in the followed section by applying *the Benchmarks of Fairness*.

6. The unfairness discussion by the Benchmarks of Fairness

In this section, the *Benchmarks of Fairness* will be used as the tool to assess the fairness of China's health care system by comparing its characteristics in rural and urban areas. However, this comparison is within one country, rather than between different countries. For benchmarks 6-9, it is not as equally easy as the other ones to compare the indicators between rural and urban. The concern of efficiency and accountability presented in benchmarks 6-9 is not only the issue in rural health care, but also in urban one. As a matter of fact, efficiency and accountability is the concern in health care system as a whole in the context of China, and it is better to view from a macro perspective. In spite of this, they are also helpful to seek the limitations for rural healthcare system.

6.1 Benchmark 1: Intersectoral public health

The first benchmark implies that health, especially public health, is a broad field. It is closely connected with many aspects in the society. There is no doubt that economic and social factors play a significant role for human health (Lindstrand Ann 2006). The equal access to and utilization of health services is particularly necessary for promoting the population health in low- and middle-income countries. A wide body of studies views the health system as an important social determinant of health (Gilson et al. 2007), because it is interconnected with many social aspects, not merely a medical system relating to illness and treatment. Besides the health care system, social factors and other risk factors also affect population health, such as poverty, education, food, and sanitation (Lindstrand Ann 2006). A well-functioning health care system needs support from other public sectors, including finance, education, agriculture, human resources etc. with complex relationships

among different actors. There is no simple way to get a common consensus if they have different interest conflicts or policy goals (Bloom 2011, Li and Yu 2011). It is certainly the case in China that a number of basic needs, essential to the optimal functioning of the healthcare system, remain unmet. Let us take sanitation and education as examples of important rural-urban disparities.

Currently, almost half of the rural residents are still faced with a lack of safe drinking water in China. A web report of *Finance* in 2011 revealed that there were still more than 300 million people without access to safe drinking water in rural China (Weng and Gao 2011). Conversely, 90% of urban residents had access to treated sanitary drinking water in 1998, and the ratio had risen to 94.7% by 2008 (Li 2009). The Chinese government has launched the so-called “New Socialist Countryside Construction” project in 2006 to narrow the gap between the rural and urban areas. As part of the project, enormous investment has been made in rural infrastructure in order to improve the quality of drinking water. In spite of this effort, Song argued that the rural-urban division system inherently affected the access to sanitary drinking water for rural residents (Song 2013).

As for education, there was also a very large gap between rural and urban areas of China. Previous study showed that the tremendous gap in education exists not only in the unbalanced distribution of compulsory education funds but also in teachers’ level (Bao 2006). Furthermore, another study suggested that urban students have obvious advantages than rural peers both at home and in school environment, such as study equipment, teaching level, and the parents’ educational attainment. The study also stated that the cumulative result of the inequity in basic education led to the disparity between rural and urban students in access to higher education (Zhang 2009).

In China, administrative fragmentation and a lack of coordination impedes the acquisition of fair health care and medical services. It is well known that health reform is a worldwide difficult issue which is true for China as well. Generally speaking, health reform touches the multi-sectoral interests and impinges upon the jurisdictions of multiple government

ministries and agencies (Eggleston 2012), such as National Development and Reform Commission, the Ministry of Finance, the Ministry of Education, and the Ministry of Agriculture etc. Improved cooperation among the multi-sectors is greatly needed. It remains an arduous task for the organization system in China. Although the recent health reform was coordinated by the Health Reform Office of the State Council - a special unit directly under the State Council - the optimal medical and health care system will remain a distant goal in China without support from other related actors.

6.2 Benchmark 2: Financial barriers to equitable access

This benchmark aims to widen the health insurance pool which would enhance the mutual support. Evidence shows that mandatory insurance or tax-based health services provide more equitable access to health care (Bloom 2011). In reality, most of the rural residents are farmers who work in the informal economies without regular tax-pay.

Many rural residents in poor areas choose to forgo the treatment when they get sick because they cannot even afford the basic health care. The utilization of health care services in rural China is falling mainly due to the financial difficulties with the proportion of 38% among the non-visit patients in 2003 (Dongfu Qian 2009). There is evidence that price is a significant determinant of health seeking in poor rural areas, especially for the low-income families. The price elasticity is higher for low-income groups than for high-income groups. Enrollment in medical insurance schemes can increase the possibility of treatment seeking to formal provider than self-treatment (Dongfu Qian 2009). According to the national survey in 2008, both outpatient and inpatient spending is 2.3 times higher in urban than it is in rural areas, however the percentage of medical expenditure (as a share of income) is bigger for rural patients (see Table 2).

Besides moving more people into the insurance pool, the Benchmark 2 also encourages a long-term strategy which begins with a modest basic package, and broadens to a comprehensive package for all over time (see section 6.4). The NRCMS is the best example for verification, as has been presented in section 5.2.1. Just like the CMS

established in 1950s, over 90% rural population were covered by CMS with the low-level medical benefits. The establishment of NRCMS was on the basis of summarizing the practical experiences from CMS. Today, 97.48% rural population is covered under NRCMS. According to the higher outpatient and inpatient utilization and the township health centers' revenues, the NRCMS well boosted the access to healthcare for rural residents (Wagstaff et al. 2009). Today, the overall guideline of China's health care insurance is leading by the called "equal access by 2012 and universal coverage by 2020". The government-subsidized NRCMS and URBMI have lower premiums and less generous benefit packages than the mandatory UEBMI and the health insurance program for government workers. Meanwhile, the risk pooling is expanding and gradually deepening to achieve the universal coverage with a robust benefit package (Eggleston 2012).

Table 2: The income and medical expenditure in rural and urban areas in 2008

Area	Income per capita (Yuan)*	Outpatient per consultation Spending** (%)	Inpatient Spending** (%)
Rural	4761	143 (3.0)	4208 (88.4)
Urban	15781	332 (2.1)	9664 (61.2)
Urban-rural ratio	3.3	2.3	2.3

* The data is labor income for rural residents and disposable income for urban residents.

** It includes the indirect expenditure, such as transportation fee.

Data sources: (1) National Bureau of Statistics of China²²; (2) *An Analysis Report of National Health Services Survey in China 2008*, pp.48-49.

6.3 Benchmark 3: Non-financial barriers to access

Besides the issues of affordability discussed in the previous section, the non-financial barriers to safe and adequate health care are significant factors contributing to the gap between rural and urban residents. Benchmark 3 is focused on the non-financial barriers.

The maldistribution of health workforce has not improved for some years in China. The total number of healthcare workers, both in rural and in urban areas, has been increasing

²² Available at: http://www.stats.gov.cn/tjsj/tjgb/ndtjgb/qgndtjgb/200902/t20090226_30023.html
Accessed on 3 November 2013.

gradually. Nevertheless, as shown in Table 3, the number of health professionals and doctors per thousand people was much higher in urban than in rural areas. Moreover, the urban-rural gap increased continuously from 2000 to 2011, with a slight exception for the period of 2000 to 2005.

Table 3: The number of medical professionals and doctors per thousand people in rural and urban areas in 2000, 2005, 2008, and 2011

Year	Medical professionals			Doctors		
	Rural	Urban	Urban-rural ratio	Rural	Urban	Urban-rural ratio
2011	3.19	7.90	2.48	1.33	3.00	2.56
2008	2.80	6.68	2.39	1.26	2.68	2.17
2005	2.69	5.82	2.16	1.26	2.46	1.95
2000	2.41	5.17	2.15	1.17	2.31	1.97

Data source: *China Health Statistics Yearbook 2012*, pp36.

In addition, the access to quality care is comparatively more limited for rural than urban residents. There were 2.83 million working in city hospitals, but only 1.70 million in rural hospitals in 2011. If we try to find a number that is bigger in rural areas than urban areas, it is the one in basic health facilities. It was 0.66 million in urban, and 2.72 million in rural, which means the health services level in rural areas is far from it in cities (Ministry of Health 2012). There is also regional disparity among the health workers distribution. It was 2.05 per thousand people in township hospitals in Jiangsu Province in 2011, while 0.65 and 0.69 in Guizhou Province and Yunnan Province. It is closely connected with the wealth level. The former province is a rich one located in the east coast line, while the latter two are located in the southwest of China with mountains²³ (Ministry of Health 2012).

As mentioned in previous sections, density of rural doctors plays a significant role in the

²³ The GDP per head in Jiangsu Province was 9448 USD in 2011, but only 2952 USD and 2495 USD in Yunnan and Guizhou at the same time point. Data available at: http://news.xinhuanet.com/local/2012-02/07/c_122667889.htm (in Chinese). Accessed on 27 October 2013.

quality of healthcare for rural residents. However, there is no big change of the rural doctors per thousand people. It was 1.55 in 1985, and slowly dropped to 0.98 in 2003, then slowly went up to 1.27 in 2011. The young professionals and medical students are not willing to work in rural areas. The number holding (over) junior college level education increased 5,600 among rural doctors in 2011, while there were 49039 graduate medical students in the same year (Ministry of Health 2012). These statistics indicate young professionals are unwilling to work in remote rural areas as compared to relatively affluent urban areas. Some scholars suggest that a primary care-centered health workforce would balance the income of medical specialists and primary care providers. In this way, it would be easier to encourage talented providers to work in rural communities (Hung et al. 2012).

Furthermore, China has the unique household registration system, called *hu-kou* system, divided by rural and urban classification which was one of the crucial organic parts of the Maoist model since 1950s and which is still in use today. Simply speaking, the social benefits one can enjoy are binding to where one is registered, such as education, health care, housing, even for food in the pre-reform era (Chan and Zhang 1999). Since 1980s the internal rural to urban migration phenomenon is becoming more and more prevalent in China, the health inequality has been emerging between city residents and rural migrant workers (Li, Zhang, and Tian 2006). We need to pay more attention to healthcare accessibility and affordability among this disadvantaged and discriminated group, especially the children from migrant families those are much more likely to lack insurance. One reason is that they cannot afford the higher premium for insurance programs in urban areas or are unable to enroll in such schemes because they lack a valid residency permit or work in informal sectors. As a result, they need to pay by out-of-pocket when they utilize the healthcare services in cities if they are covered by the insurance scheme in their place of origin (Juyang Xiong 2013). I will clarify more about it in the following section.

6.4 Benchmark 4: Comprehensiveness of benefits and tiering

Benchmark 4 implies that all people, regardless of class or gender, have comparable health needs and there are similar social obligations to meet these needs. Inequality in health

coverage and quality of care reduces the fairness of the healthcare system.

Four typical models in the NRCMS reimbursement package are inpatient expenses only (16%); inpatient expenses and family accounts for outpatient expenses (36%); inpatient expenses and catastrophic (chronic) outpatient expenses (20%); and inpatient expenses and family accounts for outpatient expenses and catastrophic (chronic) outpatient expenses (28%). And the NRCMS encourages the patients to seek medical services in lower-level health facilities. Hence, the reimbursement rate is higher in township hospitals than it is in county level ones (Zhang, Yi, and Rozelle 2010). In fact, the real reimbursement rate in the NRCMS is much lower than is promised (Hongmei Yi 2009). Furthermore, the gap widens as the severity of the illness increases. For instance, the promised rate is 40% for the total medical expenditure over 10,000 Yuan, while the real rate is merely 2.18% (Zhang, Yi, and Rozelle 2010). In this case, such limitations in the NRCMS can lead to impoverishment when catastrophic medical costs occur.

In cities, 94.8% and 79.2% patients got the reimbursement from the urban employee (UEBMI) and urban resident (URBMI) programs. The reimbursement rate was 63.2% and 49.3%, respectively. In comparison, 80.2% rural patients got the reimbursement from NRCMS with the rate of 26.6%. Hence, the out-of-pocket payment is still high for rural patients. It took for 56.0% of the family income per capita in 2008, which was much higher than it in cities (31.8% for UEBMI and 38.2% for URBMI). In addition, 49.7% of the rural inpatient patients reported being unsatisfied mainly due to the high payment (29.7%), the poor equipment (19.7%), and the cumbersome procedure (11.6%). Furthermore, there were 27.9% of rural patients those need inpatient services but did not use it because of the affordability (70.7%)²⁴ (Center for Health Statistics and Information 2009a).

Relating to the compatibility and transferability of health benefits, we have to point to the healthcare utilization for the internal migration population with the number of 158.63

²⁴ Data are from An Analysis Report of National Health Services Survey in China 2008, chapter 5.

million²⁵ in 2011. Chinese rural-urban migrant workers have made a great contribution to China's economic growth. Despite this, they confront many difficulties in accessing and utilizing health care in their hometown or adopted work cities. Most of the migrant groups are covered by the NRCMS, but outside of their counties of residence because they are working in cities. To date, it is not compatible and transferable between the respective medical insurance schemes in rural and urban China. Hence, securing reimbursement from the health facilities in which they work is very difficult and limited, the reimbursement rate is extremely low and the procedures are “long, cumbersome, and unpleasant” (Qiu et al. 2011). Empirical data (2006) show that more than half (55.2%) of migrants did not get any reimbursement from the NRCMS, mainly as a result of staying in hospitals that are not designated by NRCMS (account for 65%) (Qiu et al. 2011).

Hu et al. (2008) stated that “In essence, the countryside is exporting good health and re-importing ill-health.” (Hu, Cook, and Salazar 2008). That is to say, young and healthy people tend to float to cities for better economic opportunities, but return to their hometown when they get sick. It is unfair and impractical to migrants. The “portability and compatibility” of health care schemes in rural and urban China is a key challenge to effective health policy. In some cities, for example Chengdu, the capital of Sichuan Province, the integration of rural and urban health care services is being piloted. However, expanding such pilot programs on a nation-wide basis will be difficult given the diverse management and benefits package across the country with different levels of and variations in the fiscal capacity of local governments (Qiu et al. 2011).

6.5 Benchmark 5: Equitable financing

Having the ‘right’ to access medical services is not necessarily the same as being able to afford the medical services. To be truly accessible, they should be financed by the ability to pay. Tax-based revenues, premiums, and out-of-pocket payments constitute the three main sources of funding in many health insurance schemes. If the tax structure is

²⁵ According to China's migrant workers survey monitoring report (2011). National Bureau of Statistics of China. Available at: http://www.stats.gov.cn/tjfx/fxbg/t20120427_402801903.htm Accessed on 22 May 2013

progressive the tax-based financing health care system is an equitable one. For the premium-based medical scheme, equitable financing would be better based on the community-rated rather than the risk-rated, as the latter shifts the burden to the high-risk groups (the sick) leading by the adverse selection. This is consistent with the benchmark 2 underlying the rationale of expanding the risk pool as much as possible in order to share the disease risk and fund burden (Daniels et al. 2000). It is a question of who will pay, and how much. In this way, a higher share of out-of-pocket payments implies a more inequitable health insurance program.

Health financing in China is far from equitable. Long et al. (2013) analyzed data from 2000 to 2011 and concluded that the total health expenditure of urban populations was higher than of rural populations in each year over the period. For the out-of-pocket payment, it increased 10.5% and 15.6% annually among the urban and rural population, respectively. In 2011, the total health expenditure for urban areas was three times higher than it was for rural areas (2698 Yuan vs. 879 Yuan), and the share of out-of-pocket expenditure was 50% and 36% for the rural and urban population, respectively. In terms of the financial burden during the same period, the out-of-pocket payment per capita as a percentage of average annual household living consumption per capita increased from 6.4% in 2000 to 7.6% in 2005, then dropped gradually to 6.4% in 2011 for urban residents, while it continuously climbed from 5.2% in 2000 to 8.4% in 2011 for rural residents (Long et al. 2013).

The increased financial burden for the rural population implies that healthcare remains unaffordable. In order to offer affordable and essential health services for the rural population in China, two main issues need to be addressed. Firstly, effective measures on cost control are required, such as appropriate incentives to the providers which can avoid the behavior of over-treatment and over-prescription. In addition, a better-functioning health insurance scheme will also provide financial protection for rural patients, which is one important part of universal coverage.

As mentioned in previous sections (section 5.2.1 and 6.4), the relatively low reimbursement rate in NRCMS led to an increased share of out-of-pocket medical spending for rural patients. One reason for low reimbursement rates is that the NRCMS does not have sufficient funding (Hongmei Yi 2009, Zhang, Yi, and Rozelle 2010). Compared to the medical care needs, the NRCMS is severely underfunded (Hongmei Yi 2009, Zhang, Yi, and Rozelle 2010). The contradiction between promising too much and not having enough funding to realize the promise under the NRCMS might teach us that we cannot achieve the “health for all” goal if the healthcare financing and benefits package is unfair.

6.6 Benchmark 6: Efficacy, efficiency, and quality of care

The rationale underlying this benchmark is that it is necessary to allocate and utilize limited resources in an appropriate and efficient way in order to generate more value for money and offer the necessary health services for those in need. The challenge is about how to provide the required health services in a fair, effective, and cost-economic way within the constraints of limited funding. Three main criteria are recommended, including a primary health care focus, evidence-based practice, and quality improvement (Daniels et al. 2000). These three criteria are inter-connected. For instance, good quality of the lower level medical services would ensure and promote the implementation of primary health care. Evidence-based practice can provide required data and information for health policy decisions that would distribute the resources based on disease patterns and health care needs, avoiding the waste and enhancing the fairness.

Regarding the emphasis on primary health care, the referral system will play an important role. There are different levels of hospitals pre-designated in the medical insurance schemes, both in rural and urban areas. However, according to a case study in Beijing, the primary level health facility, called community health center in cities, is not adequately fulfilling its gatekeeper role. As a result, people prefer to go to the tertiary hospitals, which are perceived to have higher quality care and a better reputation, leading to the overcrowding. On the other hand, there are very short waiting times in community health

centers but these are not sufficiently utilized by patients. This behavior is a deeply entrenched habit of seeking help from large hospitals (Liu et al. 2011). The reason for preferring large and reputable hospitals is partly that the Chinese patients do not trust the quality in the community health centers, despite that fact that they are often more conveniently located, have lower drug costs, and shorter waiting times, etc. (Zhang et al. 2011). A similar phenomenon occurs in rural areas, but the travel distance and indirect cost from village to county is higher than it is in cities from community health center to tertiary hospital. Therefore, enhancing the quality of health services in village clinics and community health centers will improve the efficacy and efficiency of the whole health care system and, benefit those of lower income, especially the rural poor (Dongfu Qian 2009). In addition, the NRCMS can consider providing a more generous benefits package for the rural residents at village clinics, and include the qualified private village clinics since they are taking an important role in providing medical services for low-income groups (Dongfu Qian 2009). It is generally acknowledged that preventive and primary health care is cost-effective. Thus, improving the service capability at village-level and community level health facilities in rural and urban areas will benefit the whole population and the healthcare system. A good primary health care system rebuilding has been put in a central position in the latest healthcare reform launched in 2009 (Liu et al. 2011).

According to the National Health Services Survey in China (2008), self-reported health ratings were 79.3 and 80.4 (out of a total score of 100) in urban and rural areas, and the self-reported morbidity in last two-week was 22.2% and 17.7% in urban and rural areas (Center for Health Statistics and Information 2009a). It does not imply that the health status in rural areas is better than it is in urban areas, because self-reported health is strongly dependent on self-perception. People living in urban communities are more likely to report illness and morbidity, since they have more health facilities and higher levels of education. Hence, “self-reported morbidity has severe limitations and can be extremely misleading” as such measures reflect different expectations and entail considerable subjectivity (Sen 2002b). This disparity might be explained by differences in health seeking behavior between urban residents and rural residents. People living in cities tend

to see the doctor when they get illnesses. The same argument can be made for the highest morbidity reported by residents of big cities which was 29.7%.

There were 6.4% urban residents that did not go to the doctor when they got ill, while the percentage (12.4%) was much higher in rural areas. In rural areas, the highest proportion (41.7%) was among the 55-64 years group, followed by the 45-54 years group (41.1%). In cities, it was the 15-24 years and 25-34 years young group, with the percentage of 52.2% and 50.7%. Among those who went to the doctor, 57.3% of rural patients chose the clinic or health station and 0.7% chose the provincial level hospital. Comparatively, 11.2% of urban patients went to the provincial level hospitals (Center for Health Statistics and Information 2009a). In summary, more urban patients chose the high level health facilities (provincial, municipal, or district-level), but more rural patients chose the low level health facilities (clinics, or community-level). We can also see that more rural patients forgo the needed health services. The valuable evidence-based information, relating to the population health needs and utilization rates with demographic differentiation, also suggests the disparity between rural and urban.

6.7 Benchmark 7: Administrative efficiency

Benchmark 7 is also related to efficiency, but emphasizes efficiency in the management of the health care system. Four criteria included in this benchmark are minimizing administrative overhead, cost-reducing purchasing, minimizing four kinds of cost shifting, and minimizing abuse and fraud and inappropriate incentives (Daniels et al. 2000).

Since different health insurance schemes are in place for rural and urban residents in China, each local government (county level for rural one, city and municipal level for urban one) is responsible for the administration of its scheme. The inefficient administration in the four criteria occurs in both rural healthcare and urban healthcare. It is hard to say which one occurs more than the other. As of now, no data show the extent to which the disparities between rural and urban healthcare are led by the administrative efficiency differences, even though the inefficiency exists in both healthcare systems.

However, there are some notable differences regarding the sub-criteria in this benchmark. For example, there is little training or re-education opportunities provided for rural doctors (Xu et al. 2013). Cost shifting between rural insurance and urban insurance schemes for migrants is high (Qiu et al. 2011).

In terms of administration, the following sentences probably will also help us to understand the rural situation. Insofar as underfunding adversely impacts healthcare system efficiency and efficacy, it is not difficult to understand the ineffectuality of the NRCMS. As a matter of fact most of the county-level governments are themselves in fiscal deficit. It is impossible even for the rich counties to achieve the promised commitments which are over their revenue pool. This is why the performance of the NRCMS is worse in poorer regions. Moreover, it is difficult for the county government to run this complicated health insurance scheme which requires technical and financial capabilities. One suggestion would be that the higher level government could design the complicated programme and the lower level government could contribute their ability to the implementation and the co-payment. During the pilot period, many key elements of scheme design were left to the local government. Hence, a lot of trainings were carried out for the local officials and scheme managers. It intended to promote the bottom-up policy pattern and adapt the scheme to local conditions. However, it neglected the capacity in county health administrations and the shortage of available data on disease burden at county-level. The central government issued the guidelines for NRCMS, but the details for implementation are designed and carried out by local governments, which can result in very diverse benefits packages and outcomes in reality. Most central government policy on NRCMS was issued after the scheme was consolidated. The central government should not shift the responsibility to under-resourced local governments, which have limited capacity (Zhang 2013). We can view the NRCMS as an example of “decentralization”. But “it only helps if there is careful planning and regulation to make sure decentralized units are aiming at similar goals” (Daniels et al. 2000).

6.8 Benchmark 8: Democratic accountability and empowerment

Accountability is a critically important point in health care systems. Benchmark 8 restates the responsibility of the policy-making processes. It emphasizes the transparency of decision-making, and encourages the strengthening of the advocacy groups or civil society (Daniels et al. 2000). The accountability is the cornerstone of the success of any health care reform because “the health systems are responsible for the improvement of population health in an equitable manner”. This benchmark not only goes beyond the boundaries between sectors, but also moves towards the public (Daniels et al. 2000).

The situation in China is significantly different from other countries. Simply, the public hospitals are owned by the government. The Ministry of Health is responsible for the NRCMS, but the urban health insurance schemes are running under the Ministry of Human Resources and Social Security. As the safety-net, the Medical Financial Assistance Scheme, both for rural and urban, is managing by the Ministry of Civil Affairs. The Ministry of Finance is taking over of the financial power. The complicated relationships and various interest conflicts between the relevant stakeholders intertwine the accountability in health care field on one hand, but not assume the responsibility that should bear on the other hand. Due to the information asymmetric, the patients are disadvantaged in the agent-principle relationship. Public discontent, lack of reasonable appeal mechanisms, has led to increasingly tension between doctors and patients.

Thus, a perfect and transparent management procedure and mechanism should be established both in rural and urban areas, facing three challenges which include the lack of access to affordable healthcare, inefficient use of healthcare resources, and a lack of high-quality medical care at primary level facilities. Despite the great success from the NRCMS, providing healthcare in poor rural regions is still a notoriously difficult task and enormous obstacles exist in trying to provide quality care in areas that are impoverished and remote. It would be helpful to get support from community participation and civil society when we attempt to develop the tailored healthcare services in diverse regions.

6.9 Benchmark 9: Patient and provider autonomy

Benchmark 9 suggests choices but also conflicts with other benchmarks. For example, referral mechanism in benchmark 6 reduces the patient autonomy. The benchmark 6 prefers the primary health care which filters some patients to access to the higher tier health facilities, while patient autonomy is supported by the free choice. The provider autonomy is necessary if the intention is to address the health problems for patients. But the assumption is that they are competent and conscientious, and have high level knowledge of appropriate practices (Daniels et al. 2000). The key is finding the correct balance between autonomy and restrictions, not only for patients but also for provides. In addition, the balance between provider autonomy and government public finance is also needed. During the health-care reform in 1980s and 1990s, the orientation was hospital autonomy without the contribution of public finance which resulted to the rural-urban disparity and the rising medical spending (Chen 2009).

Currently, western medicine and traditional Chinese medicine are the two mainstream medical practices in China, both urban and rural areas. However, under the market mechanism, the traditional Chinese medicine has some weaknesses to compete with the western medicine. For example, the complex production processes limit the traditional Chinese medicine industry, the low profit hinders the providers' for-profit orientation, and some traditional Chinese medicine treats diseases from the root cause, rather than to decrease the symptoms immediately, which might take the patients months or years to recover. As a result, the total number of traditional Chinese medicine out-patient visits is half of the western medicine one (1.3 vs. 2.6 billion per year) (Xu and Yang 2009).

The empirical study conducted in Shandong Province shows that there is a positive relationship between health insurance and opportunistic behavior of health providers in village health stations. Due to the incentives of earning a living and the inadequate training and medical knowledge, the village doctors in clinics tend to over-prescribe drugs for insured patients particularly, whether the quantity or the drug types. The average number of drugs dispensed for the insured was 4.7, and 47.0% of patients visits received five or more kinds of drugs. In addition, 72.4% of prescriptions included antibiotics (Sun

et al. 2009). The irrational drug use is very common in China. It is not only a waste of medical resources, but also it will bring some risks of drug interaction and adverse effects. It is a signal that the Chinese government needs to pay more attention to the quality of health services and drug safety in rural areas. In other words, the autonomy places too much provider/patient discretion, but not enough concern with costs and medical best practices and lack of accountability from the doctors.

Due to the inherent restrictions in the public hospital institution, the doctor, as an employee in one hospital, is not allowed to treat patients in other hospitals. It states the excessive concentration of the medical resources and low efficiency of human resources. Suppose the doctors have more choices, and they can go to surgery for patients in rural. In this way, the rural patients can get better treatment with less indirect cost.

7. Conclusion

This thesis reviewed and assessed the weaknesses of the Chinese rural health care system in the context of the latest health care reform launched by the government in 2009. It attempts to present the issues that need to be improved in the future. Using the *Benchmarks of Fairness* I discussed the current healthcare situation in rural China, disparities with urban areas, and the causes of key limitations in the system. Major disparities between the rural and urban healthcare systems persist mainly due to insufficient government stewardship, unequally distributed social determinants of health, and unfairness in healthcare system. Examples of disparities discussed in this thesis include imbalanced public spending and unequal financing, relatively underfunded health insurance scheme in rural area, an insufficient health workforce lacking incentives to practice in rural areas resulting in a shortage of quality health care for rural patients, and uneven allocation of health-related resources. Additionally, because of inherent rural-urban divisions, accessibility and affordability in health care system for migration groups has become an increasingly serious problem. Despite rapid economic growth significant improvements in healthcare demands policymaker attention and remains a

challenge for the Chinese government.

The *Benchmarks of Fairness* is a very valuable tool to assess health care system. However, I encountered some difficulties in applying them in the Chinese context. For instance, benchmarks 6 to 9 are not as equally comparable as other benchmarks with respect to the healthcare distinction between rural and urban areas. Since the inefficiency and lack of accountability is the common issue both for rural and urban healthcare system. In other words, efficiency and accountability is the core concern in the overall Chinese health care system. Thus, it is hard to measure at which extent the rural-urban disparity is resulted from the efficiency and accountability difference.

The most valuable aspect of applying the *Benchmarks of Fairness* to review the healthcare system in China is that it provides an opportunity to assess the whole healthcare picture, and to systematically examine related problems and shortcomings. Based on its strong economic capacity and apparent political will, the Chinese government is moving the health care system towards universal coverage for both rural and urban residents. Further progress must be guided by the principle of health equity and fairness and supported by cross-sectoral cooperation.

Again, based on the overarching picture sketched in this thesis, China can be said to be making progress. However, further studies are needed to delve more deeply into each specific limitation addressed in cursory fashion here. For example, the insufficiency of health professionals in rural areas is a reminder of the mismatch between medical education and medical demand, as well as sufficient incentives for rural health workers and a balanced development strategy.

References

- Anand, Sudhir, Victoria Y Fan, Junhua Zhang, Lingling Zhang, Yang Ke, Zhe Dong, and Lincoln C Chen. 2008. "China's human resources for health: quantity, quality, and distribution." *The Lancet* no. 372:1774-81. doi: 10.1016/s01406736(08)61363-x.
- Bao, Chuanyou. 2006. "Policies for Compulsory Education Disparity Between Urban and Rural Areas in China." *Frontiers of Education in China* no. 1:40-55.
- Bloom, G. 2011. "Building institutions for an effective health system: lessons from China's experience with rural health reform." *Soc Sci Med* no. 72 (8):1302-9. doi: 10.1016/j.socscimed.2011.02.017.
- Blumenthal, David, and William Hsiao. 2005. "Privatization and Its Discontents — The Evolving Chinese Health Care System." *New England Journal of Medicine* no. 353 (11):1165-1170. doi: doi:10.1056/NEJMp051133.
- Braveman, P. 2006. "Health disparities and health equity: concepts and measurement." *Annu Rev Public Health* no. 27:167-94. doi: 10.1146/annurev.publhealth.27.021405.102103.
- Center for Health Statistics and Information, MOH. 2009a. *An Analysis Report of National Health Services Survey in China 2008*. Beijing: China Union Medical University Press.
- Center for Health Statistics and Information, MOH. 2009b. *Research on Health Services of Primary Health Care Facilities in China, 2008*. Beijing: China Union Medical University Press.
- Chan, Kam Wing, and Li Zhang. 1999. "The Hukou System and Rural-Urban Migration in China Processes and Changes." *The China Quarterly* no. 160:818-855.
- Chen, Jian. 2012. *A Review of Child Health Urban-rural Inequities in China from 1991 to 2010*.
- Chen, Lin, Arjan de Haan, Xiulan Zhang, and Ward Warmerdam. 2011. "Addressing vulnerability in an emerging economy: China's New Cooperative Medical Scheme (NCMS)." *Canadian Journal of Development Studies/Revue canadienne d'études du développement* no. 32 (4):399-413. doi: 10.1080/02255189.2011.647445.
- Chen, Lincoln, Timothy Evans, Sudhir Anand, Jo Ivey Boufford, Hilary Brown, Mushtaque Chowdhury, Marcos Cueto, Lola Dare, Gilles Dussault, Gijs Elzinga, Elizabeth Fee, Demissie Habte, Piya Hanvoravongchai, Marian Jacobs, Christoph Kurowski, Sarah Michael, Ariel Pablos-Mendez, Nelson Sewankambo, Giorgio Solimano, Barbara Stilwell, Alex de Waal, and Suwit Wibulpolprasert. 2004. "Human resources for health: overcoming the crisis." *The Lancet* no. 364 (9449):1984-1990. doi: 10.1016/s0140-6736(04)17482-5.
- Chen, Zhu. 2009. "Launch of the health-care reform plan in China." *Lancet* no. 373.

- Chen, Zhu, and Qiang Gao. 2008. "Health reform and development with Chinese characteristics: ensuring medical and health care services for each and every citizen (in Chinese)." *Qiushi* no. 1.
- China News. *The response to six major problems on "kan bing gui, kan bing nan" from the Minister of Health (in Chinese)*. China News 2011 [cited 2014-1-10. Available from <http://www.chinanews.com/jk/2011/02-18/2854438.shtml>].
- Daniels, Norman. 1985. *Just Health Care*. New York: Cambridge University Press.
- Daniels, Norman, J. Bryant, R.A. Castano, O.G. Dantes, K.S. Khan, and S. Pannarunothai. 2000. "Benchmarks of Fairness for Health Care Reform: A Policy Tool for Developing Countries." *Bulletin of the World Health Organization* no. 78 (6).
- Daniels, Norman, Walter Flores, Supasit Pannarunothai, Peter N. Ndumbe, John H. Bryant, T. J. Ngulube, and Yuankun Wang. 2005. "An Evidence-based Approach to Benchmarking the Fairness of Health-sector Reform in Developing Countries." *Bulletin of the World Health Organization* no. 83 (7).
- Daniels, Norman, Bruce Kennedy, and Icbiro Kawachi. 2004. "Health and Inequality, or, Why Justice is Good for Our Health." In *Public Health, Ethics, and Equity*, edited by Sudhir Anand, Fabienne Peter and Amartya Sen. New York: Oxford University Press.
- Dongfu Qian, Raymond W Pong, Aitian Yin, K V Nagarajan and Qingyue Meng. 2009. "Determinants of health care demand in poor, rural China: the case of Gansu Province." *Health Policy and Planning* no. 24:324-334. doi: 10.1093/heapol/czp016.
- Eggleston, Karen. 2012. Health Care for 1.3 Billion: An Overview of China's Health System. In *Asia Health Policy Program working paper # 28*: Freeman Spogli Institute for International Studies, Stanford University.
- G.Wilkinson, Richard, and Kate E. Pickett. 2009. "Income Inequality and Social Dysfunction." *Annual Review of Sociology* no. 35:493-511.
- Gao, Jun, Juncheng Qian, Shenglan Tang, Bo Eriksson, and Erik Blas. 2002. "Health equity in transition from planned to market economy in China." *Health Policy and Planning* no. 17 (supplement 1):20-29.
- Gilson, Lucy, Jane Doherty, Rene Loewenson, and Victoria Francis. 2007. Challenging Inequity Through Health Systems: Final Report, Knowledge Network on Health Systems. The Commission on Social Determinants of Health.
- Gong, Peng, Song Liang, Elizabeth J. Carlton, Qingwu Jiang, Jianyong Wu, Lei Wang, and Justin V. Remais. 2012. "Urbanisation and health in China." *The Lancet* no. 379 (9818):843-852. doi: 10.1016/s0140-6736(11)61878-3.
- Gong Youlong, Andreas Wilkes, and Gerald Bloom. 1997. "Health human resource development in rural China." *Health Policy and Planning* no. 12 (4):320-328.

- Grand, Julian Le. 2007. *The Other Invisible Hand: Delivering Public Services through Choice and Competition*. New Jersey: Princeton University Press.
- Harvard School of Public Health, . *About the Benchmarks of Fairness*. Harvard School of Public Health [cited 7 July, 2013. Available from <http://www.hsph.harvard.edu/benchmark/about.html>].
- Hongmei Yi, Linxiu Zhang, Kim Singer, Scott Rozelle and Scott Atlas. 2009. "Health insurance and catastrophic illness: A report on the New Cooperative Medical System in rural China." *Health Economics* no. 18:119-127. doi: 10.1002/hec.1510.
- Hsiao, William C. 1984. "Transformation of Health Care in China." *The New England Journal of Medicine* no. 310 (14):932-936.
- Hsiao, William C. 2004. "Disparity in health the underbelly of China's economic development." *Harvard China Review* no. spring:63-70.
- Hu, Xiaojiang, Sarah Cook, and Miguel A Salazar. 2008. "Internal migration and health in China." *The Lancet* no. 372:1717-1719. doi: 10.1016/s01406736(08)61360-4.
- Hung, Li-Mei, Sarika Rane, Jenna Tsai, and Leiyu Shi. 2012. "Advancing primary care to promote equitable health: Implication for China." *International Journal for Equity in Health* no. 11 (2).
- Jin Ma, Mingshan Lu, and Hude Quan. 2008. "From a national centrally planned health system to a system based on the market: lessons from China." *Health Affairs* no. 27 (4):937-948. doi: 10.1377/hlthaff.27.4.937.
- Juyang Xiong, David Hipgrave, Karoline Myklebust, Sufang Guod, Robert W. Scherpbier, Xuetao Tong, Lan Yaoa, Andrew E. Moran. 2013. "Child health security in China: A survey of child health insurance coverage in diverse areas of the country." *Soc Sci Med* no. 97:15-19. doi: 10.1016/j.socscimed.2013.08.006.
- Lei, X., and W. Lin. 2009. "The New Cooperative Medical Scheme in rural China: does more coverage mean more service and better health?" *Health Econ* no. 18 Suppl 2:S25-46. doi: 10.1002/hec.1501.
- Li, H., and W. Yu. 2011. "Enhancing community system in China's recent health reform: An effort to improve equity in essential health care." *Health Policy* no. 99 (2):167-73. doi: 10.1016/j.healthpol.2010.08.006.
- Li, J., K. Zhang, and L. Tian. 2006. "Multiple facets of China's health inequality." *Lancet* no. 367 (9520):1397. doi: 10.1016/S0140-6736(06)68611-X.
- Li, Zhendong. 2009. The Development of Water Supply and Disposal in the Last 60 Years (in Chinese). In *In Proceedings of 2009 Annual Conference of China Water Association*. Beijing: China Water Association.
- Liang, X., H. Guo, C. Jin, X. Peng, and X. Zhang. 2012. "The effect of new cooperative medical scheme on health outcomes and alleviating catastrophic health expenditure in China: a systematic review." *PLoS One* no. 7 (8):e40850. doi:

- 10.1371/journal.pone.0040850.
- Light, Donald W. 2000. "Fostering a Justice-Based Health Care System." *Contemporary Sociology* no. 29 (1).
- Lin, W., G. G. Liu, and G. Chen. 2009. "The Urban Resident Basic Medical Insurance: a landmark reform towards universal coverage in China." *Health Econ* no. 18 Suppl 2:S83-96. doi: 10.1002/hec.1500.
- Lindstrand Ann, Bergstrom Staffan, Rosling Hans. 2006. *Global Health: An Introductory Textbook*. Denmark: Narayana Press.
- Liu, Qian, Bin Wang, Yuyan Kong, and K K Cheng. 2011. "China's primary health-care reform." *The Lancet* no. 377:2064-2065.
- Liu, X., S. Tang, B. Yu, N. K. Phuong, F. Yan, D. D. Thien, and R. Tolhurst. 2012. "Can rural health insurance improve equity in health care utilization? A comparison between China and Vietnam." *Int J Equity Health* no. 11:10. doi: 10.1186/1475-9276-11-10.
- Liu, Y. 2004. "Development of the rural health insurance system in China." *Health Policy and Planning* no. 19 (3):159-165. doi: 10.1093/heapol/czh019.
- Liu, Yimeng. 2010. Income Disparity in China: Status Quo and Prospects. , <http://www.instituteofideas.com/documents/Income%20Disparity%20in%20China.pdf>.
- Liu, Yuanli. 2002. "Reforming China's urban health insurance system." *Health Policy* no. 60:133-150.
- Liu, Yuanli, Keqin Rao, Jing Wu, and Emmanuela Gakidou. 2008. "China's health system performance." *The Lancet* no. 372:1914-23.
- Long, Q., L. Xu, H. Bekedam, and S. Tang. 2013. "Changes in health expenditures in China in 2000s: has the health system reform improved affordability." *Int J Equity Health* no. 12:40. doi: 10.1186/1475-9276-12-40.
- Marmot, Michael, Sharon Friel, Ruth Bell, Tanja A J Houweling, and Sebastian Taylor. 2008. "Closing the gap in a generation Health equity through action on the social determinants of health." *The Lancet* no. 372:1661-69.
- Meng, Qingyue, and Shenglan Tang. 2010. Universal Coverage of Health Care in China: Challenges and Opportunities. In *World Health Report: The World Health Organization*.
- Ministry of Health. 2007a. *China Health Statistics Yearbook 2007*. Beijing: China Union Medical University Press.
- Ministry of Health. 2007b. *The Report of Health Workforce in China 2006*. Beijing: China Union Medical University Press.
- Ministry of Health. 2012. *China Health Statistics Yearbook 2012*. Beijing: China Union

Medical University Press.

- Moreno-Serra, Rodrigo, and Peter C. Smith. 2012. "Does progress towards universal health coverage improve population health?" *The Lancet* no. 380 (9845):917-923. doi: 10.1016/s0140-6736(12)61039-3.
- OECD/WHO. 2012. *Health at a Glance: Asia/Pacific 2012*. OECD Publishing.
- Qin, Xuezheng, Lixing Li, and Chee-Ruey Hsieh. 2013. "Too few doctors or too low wages? Labor supply of health care professionals in China." *China Economic Review* no. 24:150-164. doi: 10.1016/j.chieco.2012.12.002.
- Qiu, P., Y. Yang, J. Zhang, and X. Ma. 2011. "Rural-to-urban migration and its implication for new cooperative medical scheme coverage and utilization in China." *BMC Public Health* no. 11:520. doi: 10.1186/1471-2458-11-520.
- Rawls, John. 1971. *A Theory of Justice*: Harvard University Press.
- Sadel, Vctor W. 1993. "New Lessons from China: Equity and Economics in Rural Health Care." *American Journal of Public Health* no. 83 (12):1665-1666.
- Savedoff, William D., David de Ferranti, Amy L. Smith, and Victoria Fan. 2012. "Political and economic aspects of the transition to universal health coverage." *The Lancet* no. 380 (9845):924-932. doi: 10.1016/s0140-6736(12)61083-6.
- Sen, A. 2002a. "Why health equity?" *Health Econ* no. 11 (8):659-66. doi: 10.1002/hec.762.
- Sen, Amartya. 2002b. "Health perception versus observation." *BMJ* no. 324.
- Shi, Wuxiang, Virasakdi Chongsuvivatwong, Alan Geater, Junhua Zhang, Hong Zhang, and Daniele Brombal. 2010. "The influence of the rural health security schemes on health utilization and household impoverishment in rural China." *International Journal for Equity in Health* no. 9 (7).
- Song, Zhifang. 2013. "The Colonized Thirst: Rural-Urban Divide and the Rural Drinking Water Problem in North China." *Asian Journal of Humanities and Social Studies* no. 1 (3):84-92.
- Sun, X., S. Jackson, G. A. Carmichael, and A. C. Sleigh. 2009. "Prescribing behaviour of village doctors under China's New Cooperative Medical Scheme." *Soc Sci Med* no. 68 (10):1775-9. doi: 10.1016/j.socscimed.2009.02.043.
- Tang, Shenglan, Qingyue Meng, Lincoln Chen, Henk Bekedam, Tim Evans, and Margaret Whitehead. 2008. "Tackling the challenges to health equity in China." *The Lancet* no. 372:1493-501. doi: 10.1016/s01406736(08)61364-1.
- Terry, Sicular, Ximing Yue, Gustafsson Björn, and Shi Li. 2006. The urban-rural income gap and inequality in China. <http://www.econstor.eu/bitstream/10419/63438/1/521396301.pdf>.
- The WHO. 2000. Health Systems: Improving Performance. In *The World Health Report*:

- The World Health Organization.
- The WHO. 2007. *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes: WHO's Framework for Action*. The World Health Organization.
- The World Bank. 2005. *China's Health Sector: Why Reform is Needed*. In *Rural Health in China: Briefing Notes Series*.
- Wagstaff, A., W. Yip, M. Lindelow, and W. C. Hsiao. 2009. "China's health system and its reform: a review of recent studies." *Health Econ* no. 18 Suppl 2:S7-23. doi: 10.1002/hec.1518.
- Wang, H., L. Zhang, and W. Hsiao. 2006. "Ill health and its potential influence on household consumptions in rural China." *Health Policy* no. 78 (2-3):167-77. doi: 10.1016/j.healthpol.2005.09.008.
- Wang, Longde, Yu Wang, Shuigao Jin, Zunyou Wu, Daniel P Chin, Jeffrey P Koplan, and Mary Elizabeth Wilson. 2008. "Emergence and control of infectious diseases in China." *The Lancet* no. 372:1598-605. doi: 10.1016/s01406736(08)61365-3.
- Weng, Shiyu, and Shengke Gao. *A New Account of Rural Drinking Water Safety (in Chinese)*. Finance 2011. Available from <http://finance.sina.com.cn/chanjing/sdbd/20110908/090010452522.shtml>.
- Wilkinson, R. G., and K. E. Pickett. 2006. "Income inequality and population health: a review and explanation of the evidence." *Soc Sci Med* no. 62 (7):1768-84. doi: 10.1016/j.socscimed.2005.08.036.
- Xinhua Web. *The question on "too expensive to see a doctor, and too difficult to see a doctor" (in Chinese)* 2005 [cited 2014-1-10. Available from http://www.jl.xinhuanet.com/temp/2005-03/25/content_3943746.htm.
- Xu, Huiwen, Weijun Zhang, Xiulan Zhang, Zhiyong Qu, Xiaohua Wang, Zhihong Sa, Yafang Li, Shuliang Zhao, Xuan Qi, and Donghua Tian*. 2013. "Longitudinal study of rural health workforce in five counties in China research design and baseline description." *Human Resources for Health* no. 11 (17).
- Xu, J., and Y. Yang. 2009. "Traditional Chinese medicine in the Chinese health care system." *Health Policy* no. 90 (2-3):133-9. doi: 10.1016/j.healthpol.2008.09.003.
- Yang, Gonghuan, Lingzhi Kong, Wenhua Zhao, Xia Wan, Yi Zhai, Lincoln C Chen, and Jeffrey P Koplan. 2008. "Emergence of chronic non-communicable diseases in China." *The Lancet* no. 372:1697-705. doi: 10.1016/s01406736(08)61366-5.
- Yang, Wei. 2013. "China's new cooperative medical scheme and equity in access to health care." *International Journal for Equity in Health* no. 13 (20):1-13.
- Yip, Winnie Chi-Man, William C. Hsiao, Wen Chen, Shanlian Hu, Jin Ma, and Alan Maynard. 2012. "Early appraisal of China's huge and complex health-care reforms." *The Lancet* no. 379 (9818):833-842. doi: 10.1016/s0140-6736(11)61880-1.

- Yip, Winnie, and William Hsiao. 2009. "China's health care reform: A tentative assessment." *China Economic Review* no. 20 (4):613-619. doi: 10.1016/j.chieco.2009.08.003.
- Yip, Winnie, and William C. Hsiao. 2008. "The Chinese health system at a crossroads." *Health Affairs* no. 27 (2):460-8. doi: 10.1377/hlthaff.27.2.460.
- Yuan Zhaokang, Liu Yuxi, Liu Yong, Xiao Yunchang, Guo Yuanjun, and Harris Mark. 2012. "A model for community health service development in depressed rural areas in China." *BMC Health Serv Res* no. 12:465. doi: 10.1186/1472-6963-12-465.
- Zhang, L., H. Wang, L. Wang, and W. Hsiao. 2006. "Social capital and farmer's willingness-to-join a newly established community-based health insurance in rural China." *Health Policy* no. 76 (2):233-42. doi: 10.1016/j.healthpol.2005.06.001.
- Zhang, Li. 2009. *Disparity between Rural and Urban Education in China*, University of Oslo.
- Zhang, Linxiu, Hongmei Yi, and Scott Rozelle. 2010. "Good and bad news from China's New Cooperative Medical Scheme." *IDS Bulletin* no. 41 (4):95-106.
- Zhang, X., L. W. Chen, K. Mueller, Q. Yu, J. Liu, and G. Lin. 2011. "Tracking the effectiveness of health care reform in China: a case study of community health centers in a district of Beijing." *Health Policy* no. 100 (2-3):181-8. doi: 10.1016/j.healthpol.2010.10.003.
- Zhang, Xiulan. 2013. "Evaluating Experimental Policymaking: Lessons from China's Rural Health Reforms." *IDS Policy Briefings* (46).

Abbreviations

CMS: Cooperative Medical System

GIS: Government Insurance Scheme

IMR: Infant Mortality Rate

IRB: Institutional Review Board

LIS: Labor Insurance Scheme

NRCMS: New Rural Cooperative Medical Scheme

SARS: Severe Acute Respiratory Syndrome

THC: Township Healthcare Center

UC: Universal Coverage

UHC: Universal Health Coverage

UEBMI: Urban Employee Basic Medical Insurance

URBMI: Urban Resident Basic Medical Insurance

Appendix: The Benchmarks of Fairness (US version and the new version)

US Benchmarks of Fairness	The new Benchmarks of Fairness
Benchmark 1: Universal Coverage and Participation	Benchmark 1: Intersectoral Public Health
Benchmark 2: Universal access by Minimizing Nonfinancial Barriers	Benchmark 2: Financial Barriers to Equitable Access
Benchmark 3: Comprehensive and Uniform Services	Benchmark 3: Non-financial Barriers to Access
Benchmark 4: Equitable Financing through Community-rated Contributions	Benchmark 4: Comprehensiveness of Benefits and Tiering
Benchmark 5: Equitable Financing by Ability to Pay	Benchmark 5: Equitable Financing
Benchmark 6: Value for Money Clinical Efficacy	Benchmark 6: Efficacy, Efficiency and Quality of Health Care
Benchmark 7: Value for Money through Financial Efficiency	Benchmark 7: Administrative Efficiency
Benchmark 8: Public Accountability	Benchmark 8: Democratic Accountability and Empowerment
Benchmark 9: Comparability	Benchmark 9: Patient and Provider Autonomy
Benchmark 10: Choice	
