
Medical Service Disparities and Medical Policy Reforms in China —Implications for the Sustainability of Economic Growth—

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Summary

1. There is growing public concern in China about the accessibility and affordability of medical services. The high cost of medical services is severely reducing living standards, not only among the poor, but also among those who have escaped from poverty. Reasons for this situation include cost inflation resulting from over-treatment, and an increase in out-of-pocket expenses as a result of excessive marketization.
2. Medical services are becoming increasingly inaccessible for the poor because of soaring costs and increases in the amounts payable by individuals. This is reflected in growing disparity in the availability of medical services. The disparity between the urban and rural sectors is especially conspicuous in terms of access, the cost burden as a percentage of household incomes, and the quality of services. The difference in infant mortality rates in China's urban and rural sectors is among the highest in the world. Disparity between coastal and inland regions appears to have been reduced in terms of both inputs and outcomes. However, this is attributable to improvements in inland cities, and there is a strong possibility that the rural sector is being left to fend for itself. Within the urban sector, there is rapidly widening disparity in access to medical services based on income level. This reflects the expansion of the *nong-min-gong* (peasant worker) population resulting from an influx of migrant workers.
3. Medical service disparity in China is also the result of institutional factors. One of these factors relates to the decentralization. Central government subsidies are not provided specifically to offset disparities in fiscal resources. As a result, decentralization has had the effect of worsening medical service disparity between coastal and inland regions. Another factor that has added to the impoverishment of rural medical services is the lack of a clearly defined apportionment of responsibilities and fiscal resources among local governments at the provincial level and below.
4. China's public health insurance systems are also responsible for medical service disparity. Workers who are registered as urban residents are covered by the Basic Medical Insurance scheme for urban employees. The New Cooperative Medical Scheme has been established for those registered as rural residents. However, the schemes have different reimbursement rates, and there are also differences in both the minimum amount for which reimbursements are paid and also the maximum amount payable. Because of the limited coverage provided by rural schemes, the public health insurance system has had the effect of increasing medical service disparity.
5. The public health insurance system is also expanding medical service disparities within the urban and rural sectors. In the urban sector, migrant workers are excluded from the Basic Medical Insurance scheme for urban employees, while in the rural sector, although impoverished people are able to join the New Cooperative Medical Scheme, they are unable to take advantage of the coverage because of their inability to meet out-of-pocket expenses. The public health insurance system is transferring money from the poor to the wealthy. This effect is more conspicuous in China than neighboring Asian countries.
6. China has reached the stage at which medical services previously available only to the formal sector in its cities will need to be provided to the entire population. One tool that can be used to achieve this is public health insurance, and China was right to choose this approach to health system reform. However, China's public health insurance system has no mechanism to modify the market principle of allocation based on contributions to the principle of allocation based on need. Medical service disparity will never be overcome without radical changes in this area.
7. Various other steps will be needed to reduce medical system disparity. On the supply side, it will be necessary to reduce medical costs through the introduction of a diagnosis related group/prospective payment system (DRG/PPS) and review the ways in which subsidies are allocated to medical institutions. As far as the health insurance is concerned, China will need to reduce the percentage of out-of-pocket expenses under the New Cooperative Medical Scheme and facilitate the inclusion of migrant workers in insurance schemes for urban workers.

Introduction

In late 2008 there was a series of incidents involving the abandonment of babies at hospitals in Shenzhen City. One of the infants was suffering from acute lymphocytic leukemia, while the other had congenital heart disease. The parents appear to have abandoned their children because they were unable to pay medical bills⁽¹⁾. In the meantime, in April 2008, a company began to advertise medical examination tours to Japan for wealthy people⁽²⁾. The tours were priced at ¥3 million.

Rising costs are limiting access to medical services for a growing number of people in China. The average cost for in-patients in general hospitals in 2007 was 4,974 yuan (1 yuan = approximately ¥14). This is equivalent to 36.1% of the yearly disposable income of urban dwellers, and 120.1% of the net income of rural dwellers. Many people find themselves in the tragic situation of being unable to scrape together the money needed to pay for essential hospital treatment. Medical care has become a luxury item that is unaffordable not only for the poor, but also for the middle class.

Unless China can improve access to medical services, especially for the poor, it will never achieve its ambition, as stated by both the Communist Party and the government, of becoming a “harmonious” and “moderately prosperous” society. In January 2009, the government decided to implement a range of measures designed to improve access to health services⁽³⁾. These include (1) improvements to the public insurance system, (2) a review of drug prices, (3) the improvement of medical institutions in rural areas, (4) the provision of consistent public health services, and (5) the reform of public hospitals.

In this article we will identify the mechanisms that have created medical service disparity in China and list the steps that will be needed to reform this situation. Medical care is a somewhat difficult field for non-specialists, and at first glance the medical service disparity may seem to have little relevance at the macroeconomic level. However, problems affecting medical service access for the poor can be seen as a serious issue with the potential to affect the ability of an economy to sustain

growth.

There are several reasons for this view. First, medical service disparity can lead to social instability. The social stabilizing effect of income growth resulting from economic growth is rapidly waning. This is because the soaring cost of medical services is symptomatic of a situation in which people are increasingly unable to experience the benefits of economic development despite income growth. The perception of disparity is far greater than disparity as defined in income terms, and a study of medical service disparity can help us to understand this.

Second, there are implications for the development of human capital. Significant benefits can be gained by allowing people who face deteriorating health because of limitations relating to income or place of residence to reach their full potential. If households have the capacity to cope with risk, they can also increase their investment in education for the next generation.

Third, there could be a shift in China’s growth model. China is seen as following an “extensive growth” path, whereby growth is sustained by a high investment ratio, which is in turn supported by high savings. One of the reasons why the savings rate is high is because health insurance and other forms of social insurance are failing to function as mechanisms to prevent the deterioration of living standards. If fears about medical costs could be eliminated, Chinese economy would shift consumption-led growth and able to improve its external balance.

The problem of access to medical services also had important effect on China’s ability to respond quickly to bird flu and SARS⁽⁴⁾. However, the focus of this article will be the economic, social and political changes that are likely to occur in China through problems with health services.

In Part I we will question why medical costs have risen so high, while in Part II we will attempt to measure the extent of medical service disparity. This will be followed in Part III by an analysis of the ways in which medical service disparity is being increased not only by income disparity, but also by health-related systems. We will conclude in Part IV with some recommendations about how

China should remedy the disparity problem.

A prior knowledge of health systems in China is not essential for readers of this article. However, we will provide brief explanations about the mechanisms through which health services are provided and the ways in which health systems have changed in response to the shift to a market-based economy.

Medical institutions in China can be broadly divided into hospitals, which are larger institutions, and clinics. Hospitals are divided into three ranks according to their size and facilities, and each rank is further subdivided into A, B and C. The highest rank is 3A and the lowest is 1C. There are two types of clinics: community health service centers in cities, and township health centers or village clinics in rural areas.

Although China has adopted the market principle, most hospitals and clinics are government-run public institutions (administrative units at counties level or higher in the case of hospitals, and township governments in the case of township clinics). Most physicians are government employees. Unlike Japan, China has few physicians working private practices.

From a functional viewpoint, the hospitals are general medical institutions, while clinics are places where people first go to seek medical care. There are also maternity and infant health institutes, which provide care for expectant and nursing mothers, disease prevention centers for infectious diseases, sanatoriums, emergency centers and institutions specializing in particular diseases.

The standard of physicians varies widely. In rural areas, many people practicing as doctors are graduates of secondary vocational schools. In 1998 the government promulgated a law stating that only persons who had qualified in state examinations could practice medicine. However, if all unqualified people were barred from medical practice, there would be a shortage of doctors, and so those who were already practicing before the law took effect have been allowed to continue.

The reforms that laid the foundations of the present health system started in the second half of the 1980s. The process began with supply-side reforms. Government subsidies to medical insti-

tutions were drastically reduced, and individual institutions were given increased autonomy to levy fees from patients. Like the SOE reforms, the health system reforms were guided by the logic that inefficiencies were likely to occur if all costs were met by the government.

The next area targeted by the government for reform was official health insurance schemes. There were two official insurance schemes: a publicly funded scheme for government employees and a workers' health insurance scheme for employees of SOEs. Under both schemes, the percentages of medical costs to be met by employees was extremely low, with the result that government finances came under increasing pressure from soaring health expenditure. In 1998 this situation led the government to combine the two schemes into a single Basic Medical Insurance scheme for urban employees. The percentage of costs payable by employees was also raised substantially.

Rural residents were excluded from official health insurance schemes. Medical services were provided by the People's Communes, which were created through agricultural collectivization. Under this rural cooperative medical system, members received medical services funded by contributions from groups and individuals. By 1976, it is estimated that 90% of rural residents were covered by this system. While the standard of medical care was probably not high, the system dramatically improved access to medical services for rural residents.

However, the system gradually deteriorated with the spread of the production contract system, which was introduced with the aim of stimulating increased production by giving farmers long-term cultivation rights. By 1986, the percentage of people covered by the rural cooperative health system had fallen to 5.5%. Until the introduction of the New Cooperative Medical Scheme, most peasants had to deal with the risk of illness on an individual basis. Under the new system, insurance premiums were subsidized by the central and local governments. The subsidy ratio was raised in stages, and the system began to spread rapidly.

In this article, the term "outpatient fee" is defined as the average cost for an outpatient, and

“inpatient fee” as the average cost for a hospitalized patient, as calculated by the Chinese Ministry of Health. The populations on which these averages are based are the numbers of people who have been treated as either inpatients or outpatients. Statistics on health expenditure per capita are published by the National Bureau of Statistics. It is important to note that the population for these statistics includes people who have not visited medical institutions.

I. Why Does China Have Health Care Problems?

We will begin by presenting some Chinese and foreign views on the state of health care in China and put related problems in order. We will also explore the circumstances behind the problems.

1. Accessibility and Affordability

China was once admired for the standard of its health care. In the 1960s China halved its infant mortality rate (for children aged 5 or younger), despite its status as one of the world’s most impoverished countries. China was ranked 13th out of 161 nations in terms of the rate of reduction, and it appears to have maintained this pace in the 1970s⁽⁵⁾. This success is explained in part by the fact that China had more room for improvement, since its mortality rate was initially very high. However, it is significant that this much progress was made before the adoption of the reform and open-door policy.

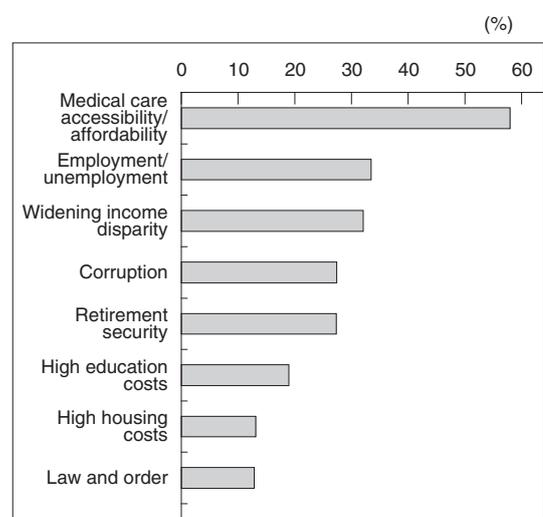
In recent years the situation has been reversed, and observers in China and overseas are now talking about the collapse of the health system. In its 2006 *Weisheng Lushu* [Green Book of China’s Health], the Chinese Academy of Social Sciences states that the reduction of government expenditure has led to an increase in out-of-pocket expenses for individuals, and that health care is becoming a numbers game because of the prevalence of over-testing and over-medication in the absence of any effective mechanism to prevent unnecessary testing and medication. This is unusual

that a government think tank has directed such damning criticism at the policies of the Ministry of Health⁽⁶⁾.

The accuracy of these conclusions is supported by data in the 2007 *Shehui Qingshu* [Blue Book of China’s Society], which was also produced by the Chinese Academy of Social Sciences. When asked to identify serious social problems, 58% of participants in a survey referred to problems with accessibility and affordability of health care⁽⁷⁾. This is substantially higher than the 33% score for problems relating to employment and unemployment, which were ranked second in the survey (Fig. 1). Demand for health care is characterized by uncertainty about the timing of illness and the cost involved, and the fact that demand is difficult to constrain. High medical care costs can seriously reduce the living standards of the poor, and of those who have managed to lift themselves of out poverty. For these reasons, rising medical care costs are naturally seen as a serious social problem.

There were warning signs. In the 2003 edition of *An Analysis Report of National Health Services Survey* (NHSS 2003), the Ministry of Health indicated that the percentage of people who were not going to medical institutions even after becoming

Fig. 1 Serious Social Problems Identified in the “Blue Book”



Notes: These results are based on a survey of 7,061 urban and rural residents.
Source: Based on the *Blue Book of China’s Society* (2007)

aware of symptoms of illness increased each time that the five-yearly survey was conducted (Fig. 2). In the 2003 survey, 48.9% of participants indicated that they had not gone to hospitals, an increase of 12.5 percentage points compared with the level 10 years earlier⁽⁸⁾. These findings show that despite income growth, the capacity of the people to deal with risk has declined.

Why has China descended into a situation in which its people are concerned about the accessibility and affordability of health care?

According to the 2006 *Green Book*, the problem is attributable not only to inadequate government expenditure, but also to supply-side issues, specifically excessive testing and medication. It would be rash to assume that the problem can be solved simply by increasing the health budget. To identify the policies needed to improve access to medical care and the order of priority, we first need to understand the causes of the accessibility and affordability problem.

The accessibility and affordability problem involves two factors: rising health care costs, and the increasing burden of out-of-pocket costs. Rising health care costs reflect increases in charges for each hospital visit or stay. This could reflect higher consultation fees and drug prices, or an

increase in medication and testing. The former would require a review of consultation fees and drug prices, the latter measures to curb over-treatment.

Two possible causes of increases in out-of-pocket health expenses are a rise in the number of hospital visits and stays and the number of patients, and an increase in the percentage of costs borne by individual patients. The former situation implies an improvement in access to medical services and would normally be regarded as a desirable trend in a developing country. The latter would cause accessibility to deteriorate and would require the expansion of the health budget.

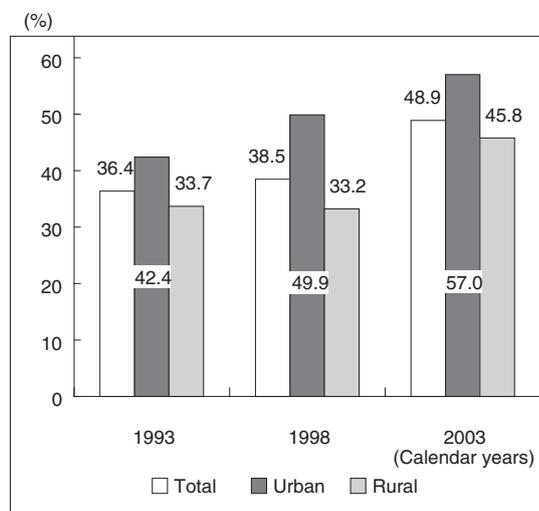
2. Why Have Medical Care Costs Risen?

We first need to consider the possibility of increases in consultation fees and drug prices. Although the market principle has been brought into the health sector, consultation fees and drug prices are basically controlled by the government, and medical institutions cannot disregard this fact when levying charges.

Drug prices are thought to have risen rapidly after liberalization in 1992. However, it seems unlikely that higher prices triggered the rise in medical expenses, since the government imposed a 15% ceiling on margins added to procurement prices (Li [2003]) and introduced price controls for commonly used drugs in 1996 (Shiromoto [2000]).

Fig. 3 compares rates of increase in the consumer price index (CPI) and medical expenses (specifically consultation fees and drug prices), which form part of the index⁽⁹⁾. Consultation fees have risen faster than the CPI since approval was given for increases in 1996 (Shiromoto [2000]). However, there has been no conspicuous upward movement in drug prices, and the unit prices of so-called “Western medicines,” such as antibiotics, have in fact tended to fall. The relative pricing of medical expenses, as calculated by dividing the rate of increase in medical expenses by the CPI rate of increase, has also been falling since 2000, and there is little evidence to support a steep rise in medical expenses resulting from unit price in-

Fig. 2 Percentage of People who Experienced Symptoms of Illness in the Past Two Weeks but did not Visit Hospitals

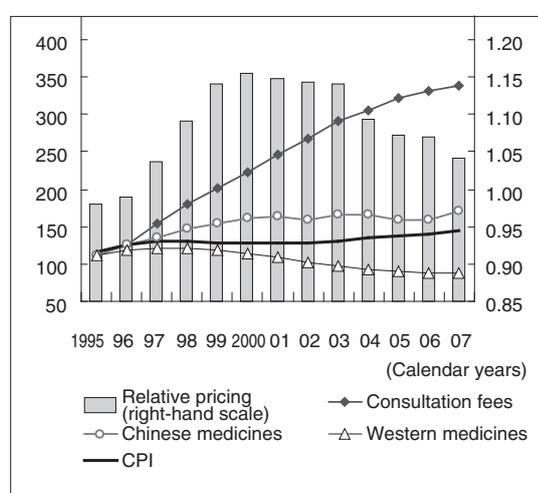


Source: Compiled from NHSS 2003

creases.

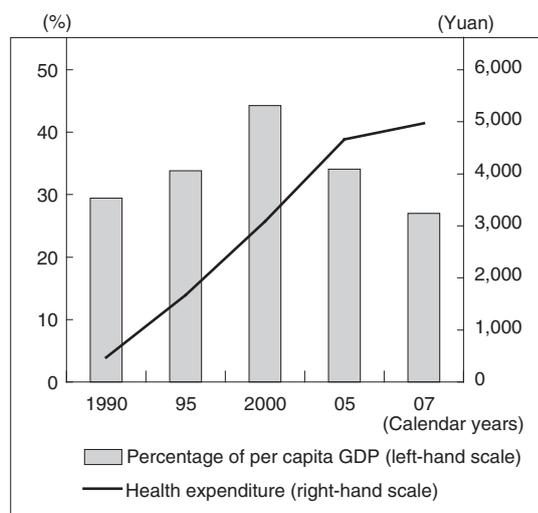
Yet per capita health expenditure in general hospitals increased 10.5 times between 1990 and 2007. Although costs have been falling since 2000, they still accounted for 30% of per capita GDP in 2007 (Fig. 4). Medical expenses have

Fig. 3 Consultation Fees and Drug Prices (1994=100), Relative Pricing



Source: Compiled using data from the *China Statistical Yearbook* (various years)

Fig. 4 Medical Expenditure Relative to Per Capita GDP



Notes: Medical expenditure is the sum of average outpatient costs and average hospitalization costs per capita.
 Source: Compiled using data from the *China Yearbook of Public Health* (2004 and 2008), and *Chugoku Eisei Tekiyo 2008* [Overview of Health in China 2008]

risen to a level at which they are having a devastating impact on household budgets, and even healthy people are forced to be sensitive to health risks.

Since medical expenditure is rising even though unit prices are not, it seems reasonable to conclude that the problem is being caused by over-treatment and over-medication. The medical expenditure statistics in Fig. 3 were used to compile the CPI, and there is a strong likelihood that the surveys on which they were based covered only a limited range of medical consultations and medication.

Because of advances in medical technology, a variety of drugs and tests are increasing. If these are not included in the data, a gap could easily develop between actual health expenditure and the health expenditure component of the CPI.

The types and quantities of medications and tests used can increase simply because of decisions by doctors. This phenomenon is known as “physician-induced demand.” Because medical care requires advanced and specialized knowledge, the asymmetry of knowledge between suppliers and consumers is far greater than is the case in markets in general. Patients are unable to judge for themselves whether or not the services they receive are appropriate, so demand is determined entirely by physicians as suppliers of those services. This situation tends to result in excessive demand.

There are 3.5 million medical institutions in China, of which 95.2% are non-profit organizations (as of 2006). They are run by the government, and the physicians are generally government employees. However, subsidies account for less than 20% of the revenues of medical institutions (Hong and Xiaolin [2006]), meanwhile their financial soundness depends on the extent of the amount that can be levied from patients, and the physician’s salaries depend on their contribution to revenues. For those reasons, over-treatment is prevalent in many hospitals.

Over-treatment is not confined to China and is a problem in most countries that have adopted the fee for service system (FSS). In China, physicians’ salaries have been kept extremely low, and

consultation fees for basic medical treatment are set at levels that are below cost. For this reason, the problem of over-treatment is compounded by a moral hazard for physicians. This has been verified by numerous case studies.

For example, a study carried out by the University of Copenhagen revealed that a patient admitted to hospital in Shandong suffering from pneumonia was given 171 different medications during a 22-day hospital stay that ended with the patient's death (Hougaard, Østerdal and Yu [2008]). The *Financial Times*⁽¹⁰⁾ reports that local journalists posing as patients visited 10 hospitals in China and submitted tea instead of urine for testing. At six of the hospitals, the journalists were diagnosed as suffering from uric blood and given prescriptions.

Additional incentives to increase revenues are provided by the fact that medical institutions are concentrated in cities, and by the transformation of the medical sector into a service industry. China has approximately 420,000 wealthy individuals with net financial assets in excess of one million dollars. This is the second highest total in Asia after Japan, which has 1.51 million people in this class⁽¹¹⁾. Medical institutions can increase their earnings by specializing in medical services for the wealthy, and a significant number of major urban institutions are trying to attract customers by developing hotel-standard facilities.

China's medical services have been derailed, and it will not be easy to put them back on track. The government has taken various steps, including the reduction of drug prices. However, the profit margins of hospitals and pharmaceutical companies increase in proportion to the prices of drugs, so drugs affected by price cuts quickly disappear from the market or are simply relabeled and sold at higher prices as new drugs (Kubota [2007]). The effectiveness of price cuts is negated by the fact that products with official government prices account for just 40% of drugs in circulation (Hougaard, Østerdal and Yu [2008]).

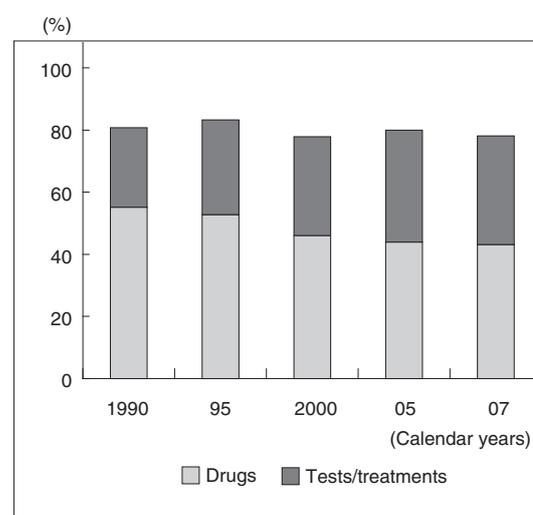
The same applies to tests. It is reported that hospitals compete to introduce the latest testing equipment and then seek to increase their profits by carrying out unnecessary tests. In 2005 the government reportedly issued an opinion stating

that the cost of tests and treatments involving the use of large-scale medical equipment should be reduced (Kubota [2007]). But the percentage of health expenditure devoted to tests and treatments is rising, and there is little evidence that any attention was paid to the government's opinion (Fig. 5).

Government intervention in relation to the cost of testing and treatment using advanced, large-scale equipment is basically difficult. Costs are inevitably high because the equipment is itself expensive. To reduce the costs, the government would need to provide subsidies, and it would not be entirely appropriate to channel limited resources into areas in which the number of beneficiaries is limited. This is the dilemma confronting the government.

While drugs and tests are thought to account for a higher share of health expenditure in Japan compared with levels in Western countries, the percentages are still only 27.8% and 11.2% respectively⁽¹²⁾. Exact comparisons between Japan and China are not possible, since medical procedures in China are not classified as minutely as in Japan. However, the fact that the corresponding ratios for China are 43.2% and 34.9% respectively, clearly

Fig. 5 Drug, Testing and Treatment Costs as a Percentage of Health Expenditure (Hospitalized Cases)



Source: Compiled using data from *Chugoku Eisei Tokei Teiyō 2008* [Overview of Health Statistics in China 2008]

indicates that health care has become a numbers game. This situation has existed since the 1990s, and there is no sign of any improvement. The problem is deep-rooted, and while a decline in the ethical standards of physicians is obviously one of the reasons for the soaring cost of health services, this can also be seen as the natural outcome of health policies.

3. Why Have Out-of-Pocket Costs Increased?

Two factors could explain the rise in out-of-pocket costs. One is an increase in the number of people treated as outpatients and in-patients and the frequency of those treatments. The other is an increase in the percentage of costs paid by individuals. We will first consider the former factor.

Fig. 6 traces trends in the number of outpatient visits per capita and the number of hospital stays per 100 people. The number of people hospitalized began to rise in 1998, and the number of outpatient visits in 2004. These trends were clearly responsible for increases in out-of-pocket costs.

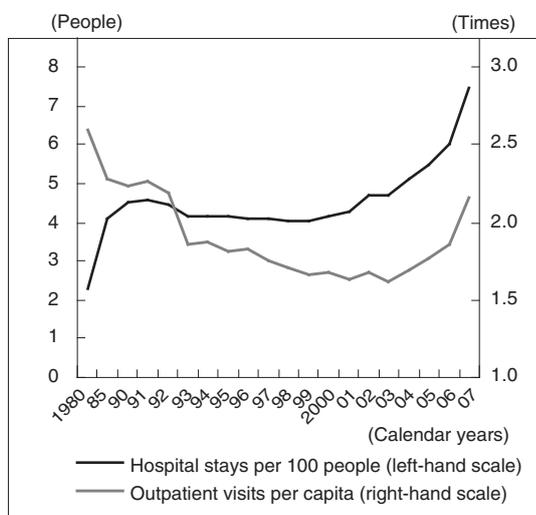
However, outpatient visits and hospital stays are not distributed evenly through the popula-

tion. Certain groups of people, such as the aged or those suffering from chronic diseases, repeatedly seek outpatient treatment or enter hospital. It seems unlikely that marginal increases in the frequency of medical examinations or the number of patients hospitalized would lead to public concern over the accessibility and affordability of medical services. Concern about medical costs is the product of the probability of falling ill and the share of costs borne by individuals, and it appears that the latter factor has been responsible for an increase in uncertainty.

What changes have occurred in the percentage of medical expenses borne by individuals? Fig. 7 provides a breakdown of trends in expenditure on health, including public health, since 1990. Between 1985 and 2006, nominal GDP increased 23.6 times. There was an even greater rise in health expenditure, which increased 35.3 times over the same period.

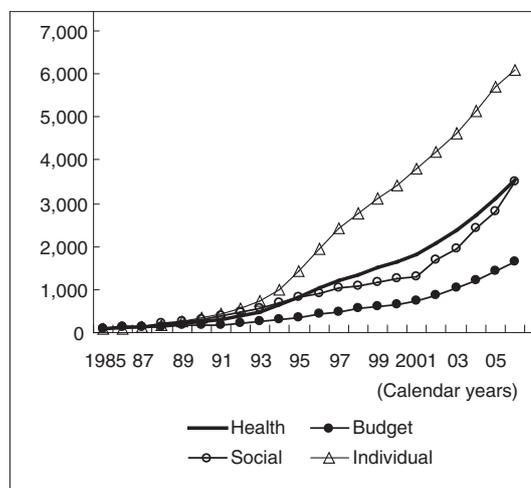
The problem is the composition of this growth. Health expenditure consists of budgetary expenditure by the government, social expenditure funded by insurance premiums, and individual expenditure. While budgetary expenditure and social expenditure increased 16.5 times and 34.9 times respectively, individual expenditure increased by

Fig. 6 Outpatient Visits Per Capita and Hospital Stays



Source: Compiled using data from *Chugoku Eisei Tokei Teiryō 2008* [Overview of Health Statistics in China 2008], and *China Statistical Yearbook* (2008)

Fig. 7 Breakdown of Health Expenditure (1990=100)



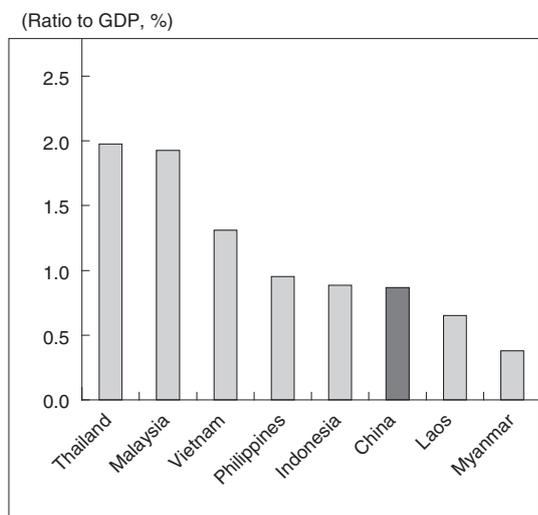
Source: Compiled using data from the *China Yearbook of Public Health* (2004, 2008)

a substantially larger factor of 61.1 times. Public concern over the accessibility and affordability of medical services reflects the shift of health costs onto individuals.

The level of government expenditure is extremely low by international standards. In a World Health Organization (WHO) survey, China was ranked 164th out of 193 countries and came behind several countries with lower per capita GDP, such as Indonesia (0.89%, 161st), the Philippines (0.95%, 156th) and Vietnam (1.31%, 144th) (Fig. 8). The purpose of the budget cuts was to extend the market economic system to the health sector and eliminate the waste that occurs when the government pays for everything. This approach has clearly gone too far and has had the effect of reducing the people's access to health care.

As shown in Fig. 9, the cost to individuals appears to have risen beyond an acceptable level in the second half of the 1990s. However, this situation did not immediately become the focus of public concern. One reason for this was the fact that higher health costs were accepted by the public as one of the consequences of the shift to a market economy. Incomes were also rising under that system, and initially this offset higher health costs.

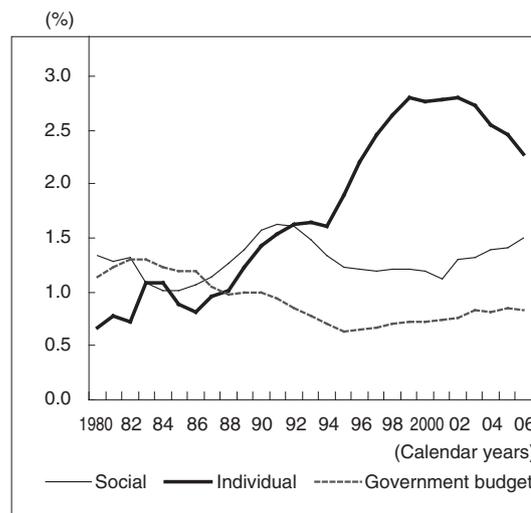
Fig. 8 Government Expenditure on Health (2006)



Source: Compiled using data from WHO, Statistical Information System (WHOSIS)

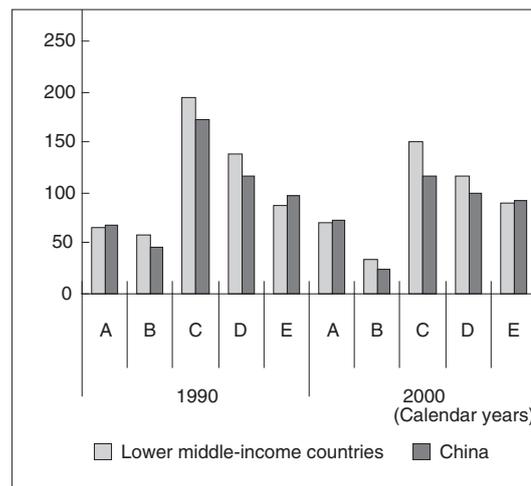
Another reason was that although out-of-pocket costs were rising, there was no decline in the standard of health care. For example, aver-

Fig. 9 Health Expenditure as a Percentage of GDP



Source: Compiled using data from *Chugoku Eisei Teiyou 2008* [Overview of Health Statistics in China 2008], and *China Statistical Yearbook 2008*

Fig. 10 Public Health and Health Care in China (2006)



A: Average life expectancy at birth (years)
 B: Infant mortality (‰)
 C: Adult mortality (‰)
 D: Tuberculosis cases per 100,000
 E: Measures inoculation rate for children under five (%)
 Notes: Lower middle-income countries are countries with per capita gross national income (GNI) of \$906-3,595 in 2006. With a per capita GNI of \$2,000, China is positioned in the middle of this group.
 Source: Compiled using data from WHO (2008)

age life expectancy at birth, child mortality, adult mortality, the incidence of tuberculosis and the measles inoculation rate all improved between 1990 and 2006 to levels that compared well with other countries in the lower middle-income Group (Fig. 10). It was not surprising that the government thought that it would be able to achieve good outcomes with limited health expenditure.

II. The Realities of Medical Care Disparity

China's problems with medical care accessibility and affordability are caused by two factors: rising health care costs, and the increasing share of costs that must be borne by individuals. If costs continue to rise along with the individual's share of those costs, the poor will find it increasingly difficult to access medical service, and its disparity will widen. There is a strong possibility that average statistics do not reflect the realities of health care in China.

In a 2000 WHO assessment of health care systems, China was ranked 139th out of 191 countries. It was placed 81st on the basis of disability-adjusted life expectancy (DALE)⁽¹³⁾, but 188th in terms of the fairness with which costs are allocated (WHO [2000]). It would be reasonable to conclude that the most important issue affecting health care in China is one of fairness.

These statistics have not been updated since, so we cannot ascertain whether or not there has been any improvement in fairness. We will now examine medical service disparity along the same axes as are used to measure income disparity: urban-rural, and coastal-inland. Disparity should ideally be measured on the basis of outcomes, such as infant mortality rates. Because of data limitations, however, we will instead use data from the 2003 *An Analysis Report of National Health Services Survey* (NHSS 2003) to ascertain the situation.

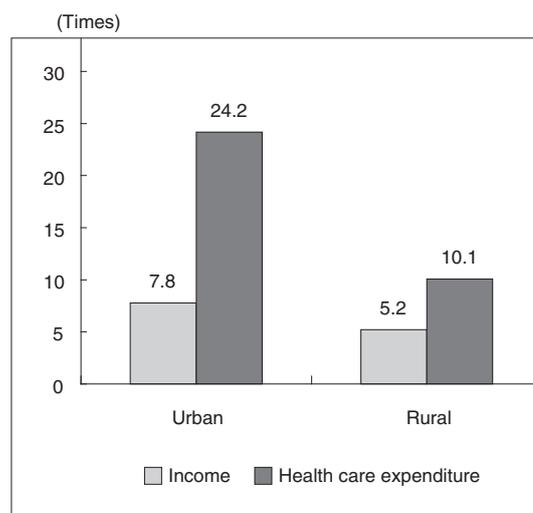
1. Urban-Rural Disparity Wide by International Standards

We will begin by examining urban-rural medi-

cal service disparity from the perspective of accessibility. Fig. 2 traced trends in the percentage of people who experienced symptoms of illness in the previous two weeks but did not seek hospital care. While upward trends were apparent in both urban and rural areas, the data unexpectedly showed that the level was higher in urban areas than in the rural sector. Urban residents have an advantage over the rural counterparts in terms of the number of trained medical staff per unit of population and the distance to medical institutions. Why, then, is the number of people who fail to go to hospitals rising in urban areas?

This situation is explained by the urban-rural disparity health care expenditure. Urban-rural income disparity has widened because urban incomes have risen faster than rural incomes. However, the disparity in health care expenditure has expanded at an even faster rate (Fig. 11). Between 1990 and 2006, per capita health care expenditure increased by factors of 10.1 times in the rural sector and 24.2 times in the urban sector. Since income increased 5.2 times and 7.8 times respec-

Fig. 11 Increases in Income and Per Capital Health Care Expenditure between 1990 and 2006



Notes: The data are based on household budget surveys. Health care expenditure includes public health. Per capita health care expenditure is based on averages obtained by dividing the total by the population.
Source: Compiled using data from the *China Statistical Yearbook 2007*

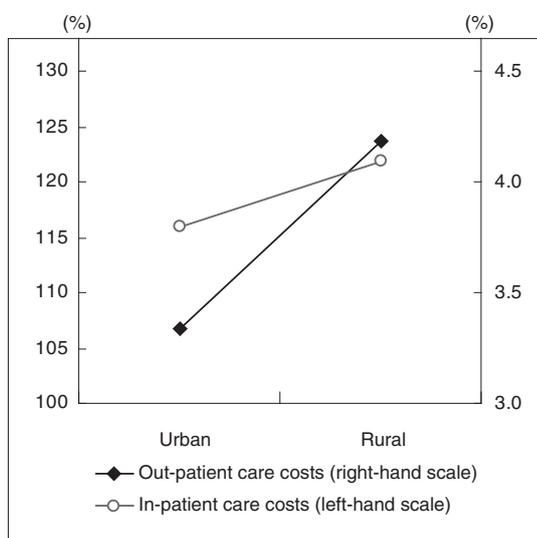
tively, the burden on urban dwellers has become more serious.

However, we need to be aware that there are sample selection bias with the NHSS 2003 data, since one-half of the same consisted of people without work, including retired people (24.5%) and unemployed people (24.5%). This sample does not reflect the average occupational profile of Chinese cities, and there is a strong possibility that the data do not represent the real situation. For this reason, we need to exercise caution when considering whether or not the data in Fig. 2 indicate that health care accessibility is worse in urban areas than in the rural sector.

When we compare those who actually visited hospitals, we find that rural people bear a greater cost burden than their urban counterparts. According to NHSS 2003 data, out-patient care costs 219 yuan and 7,606 yuan respectively in cities, and 91 yuan and 2,649 yuan respectively in rural areas. The ratios of these costs to income is 3.3% and 115.9% in cities, and 4.2% and 121.8% respectively in the rural sector (Fig. 12).

We will next compare the quantity of health care that is available. There are no major differences between urban and rural areas in terms of illness patterns and the cost of drugs and tests.

Fig. 12 Ratios of Out-Patient and In-Patient Care Costs to Income (2003)



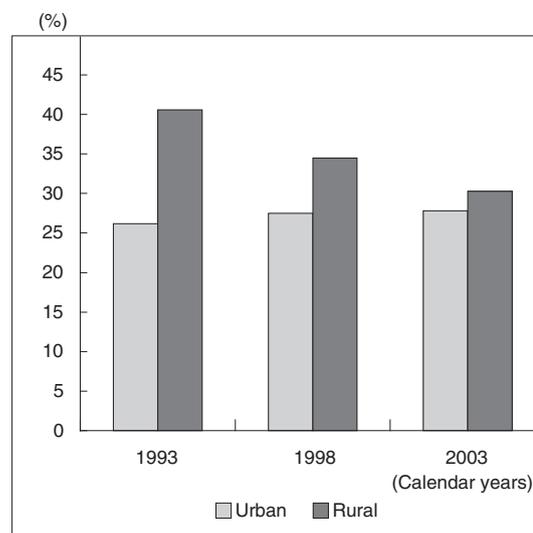
Source: Compiled using data from NHSS 2003

Despite this, out-patient and in-patient care costs vary by factors of 2.4 times and 2.9 times respectively. Likely reasons for this gap include excessive health care expenditure in urban areas due to over-treatment, and the fact that health care costs in rural areas are held down by a lack of advanced medical equipment. (People requiring advanced care treatment go to hospitals in cities.) However, there is also a significant possibility that income limitations are preventing rural people from obtaining the medical treatment that they need.

The percentage of people who refuse to enter hospital even when told by their doctors that hospitalization is required is higher in rural areas (Fig. 13). The gap is tending to shrink. Given the aforementioned sample selection bias, however, we must assume that the real figure for urban areas is lower, and that the gap is wider than indicated in the graph. NHSS 2003 data show that the percentages of people who are forced to leave hospitals for economic reasons⁽¹⁴⁾ have reached 18.3% in urban areas and 31.6% in the rural sector.

Another factor that must be taken into account is the quality of health care. The amounts of human resources and facilities invested differ in the urban and rural sectors. For example, in 2007

Fig. 13 Percentage of People Who Refuse Hospitalization for Conditions Requiring Hospital Care



Source: Compiled using data from NHSS 2003

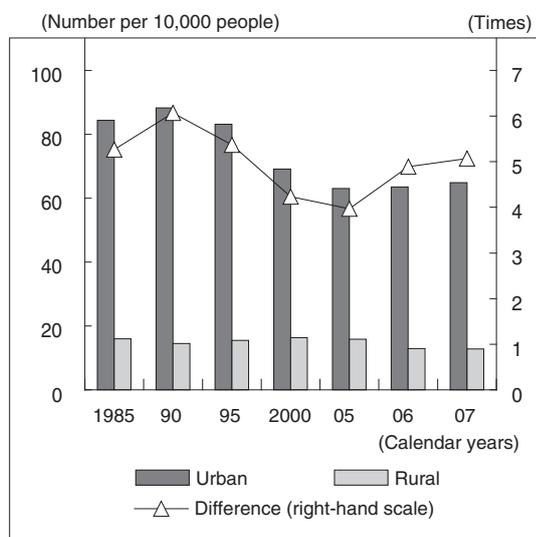
there were 64.9 trained medical personnel per 10,000 people in urban areas but only 12.8 in rural areas (Fig. 14). Obviously the gap is reflected in a difference in the quality of health care. In addition, one of the consequences attributed to the shift to a market-based economic system is that less skilled physicians have tended to remain in the rural sector⁽¹⁵⁾. Other evidence of this disparity in quality includes survey results indicating that the quality of clinics is inferior to that of hospitals (Han, Luo [2005]).

In fact the number of university-trained physicians working in rural areas is extremely low (Fig. 15). According to NHSS 2003 data, the primary point of access to medical service for those living in prefecture-level cities or urban districts is a hospital. This was the choice for 28.4% of respondents who had visited medical institutions because of illness in the previous two weeks. Community health service centers were the next most popular choice (25.7%), followed by hospitals administered by city districts (13.3%). Village clinics were the primary point of access for 53.5% of rural dwellers, followed by public health centers administered by townships (25.8%), and county hospitals (10.7%). The possibility that ru-

ral people will be treated by a university-qualified physician is almost zero.

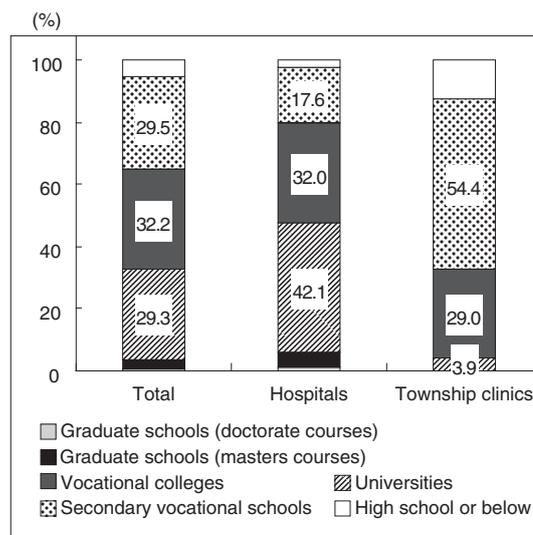
Of course, academic background is not the only factor that influences the quality of physicians.

Fig. 14 Numbers of Trained Medical Personnel in Urban and Rural Areas



Source: Compiled using data from the *China Yearbook of Public Health 2008* and other references

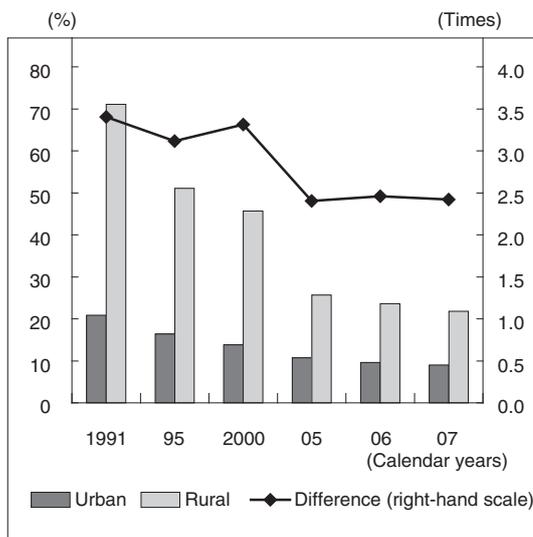
Fig. 15 Academic Background of Physicians (2005)



Notes: The Chinese word for “doctor” is generally applied to physicians with university degrees or higher qualifications, while those with lesser qualifications are referred to as “medical workers.” In this article, all are referred to as “physicians.”

Source: *Chugoku Eisei Teiyou 2007* [Overview of Health in China 2007]

Fig. 16 Infant Mortality Rates



Source: Compiled using data from *Chugoku Eisei Teiyou 2008* [Overview of Health in China 2008]

Furthermore, there is disparity in the level of medical service available in urban and rural areas in every country, and it could be argued that the evidence cited above is not necessarily unique to China. However, the seriousness of the disparity is also apparent from outcomes. The infant mortality rates for 2007 were 9.0 per 1,000 in cities and 2.4 times higher at 21.8 per 1,000 in the rural sector (Fig. 16). This gap is extremely wide compared with 61 countries (not including China) surveyed by the WHO (WHO [2008])⁽¹⁶⁾.

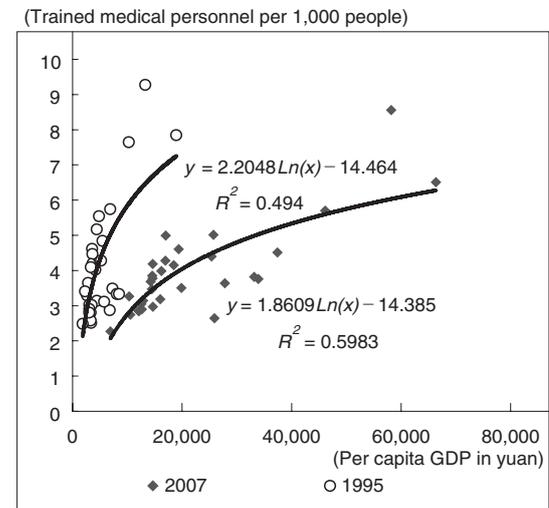
2. Coastal-Inland Disparity—Inland Rural Areas Left to Fend for Themselves

We will begin by analyzing coastal-inland disparity in terms of inputs. In Fig. 17, provinces and cities are plotted on a graph in which the number of trained medical personnel per 1,000 people is shown on the vertical axis and per capita GDP on the horizontal axis. The regression line for 2007 is flatter than that for 1995, indicating that the coastal-inland gap is tending to shrink.

However, this is not the result of efforts by the government to correct medical service disparity between coastal and inland regions. Fig. 17 shows that the number of trained medical personnel has fallen sharply in high-income regions while remaining almost unchanged in low-income regions. In 2007, China had 5.37 million trained medical personnel, a decline of 590,000 from the 1995 level. A more detailed analysis shows that the decline has been especially conspicuous in provinces with concentrations of state-owned enterprises, such as Liaoning Province (96,000) and Heilongjiang Province (75,000). The reduction of the gap should be seen as the result of the closure of company-affiliated hospitals as part of the SOE reform process.

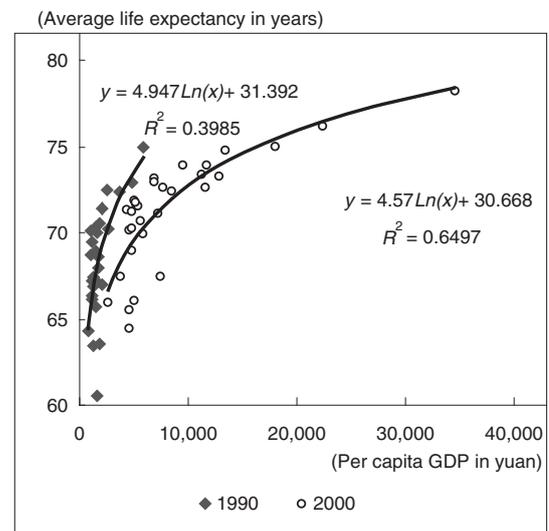
We will next examine health disparities between coastal and inland regions in terms of outcomes. In Fig. 18, capita GDP and average life expectancies for various provinces and cities in 1990 and 2000 have been plotted on a graph. Although Fig. 17 and Fig. 18 compare different years, the flattening of regression lines in both graphs indicates

Fig. 17 Per Capita GDP and Trained Medical Personnel



Source: Compiled using data from the *China Statistical Yearbook* (various years)

Fig. 18 Per Capita GDP and Average Life Expectancy



Source: Compiled using data from the *China Statistical Yearbook* (various years)

that the gap has been reduced. The coefficient of variation, which indicates the degree of dispersion in the data, was 0.045 in 2000, compared with 0.052 in 1990.

In developed countries, the development of new technologies for the treatment of chronic diseases, cancer and other conditions is seen as a major

contributor to increases in average life expectancies. In developing countries, the infant mortality rate is a key factor, and the reduction of disparity in average life expectancies between coastal and inland regions appears to reflect the reduction of infant mortality in inland regions. As shown in Fig. 16, however, there has been little change in the gap between urban and rural infant mortality rates, so there is a strong possibility that the reduction of infant mortality is attributable not to an overall improvement across all inland regions, including rural areas, but rather to the contribution from inland cities.

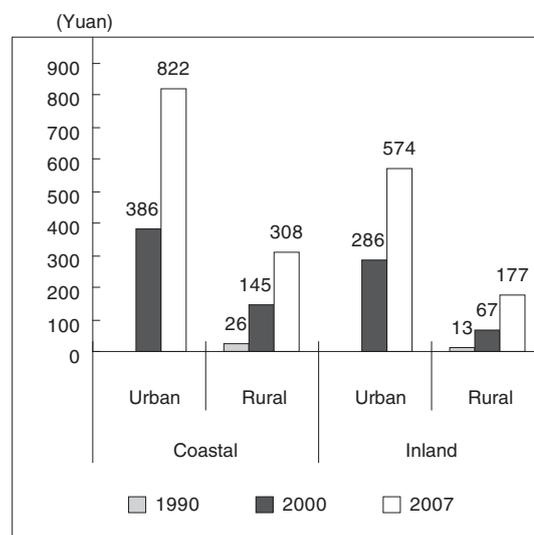
There are no data that can be used to confirm this directly. However, in urban areas the percentage of newborn infants weighing less than 2,500 grams has fallen from 3.8% in 1993 to 3.4% in 1998 and 3.1% in 2003, while in rural areas there has been an upward trend from 3.3% in 1993 to 3.7% and 3.8%. Other supporting evidence pointing to this possibility includes a major gap in per capita health care expenditure in urban and rural areas⁽¹⁷⁾ (Fig. 19).

Even if the health disparities between coastal and inland areas is tending to shrink, we need to be aware that the gap is still large. For example, while China's average life expectancy reached 71.4 years, which is close to the Japanese level in the mid-1960s, in 2000, the regional variation in China is extremely wide compared with Japan. An analysis of average life expectancies in Japan's prefectures in 1965 shows that the difference between the highest and lowest figures for both males and females was less than five years. In China, there is a gap of over 13 years for both males and females. The coefficient of variation, which indicates the degree of dispersion in the data, was 0.01 in Japan, compared with 0.04 in China. It would be reasonable to conclude that this variation is reflection of substantial income disparity.

3. Disparity Based on Income Levels — Peasant Workers Excluded

Medical service disparity based on income levels is also expanding. An influx of migrant work-

Fig. 19 Health Care Expenditure Per Capita



Notes: "Coastal" refers to 11 cities and provinces (Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Hujian, Zhejiang, Shandong, Guangdong, Hainan), and "inland" to 12 cities, provinces and autonomous regions (Neimenggu, Guangxi Zhuangzu, Chongqing, Sichuan, Guizhou, Yunnan, Xizang, Shaanxi, Gansu, Qinghai, Ningxia Huizu, Xinjiang Weiwu'er). Data for cities are not available for 1990. Per capita health care expenditure is an average obtained by dividing totals by populations.

Source: Compiled using data from *Zhongguo Chengshi (Zhen) Shenghuo Yu Jiage Nianjian 2008* [Yearbook on Livelihoods and Prices in Chinese Regions and Cities 2008], *Zhongguo Nongcun Zhuhu Diaocha Nianjian 2008* [Yearbook on Rural Household Surveys 2008]

ers, known as *nong-min-gong* (peasant workers) has dramatically increased the number of people experiencing problems with access to medical service in cities. This problem is also apparent from the percentages of people in cities who are covered by China's official health insurance systems. Fig. 20 shows the coverage rates under Basic Medical Insurance scheme for all urban workers and for urban formal sector employees. The coverage rate for formal sector workers is already over 100%, indicating that the system is spreading to workers in the informal sector, including employees in private enterprises.

However, less than 50% of all urban workers are covered, and the percentage is increasing only gradually. This indicates that the coverage rate for the informal sector is still low, and that peas-

ant workers are excluded from the Basic Medical Insurance scheme for urban employees. According to the Ministry of Agriculture, the number of peasants living away from their registered domiciles reached 226 million in 2007⁽¹⁸⁾. The Ministry of Human Resources and Social Security estimates that the number of peasant workers covered by health insurance at the end of 2007 was 31.31 million⁽¹⁹⁾. Simple arithmetic shows that this is equivalent to a coverage rate of 13.9%⁽²⁰⁾.

It may seem that peasant workers could secure access to health care services simply by joining the New Cooperative Medical Scheme in the regions where their official domiciles are located. However, many are reluctant to join these schemes, since they are required to return home to complete reimbursement procedures (Zhang et al. [2006]). The government is aware of this issue and is encouraging peasant workers to join the Basic Medical Insurance scheme for urban employees. However, decisions on whether or not peasant workers are eligible to join the system are left to local governments. Even if they are included, coverage leads to higher costs for employers and offers little benefit to peasant workers, who will eventually relocate to other regions. For these

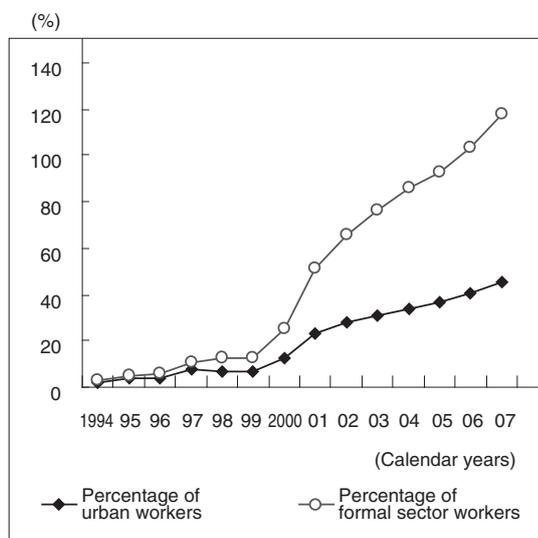
reasons, there has been little increase in coverage.

This situation is reflected in a dramatic worsening of medical service access for low-income people in urban areas. In the first quintile, which is the most impoverished group, there was little change in medical expenditure between 1993 and 2003, despite the rising cost of medical service (Fig. 21, left). This contrasts with data for the fifth quintile, which show a tripling of expenditure over the same period. Similarly, there has been an increase in the percentage of people in the first quintile who avoided hospitalization even when it was required, while the corresponding figure for the fifth quintile remained almost unchanged (Fig. 21, right)⁽²¹⁾.

According to the 2003 NHSS, the percentage of first quintile people covered by official health insurance systems fell from 36.7% in 1993 to 20.7% in 1998 and 12.3% in 2003. In contrast, the ratio for the fifth quintile remained almost unchanged at around 70%. It is clear that access to medical service is significantly affected not only by income disparity, but also by insurance coverage.

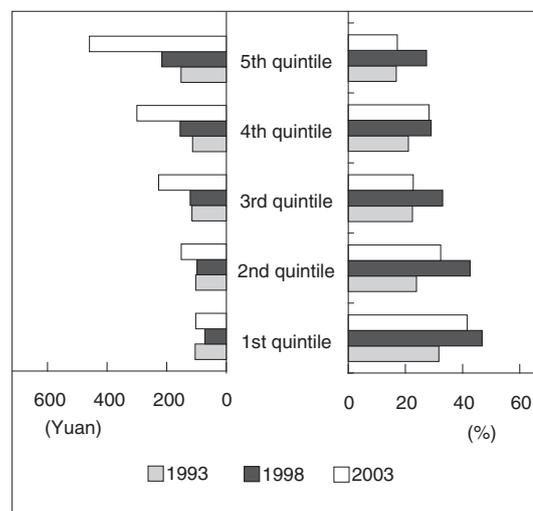
Income-based disparity is smaller in rural areas compared with the urban sector. Medical expen-

Fig. 20 Official Health Insurance Coverage Rates in Urban Areas



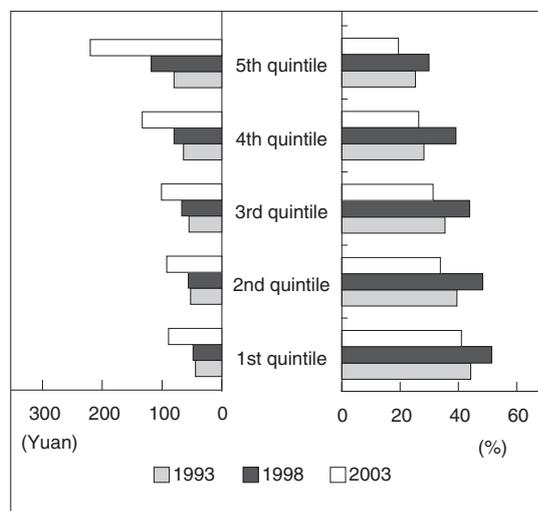
Notes: Urban workers include peasant workers.
Source: Compiled using data from the *China Statistical Yearbook* (2008)

Fig. 21 Medical Expenditure (Left) and Non-Hospitalization Ratios (Right) of Urban Income Groups



Notes: The population for the non-hospitalization ratio is the number of people who require hospital care.
Source: Compiled using data from NHSS 2003

Fig. 22 Medical Expenditure (Left) and Non-Hospitalization Ratios (Right) of Rural Income Groups



Notes: The population for the non-hospitalization ratio is the number of people who require hospital care.
Source: Compiled using data from NHSS 2003

diture by the first quintile is tending to rise, and there has been no noticeable change in the gap between the first and fifth quintiles (Fig. 22). The difference between the non-hospitalization ratio for the first and fifth quintiles was also largely unchanged. When the survey was taken in 2003, the coverage rate for the New Cooperative Medical Scheme was only about 10%, so we can conclude that medical service disparity between income groups in the rural sector is a reflection of income disparity rather than differences in insurance coverage.

III. Institutional Health Care Disparity

In Part II we looked at medical service disparity between the urban and rural sectors, between coastal and inland regions, and between income groups. The health care gap between wealthy people living in coastal cities and impoverished people in inland rural communities is extreme. Medical service disparity inevitably magnifies income disparity, since illness in a household with limited

access to medical service is likely to reduce the number or work capacity of earners in that household.

China is affected by a vicious circle in which income disparity leads to medical service disparity, which in turn magnifies the income disparity. Will medical service disparity disappear if income disparity is eliminated? The answer is “no.” Medical service disparity is caused not only by income disparity, but also by institutional factors. In this section, we will identify the mechanisms that cause medical service disparity by focusing on the decentralization, and on public health insurance systems.

1. Decentralization and its Impact on Coastal-Inland and Urban-Rural Health Care Disparity

According to the World Bank, there are two prerequisites for the correction of income disparity caused by the decentralization. The first requirement is the provision of adequate central government subsidies to the regions. Income disparity will increase rather than decrease unless steps are taken to even out variation in the fiscal capacity of different regions, so that services provided by local governments are equal in quality and quantity. The second requirement is to give local governments incentives to work toward the reduction of disparity. Unless local governments have clear goals, disparity will never be eliminated, regardless of the fiscal resources allocated (World Bank [2000]).

China has not done enough in either of these areas, with the result that decentralization has not brought any improvement in medical service disparity. We will look first at subsidies.

By 2007, the contribution of local governments to total government expenditure had reached 77.0%. This figure is unmatched anywhere in the world, and on this basis China can be said to be one of the world’s most decentralized countries (World Bank [2003]). However, local governments accounted for only 45.9% of revenues in 2007, and the gap was bridged by central government subsidies. In fact, expenditure by local gov-

ernments is equivalent to 1.7 times their independent tax revenues, and central government subsidies make up 98.7% of the increase⁽²²⁾.

The amount of subsidies provided by the central government is adequate. The question is whether or not those subsidies are being used effectively to correct disparity in fiscal capacity. In Fig. 23, GDP and subsidies per capita in various provinces and cities have been plotted on a graph. There is no correlation between the figures. The subsidies provided to regions with ethnic problems, such as Tibet and Qinghai, are substantially higher than those received by more developed regions, such as Beijing and Shanghai. However, there is also evidence that subsidies are not being allocated with the clearly defined goal of reducing disparity in fiscal capacity. For example, there is little difference between the level of subsidies provided to Beijing and Shanghai, and those received by Guizhou Province, where per capita GDP is only 5,787 yuan.

This is because subsidies are allocated not according to fiscal capacity, but rather according to the contribution of each province to revenues. The tax assignment system introduced in 1994 brought

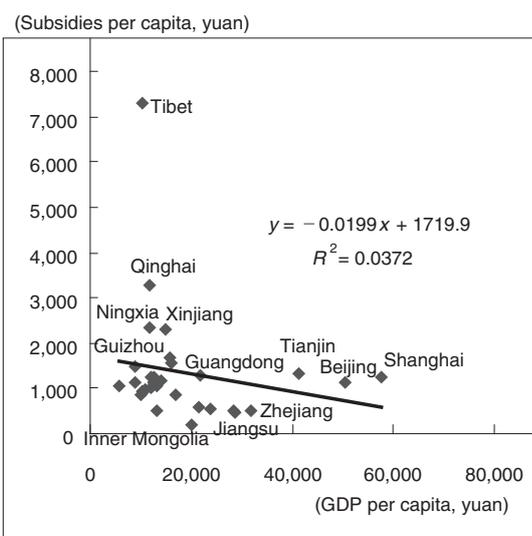
a dramatic increase in the central government's share of revenues, from 33.8% in the previous year to 55.7%. This increase in the central government's share was seen as providing an opportunity to correct disparity in fiscal capacity. However, it was decided that the majority of the increase should be distributed according to revenues contributions (Kajitani [2004]). The increase in the central government's share of revenues did not bring a corresponding increase in its freedom on the expenditure side.

Improved access to medical care brings nationwide benefits by helping to create the infrastructure for the development of human capital, which is essential to sustainable economic development. Health care is a merit good⁽²³⁾, and the cost should be shared with the central government. Because most central government subsidies are earmarked for specific purposes (World Bank [2003]), it should be possible to correct medical service disparity if the central government stipulated that healthcare for the poor should be the priority use for its subsidies. In fact, health care is still left entirely at the discretion of local government, and the central government has never identified medical service disparity as a problem that should be rectified through the use of subsidies.

An analysis of GDP and government health expenditure per capita in various provinces and cities shows that there was little change between 1997 and 2007 in the tendency for the level of regional development to be reflected directly in both the quality and quantity of health care (Fig. 24). We can reasonably assume that medical service disparity between coastal and inland regions has been magnified by conspicuous imbalances in government spending.

Are local governments being provided with any incentives to correct medical service disparity? Although China's central government is trying to curb investment by tightening monetary conditions, the tendency of local governments to ignore this position can easily result in excessive investment. This is because the political achievements of senior local government officials are measured by the contributions to regional development (Yan [2007]). As a result, they tend to be more inter-

Fig. 23 Per Capita GDP and Subsidies by Province and City (2006)



Notes: Subsidies are calculated by subtracting central transfer expenditure from central revenue subsidies.
Source: Compiled using data from the *China Statistical Yearbook (2007)* and the *Financial Yearbook of China (2007)*

ested in investments that help to boost growth rates than in health care or other aspects of social security. Total expenditure by local governments quadrupled between 1998 and 2006, but health expenditure had the lowest rate of increase of any major spending category at just 3.2 times. Health care appears to be a low priority at the local government level.

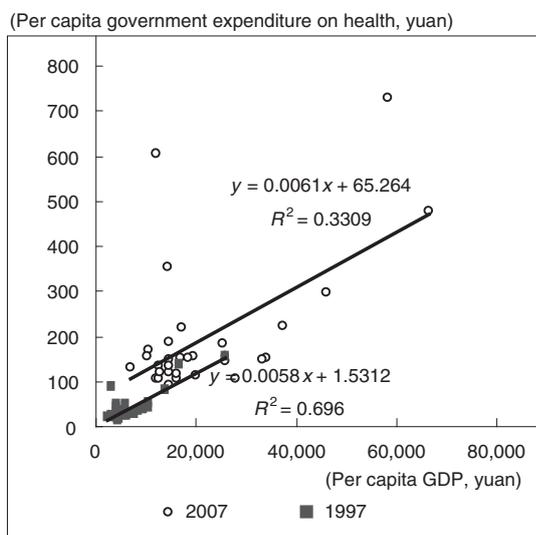
Even if the governments that make ultimate spending decisions are concerned about improving the quality and accessibility of health care, it would not be easy to achieve such improvements under the present fiscal system. In China, responsibility for the provision of government services and the allocation of funds to pay for those services is divided between central and local governments. Responsibility for the provision of basic government services, including health care, rests with the local governments⁽²⁴⁾. However, there is no clearly defined division of responsibilities and funding among local governments at the province level and below. As a result, the responsibility for the ultimate provision of services is often not matched by the funding.

This problem has accelerated the impoverishment of rural health services. As noted in Part II,

the medical institution providing primary access to medical service will be a hospital for those living in prefecture-level cities or urban districts⁽²⁵⁾, and a village clinic for those in rural communities. In cities, the administrative unit responsible for providing services will be the city government, which also provides financial support. In the rural sector, the responsibility lies with self-governing organizations in the form of people's committees in villages. The people's committees have no revenues and must rely on subscriptions from villagers (Han and Luo [2005]). It is not necessary to achieve perfect equivalence in the quality and quantity of health services provided in urban and rural areas. However, it is unfair that one is supported by public funding and the other is not.

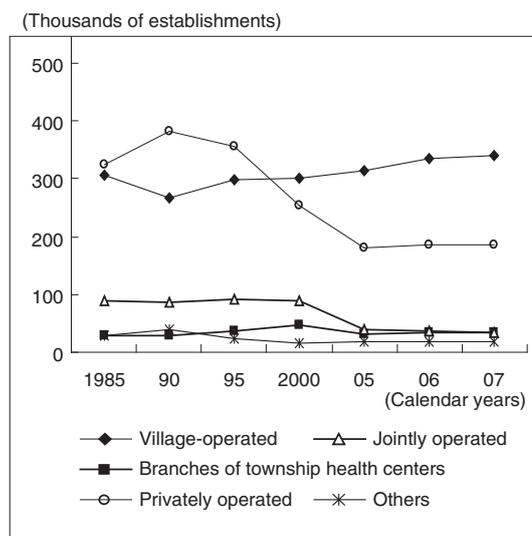
To correct this problem, county governments⁽²⁶⁾, which are responsible for funding for rural health services, will need to improve and expand those services by allocating funds to township governments, which are the final layer of administration. In practice, funds are moving in the opposite direction. Township health centers have branch centers in villages, but there has been no increase in the number of these facilities (Fig. 25). The number of privately operated facilities has fallen

Fig. 24 GDP and Government Health Expenditure Per Capita



Source: Compiled using data from the *China Statistical Yearbook* (1998, 2008)

Fig. 25 Number of Medical Establishments in Villages



Source: Compiled using data from *Chugoku Eisei Tokei Teiyou 2008* [Overview of Health Statistics in China 2008]

to less than one-half of the 1990 peak. Only the number of village clinics has increased. Although these have been established by villagers themselves as a self-defense measure in response to deteriorating access to health care, they have made an important contribution to the improvement of accessibility. However, there are many problems relating to the fairness with which the cost burden is shared. There are significant links between the decentralization and medical service disparity between coastal and inland regions and urban and rural areas.

2. Public Health Insurance Systems—Implications for Urban-Rural Medical Service Disparity

Another institutional factor that has caused medical service disparity is China's public health insurance systems. China has established the Basic Medical Insurance scheme for urban employees for workers with registered domiciles in cities and the New Cooperative Medical Scheme for those registered as rural residents, and the government is working to expand coverage under these systems. However, there are significant differences between them (Table 1).

The following analysis examines the effects of these differences in medical service disparity between urban and rural areas.

First, while coverage under the Basic Medical Insurance scheme for urban employees is compulsory, the New Cooperative Medical Scheme is optional. The government decided to make the latter scheme optional because of concern that insurance premiums would be seen as a new tax. This approach has created a number of serious problems, including the problem of reverse selectivity. Unlike commercial insurance, the system does not require health checks, so healthy people shun the scheme and only those who are already sick join.

Another problem was that the New Cooperative Medical Scheme became popular in wealthy regions where people can afford to pay the premiums, while impoverished rural communities were left behind. However, these issues have been largely resolved by increases in the coverage rate.

The government aims to increase the coverage rate to 90% by 2011 by increasing the government's share of insurance premium⁽²⁷⁾. In practice, the scheme can be regarded as almost compulsory.

Second, there are differences in the coverage rates. As of 2007, 86.2% of eligible people were covered by the New Cooperative Medical Scheme. Since dependents are also eligible, the rural scheme has a higher coverage ratio than other public health insurance systems on a population basis. It was introduced on a trial basis in 2002, but in 2005 the coverage ratio was still only 23.5%. The increase that has occurred since that time is an indication of the extraordinary determination with which the government has worked to promote the scheme.

While this strong commitment is explained in part by the outbreak of sudden acute respiratory syndrome (SARS) in November 2003, it is nevertheless extremely unusual in China, where there is a conspicuous tendency to treat the cities preferentially. The New Cooperative Medical Scheme is expected to play a key role in alleviating urban-rural medical service disparity by providing relief to rural people, who would otherwise be forced to rely on their own resources to deal with the risk of illness. However, before we can determine whether or not the system will be the solution to medical service disparity, we first need to consider a third factor: differences in the content of insurance cover.

Both the New Cooperative Medical Scheme and the Basic Medical Insurance scheme for urban employees set minimum amounts for the reimbursement of medical costs and upper limits for benefits. It is difficult to compare the two systems, since both have significant regional variation in the upper and lower limits. However, we will attempt to compare the systems in Anhui Province, where data on the New Cooperative Medical Scheme are available for 2006 because of a sample survey (Brown et al. [2007]).

In rural areas of Anhui Province, the standard minimum under the New Cooperative Medical Scheme is 240-400 yuan, and the maximum benefit is 17,510-20,000 yuan. (Both figures are medians.) The range of amounts reflects variation ac-

Table 1 Structures of the Basic Health Insurance for Urban Workers and New Rural Cooperative Health Insurance System

	Basic Health Insurance for Urban Workers	New Rural Cooperative Health Insurance System
Coverage ratio	117.4% of formal sector workers, 45.7% of persons in employment (2007)	86.2% (2007)
Eligibility	Government employees and employees of SOE and collective enterprises, foreign-owned enterprises and private enterprises. Coverage for self-employed people, peasant workers and employees of township enterprises is at the discretion of the government concerned. Dependents are excluded and are being encouraged to join the voluntary basic health insurance scheme for urban residents, which was launched on a trial basis in 2007.	Peasants (including dependents)
Enrolment method	Compulsory (Even when self-employed people, peasant workers and employees of township enterprises are treated as eligible, they are frequently classed as voluntary members.)	Voluntary
Premiums	In principle, the employer pays 6%, the insured person 2% (total of 8%). All of the insured person's contribution and about 30% of the employer's contribution are placed in individual accounts, and the balance of contributions from the insured person is accumulated in the health insurance fund. However, the employer's contribution varies according to the region. In some locations, such as Shanghai, it has been set at 12%.	When the scheme was launched in 2002, the individual, the local government and the central government paid 10 yuan each. In 2006 these contributions were increased to 20 yuan, and since 2008 the contributions from central and local governments has risen to 40 yuan each, though the individual's contribution has remained unchanged. By 2010, the government aims to increase the contributions to 120 yuan.
Administration entity	City governments	County governments
Ministry in charge	Ministry of Human Resources and Social Security	Ministry of Health
Scope of cover	Charges for out-patient and in-patient care below a specified level are paid from the individual's account. If there are no funds left in the individual's account, the fund pays health care costs over the standard amount (10% of average yearly income) up to a maximum amount (400% of average yearly income). However, the individual must pay a certain percentage of the costs. That percentage varies according to the location. In Beijing it varies according to the size of the hospital and the cost of the medical treatment, in Shanghai according to the age of the insured person. Generally, the percentage for retired people is lower than that for those in employment. Those requiring cover above the maximum level must obtain commercial cover or cover provided by high-level health cost indemnity insurance schemes run by city governments.	The scheme pays for out-patient and in-patient care above a certain level up to a maximum amount. However, the scheme is weighted toward in-patient care. As with the urban scheme, the individual is required to pay a percentage of costs. That percentage varies according to the size of the hospital and the location, and there is considerable regional variation. In wealthy regions, some of the funds are pooled in an insurance fund to cover major illnesses.
Benefit payment method	Reimbursement to the individual's account (based on claims submitted after treatment), spot payments of portion from fund (separate invoicing of patient and fund by medical institutions)	Reimbursement (based on claims submitted after treatment)
History	The system was created in 1998 through the integration of a publicly funded health care system for government employees and a workers' health insurance scheme for employees of SOEs and collective enterprises.	A rural collective health care system was established in 1959 and expanded rapidly until the dissolution of the People's Communes, after which it went into decline. The New Cooperative Medical Scheme was introduced in 2002 to resolve this situation, and the government is working to popularize it. It is called "new" because it was established under central government leadership, and because the government's share of premiums has been increased.
Treatment of retired people	The individual is exempted from premium payments, which are paid by the employer.	
Others	Insurance cover is available at designated hospitals and pharmacies.	

Notes: Figures relating to premiums and scope coverage are estimates. The amounts can be changed according to the situation of the administering organization, so there are significant regional differences.

Source: Compiled using data from Ministry of Health (2007), (Shiromoto 2006), World Bank (2005c), Wagstaff, Lindelow, Jun and Juncheng (2007), Chen (2006), Council of Local Authorities for International Relations (2008), and Ministry of Health, *Cai-zhengbu yinfa guanyu zuohao 2008 nian xinxing nongcun hezuo yijiao gongzuo de tongzhi* [Notification Distributed by Ministry of Finance Concerning the Efficient Operation of the 2008 New Rural Cooperative Health Insurance System] (<http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohncwsgls/s6476/200804/19389.htm>), and other sources

ording to the size of the medical institution.

The standard amount under the Basic Medical Insurance system for urban employees is 977 yuan, and the maximum benefit is 39,084 yuan. These figures were determined by applying the guidelines for the Basic Medical Insurance scheme for urban employees⁽²⁸⁾, under which the standard amount is 10% and the maximum benefit is 400% of income, to the average income in cities in Anhui Province (disposable income in 2006: 9,771 yuan).

Although absolute amounts vary, there is no significant variation in the standard amount and maximum benefit in relation to incomes. At 9.1-15.1% of income (net income in 2006: 2,641 yuan), the basic amount under the rural scheme differs little from the urban ratio of 10%. The maximum benefit under the rural scheme is actually higher than the urban level at 6.6-7.6 times income.

Since insurance premiums under the rural scheme include government subsidies, it may appear that rural people are being treated more favorably than urban dwellers.

However, the significance of the basic amounts differs under the urban and rural schemes, and we cannot generalize that the rural scheme is more advantageous. Under the Basic Medical Insurance scheme for urban employees, if the cost of medical treatment is below the standard amount, the standard amount can be paid from insurance premiums accumulated in personal accounts. Under the urban scheme, the basic amount is simply the minimum amount that can be reimbursed from the fund. The New Cooperative Medical Scheme for rural people is weighted toward in-patient care, and most small medical expenses must be paid by the individual. Even under schemes that cover out-patient costs, the reimbursement rates is only about 10% (Wagstaff and Lindelow [2007]).

Some cities offer their own enhanced systems with benefits in excess of the guidelines. When these are taken into account, it seems highly likely that the cover provided to urban residents is substantially superior to that available in rural areas. For example, in Hefei City, the capital of Anhui Province⁽²⁹⁾, the basic amount is set at 600 yuan, 400 yuan or 200 yuan, depending on the scale of

hospital. However, these amounts are halved if the patient is hospitalized a second time, and reduced to zero for the third and subsequent hospital stays. The maximum benefit is also higher at 150,000 yuan⁽³⁰⁾. This is equivalent to 15.4 times the income level in the city.

There are also major differences in reimbursement rates. Under the rural system in Anhui Province, the reimbursement rate is higher if the patient is treated in a small medical institution and lower in larger institutions. The range is 21.8%-29.9% (median). In Hefei City, the reimbursement rate is similarly linked to the size of the medical institution. However, the levels are higher at 90% for a Grade 3 hospital, 92% for a Grade 2 hospital, and 94% for the Grade 1 hospital. The corresponding rates for retirees are 95%, 96% and 97% respectively.

These differences in reimbursement rates have an important influence on the percentages of costs borne by patients. According to the *China Yearbook of Public Health* (2008), the average cost of in-patient care in a general hospital is 4,974 yuan. Under the rural scheme in Anhui Province, the out-of-pocket cost to the patient would be around 70% of the cost of in-patient care, or 3,481 yuan, so individuals would be required to pay an amount similar to their annual income (3,556 yuan). Under the urban system, the cost payable for treatment in a Grade 3 hospital would be only 497 yuan, or 4.3% of income (11,474 yuan).

In other words, the New Cooperative Medical Scheme provides rural people with shallower coverage than the Basic Medical Insurance system for urban employees. This is not limited to Anhui Province. The Center for Chinese Agricultural Policy of the Chinese Academy of Sciences conducted a survey of persons covered by the New Cooperative Medical Scheme in 101 rural communities in five provinces (Zhang et al. [2006]). The results showed that although in-patient care costs reached 3,618 yuan, the amount reimbursed from the fund was only 225 yuan, or 6.2% of the cost.

These differences in cover reflect differences in the insurance premiums that fund the schemes. In 2007, the average income for a formal sector

worker was 24,932 yuan. Assuming that 8% of this amount is allocated to insurance premiums, the premium per person will be 1,995 yuan. In the meantime the government's target figure for insurance premiums under the rural scheme was only 100 yuan in 2008. This disparity in cover is not a problem that can be solved simply by increasing government subsidization of premiums.

Of course, this does not mean that the New Cooperative Medical Scheme for rural people is entirely useless. As shown in Fig. 6, both the number of medical consultations per person and the number of hospital stays per 100 people have increased in recent years. This trend appears to reflect the spread of the insurance scheme. Given the high percentage of out-of-pocket costs, however, it would be overly optimistic to assume that the spread of the New Cooperative Medical Scheme will reduce urban-rural medical service disparity.

3. The Impact of Public Health Insurance Systems on Medical Service Disparity within the Urban and Rural Sectors

Urban-rural medical service disparity is not the only problem to be aggravated under China's public health insurance systems. There is also increased disparity between different rural communities or different cities. In wealthy regions, both local governments and individuals are able to afford higher premiums, which means that the cover provided is likely to be deeper. In fact, a sample survey of rural communities in Guangdong showed that both the reimbursement rate and the maximum benefit tended to increase in proportion to regional affluence (Dib, Pan and Zhang [2008]).

The same pattern occurs in cities, and it is reasonable to assume that the depth of cover will be proportionate to the wealth of the region. Unlike the New Cooperative Medical Scheme, however, the Basic Medical Insurance scheme for urban employees also covers retired people, which means that the relationship between cost and cover will vary according to the number of retired people covered. For example, Beijing, Shanghai, Shenzhen and Guangzhou all have similar income

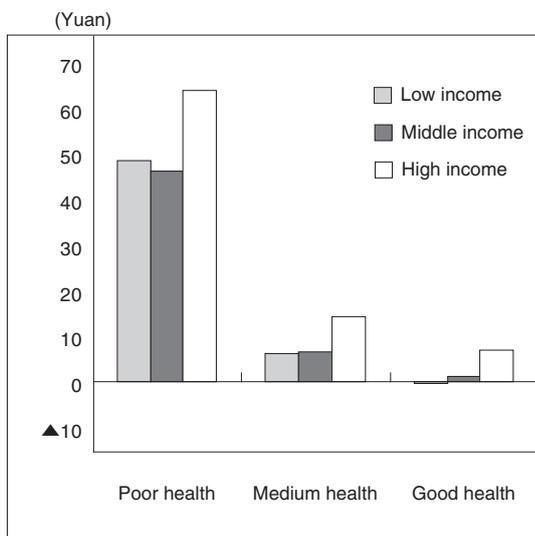
levels, and the burden of insurance premiums is the same at 2% of income. The basic amount (60% of the average wage in the previous year) and the maximum benefit (300% of the average wage in the previous year) are also the same. However, while employers pay 6.0% of insurance premiums in Shenzhen and 8.0% in Guangzhou, they pay 9% in Beijing and 10% in Shanghai (Hewitt Associates [2006]).

Another problem that has worsened under the public insurance schemes is medical service disparity within the same cities or rural communities. This seriousness of this disparity can be assessed by determining whether it benefits the poor or the wealthy. The level of benefit can be expressed as the frequency with which medical treatment is obtained or the public health insurance systems are used⁽³¹⁾. If the frequency of use is higher among the poor, the system can be said to be pro-poor, since it will redistribute income from the rich to the poor. Conversely, if the system is used more by the wealthy, it is pro-rich and will result in the redistribution of income from the poor to the rich.

We will look first at the situation in urban areas. The ratio of out-of-pocket expenses under the Basic Medical Insurance scheme for urban employees is low, so it is unlikely that there will be any significant difference between members in terms of their ability to access medical institutions. In other words, the scheme functions as an income redistribution mechanism. The problem is that the percentage of people covered varies between households, as described in the previous section. Peasant workers are excluded from the scheme, and the key question in relation to the correction of medical service disparity between income groups is how far the compulsory coverage under the scheme can be extended.

What is the situation in the rural sector? In the previous section, we saw that because the percentage of people covered by insurance was low, medical service disparity was attributable primarily to income disparity, rather than the insurance system. However, the situation has been transformed by the rapid spread of the New Cooperative Medical Scheme. A key difference between this scheme and the Basic Medical Insurance scheme for ur-

Fig. 26 Net Benefits Based on Health Status and Income



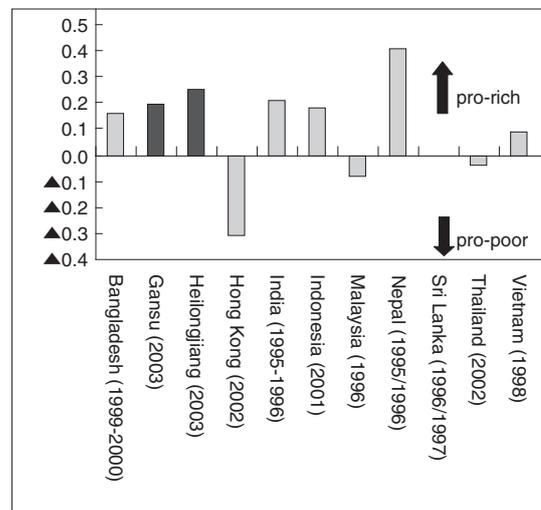
Source: Compiled using data from Wang et al. (2005)

ban employees is the high level of out-of-pocket expenses payable by individuals. There is a strong possibility that this factor is limiting access to health care for the poor and expanding medical service disparity.

According to a household survey conducted in Fengshan County, Guizhou Province in 2002, the net benefit [(total health care costs — (insurance premiums + out-of-pocket payments)] is greatest for high income people in poor health and smallest for low-income people in good health (Fig. 26). Even if they join the New Cooperative Medical Scheme, poor people who cannot afford the out-of-pocket payments will be unable to use the scheme. This means that the system is causing a transfer of income from the poor to the rich.

Since neither the Basic Medical Insurance scheme for urban employees nor the New Cooperative Medical Scheme facilitate health care access for the poor, health care in China can be said to be pro-rich. In fact, if we use coefficients of concentration⁽³²⁾ based on data from household surveys to identify which income groups are receiving subsidies (total health care expenditure — out-of-pocket payments), we find that the coefficient of concentration for China (Heilongjiang Province and Gansu Province) is higher compared

Fig. 27 Coefficients of Concentration in Asia



Notes: The figures in parentheses indicate the years during which the data were gathered.

Source: Compiled using data from O'Donnel, O. et al. (2005c)

with low-income countries, such as Indonesia and Vietnam (Fig. 27), indicating that income is being redistributed from the poor to the rich through the health care system.

IV. Reform Measures to Reduce Disparity

Factors driving the expansion of medical service disparity in China include not only income disparity, but also the medical system itself. There is a reciprocal effect between low incomes and poor health that not only keeps the poor in poverty, but also impoverishes the middle classes and causes social polarization. The correction of medical service disparity will be an unavoidable policy priority for the Hu Jintao-Wen Jiabao administration as it works toward its goal of building a “harmonious society.”

Even among developed countries, however, the level of government involvement in medical service systems varies considerably from country to country (Ogata [2007]), and there is no system that China can use as a model. The World Bank's *World Development Report 2004* was subtitled

“Making Services Work for Poor People.” The report concluded that reforms to improve the functioning of public services, including medical service, ultimately needed to be implemented gradually and adapted to conditions in each country.

What should China do to reduce medical service disparity? The following analysis identifies the development stage of health policy in China and examines the goals that China should work toward as it reforms its medical system. Based on this analysis, we will then propose a number of specific reform measures.

1. Medical Policy Development Stage — Rethinking the Public Health Insurance Schemes

The purpose of medical policy is to create systems to provide the people with the best possible medical service. However, it is not easy to achieve this goal in developing countries. One question is the scope of the systems. The establishment of a system covering all people would require substantial expenditure. Another question is definition of what constitutes the best possible medical services. The “best possible” often means the “most advanced,” but to make the most advanced services available to all people would involve vast expenditure.

The government would have to ask the people to meet these costs through taxes or insurance premiums. However, it may not be possible to achieve a national consensus on a medical system under which both the level of service and the costs would be high. Demand for medical services is affected by uncertainty about timing, since we never know when we will become ill, and cost, since we do not know much treatment will cost. For these reasons, healthy people may not wish to accept a heavy cost burden.

In developing countries there are issues that need to be considered before the development of a consensus even begins. Since the only group that can meet the costs is formal sector employees in cities, the goal of medical policy will be limited to provision of low- or medium-level services to a limited group of people. For those outside of this

group, the only options are to use aid or other resources to prevent infectious disease through inoculation programs, and to take steps to improve public health. Inevitably, medical services in rural areas are left to community-based self-help initiatives (Tabor [2005]).

China has achieved relatively high inoculation rates and public health standards⁽³³⁾, and the focus of medical policy is now shifting from public health to medical services. China’s 11th Five-Year Plan called for the development of a medical system that will meet China’s needs by providing the masses with safe, convenient, effective and appropriate public health services and basic medical services.

One measure that allows medical services to be provided to the entire population is the establishment of a public health insurance system. Under a public health insurance system, people can receive benefits regardless of the amount of premiums that they have paid. Such a system would redistribute income (1) from the rich to the poor and (2) from the healthy to the sick. It would have the effect of adjusting the principle of allocation from contribution, which is the basis under the market system, to need (Kenjo [2007]).

In addition to the New Cooperative Medical Scheme, the government is also working to popularize a new Basic Medical Insurance scheme for urban residents not covered by the Basic Medical Insurance scheme for urban employees, such as students, children and the aged⁽³⁴⁾. Cover is voluntary for all of these groups, but the government aims to increase the coverage rate to 90% by 2011, and in reality its goal is universal coverage. The government is right to base the health system reform process primarily on public health insurance schemes.

In 2009 it has expanded the scope of the reforms and given priority to the improvement of access to health care. In the three-year period to 2011, the government plans to invest 850 billion yuan in five initiatives: (1) the development of public health insurance schemes, (2) a review of drug prices, (3) the development of medical institutions in rural areas, (4) the provision of a uniform standard of public health services, and

(5) the reform of public hospitals⁽³⁵⁾. The priority given to this problem is apparent from the fact that the total government expenditure on health in 2007 amounted to 198.9 billion yuan.

The drug price review and the development of medical institutions in rural areas will both help to improve access to medical services. However, China's public health insurance systems will not have the effect of shifting the principle under which services are allocated from contribution, which is the basis under the market system, to need. There will be no reduction of medical service disparity unless decisive action is taken on this issue. According to the 2009 *Shehui Qingshu* [Blue Book], 42.1% of people still regard the poor accessibility and affordability of health services as the next most important social problem after rising prices (63.5%). The percentage is higher in the rural sector than in the urban sector, and higher in inland regions than in coastal regions. This is evidence that the spread of the New Cooperative Medical Scheme is not providing a decisive solution to problems with the accessibility and affordability of medical services.

It would be meaningless to work toward universal insurance coverage without correcting medical service disparity. The government needs to rethink its order of priorities after first identifying the mechanisms that cause medical service disparity and examining related systems to ascertain what would be the best way to improve medical service access for the poor. The outcome that should be monitored is the extent to which income-related medical service disparity can be reduced through government intervention.

2. Designing Systems—Supply-Side Issues

Medical service is affected by a wide range of factors, and the fact that desired outcomes are being achieved does not necessarily mean that a medical policy is functioning efficiently. According to the World Bank, the factors that influence public health and medical service in developing countries are (1) supply-side technology and incentives for participants, (2) demand-side be-

havior, including willingness to consult medical personnel, preventive care, and hygiene practices, (3) demand-side limitations, such as income and assets, (4) the price, quantity and quality of services, the manner in which services are bought, (5) availability of food and energy, the level of roads and other infrastructure that affects access, (6) the functioning of communities and local governments (World Bank [2004]).

In China, certain factors, such as rising incomes and infrastructure improvement, are clearly having a positive effect. However, there are also significant negative factors, including supply-side incentives, income-disparity and other demand-side limitations, public health insurance schemes, and behavior patterns, such as failure to undergo health checks⁽³⁶⁾, which have a significant impact on outcomes. Based on the preceding discussion, we have formulated the following recommendations concerning the measures needed to alleviate medical service disparity, starting with supply-side measures. The key to these measures is the government's role as the designer of systems.

① Curbing Health Costs

Even if the public health insurance schemes are designed to redistribute income, high health costs will still cause medical service disparity to increase. The reduction of medical service costs is essential to the improvement of access. The key focus for this issue will be whether the existing FFS system can be replaced with a diagnosis-related group/prospective payment system: DRG/PPS. Under DRG/PPS, payments are based not on actual costs, but on predetermined charges for each diagnosis-related group. Numerous research papers have verified the effectiveness of this approach in developed countries.

In China, DRG/PPS has already been introduced in a few regions, resulting in reductions of 30-50% in costs per case. Drug costs have been reduced by 34-64%, and hospital stays by 0.4-2 days (Quigyue [2005]). In developed countries, the introduction of DRG/PPS is believed to result in under-treatment, but in China this disadvantage would be substantially outweighed by the benefit of reduced health expenditure resulting from the elimination of unnecessary medication and test-

ing. Income rigidity could lead to increased corruption by medical personnel. However, this issue should be tackled as part of reforms to the systems governing public employees.

The shift to DRG/PPS is also an important step toward preparing for demographic aging. According to estimates by the United Nations, the percentage of China's population aged 60 and over will increase from 10.7% to 20.0% over a 25-year period starting in 2000. At the same time, there is initial evidence of a "health transition" in the rural sector, as lifestyle diseases overtake infectious diseases as the primary causes of death⁽³⁷⁾. This means that even if no action is taken, there will be a natural increase in health costs at the national level. DRG/PPS can also help to prevent budget deficits.

② Reflecting Costs Relating to Basic Health Care

In China, the government is keeping the cost of frequently used basic medical services low to facilitate access for the poor (World Bank [2005a]). However, this has encouraged physicians to over-treat patients so that they can recover costs through unnecessary tests and prescriptions. Contrary to intentions, the system is actually increasing the cost to patients. The full-cost principle should be applied to basic health services, and providers should be allowed to add a profit margin to their costs.

While patients frequently seek treatment for minor ailments, such as colds and stomach problems, alternatives are available, and measures to reduce the cost to patients would not necessarily be needed. The reduction of costs for major medical procedures, for which alternatives are not available, is a more effective way to improve the fairness of access. Under Japan's funding system for high-cost medical treatment, costs above a specified level are reimbursed subsequently, and the patient's share of the costs is lower than for minor medical treatment (Endo [2007]).

③ Review of Allocation of Subsidies to Medical Institutions

There are no data concerning the ways in which subsidies are allocated in urban and rural areas. In the rural sector, the number of beds in town-

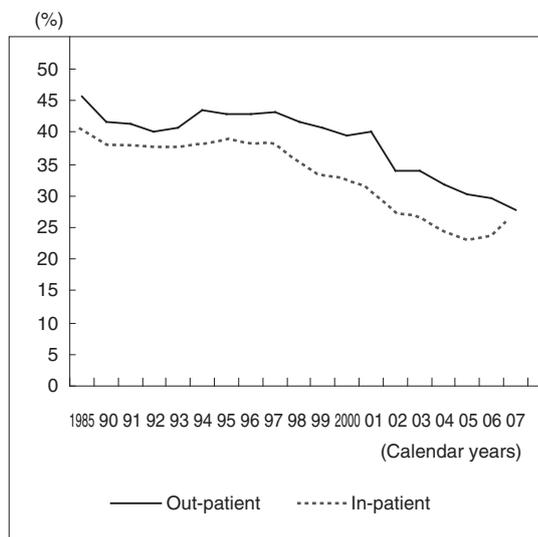
ship health centers remained stable at around 0.8 per 1,000 of population between 1990 and 2007. Judging from this, the present system of allocating subsidies according to the number of beds or other indications of the size of institutions seems to be a reasonable method for achieving uniform distribution in urban and rural areas.

Another interpretation is possible from the perspective of efficiency. With the exception of village-run clinics, the percentages of out-patient and in-patient cases treated in health centers has been falling since the second half of the 1990s (Fig. 28). This situation, which is also apparent from a major difference in bed occupancy rates between general hospitals and township health centers (Fig. 29)⁽³⁸⁾, reflects an increasing tendency on the part of rural people to choose large hospitals over health centers. It is appropriate that subsidies are allocated to large medical institutions, since these are used more frequently.

However, this would cause medical service disparity between urban and rural areas to expand. Patients prefer major hospitals simply because they are worried about the quality of care provided by smaller medical institutions. The government itself must accept much of the blame for this situation, since it neglected to improve rural medical institutions under its policy of delegating responsibility for medical policy to the regions. It should explore ways to improve overall efficiency by giving priority to the achievement of uniform medical service quality in the allocation of subsidies⁽³⁹⁾.

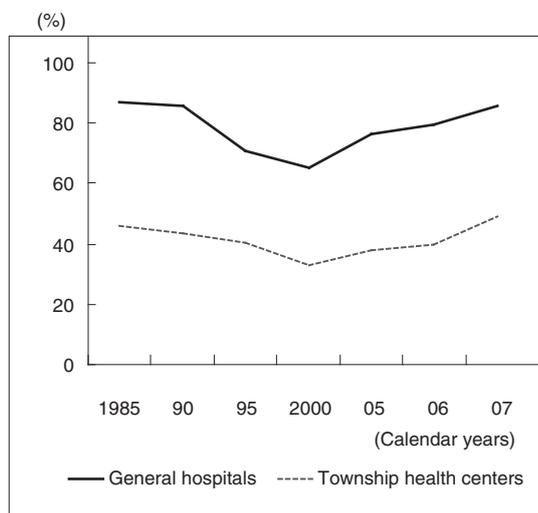
To achieve this, the government will need to clarify responsibilities for the provision and funding of public services, including medical services, and to establish mechanisms that allow the performance of lower levels of government to be assessed not on their contributions to the improvement of growth rates, but rather on the extent to which they have improved access to public services. It is important not only to increase subsidies, but also to link subsidies to outcomes and assessments.

Fig. 28 Percentages of Out-Patient and In-Patient Cases in Health Centers



Notes: Village-operated health centers are excluded.
 Source: Compiled using data from *Zhongguo Weisheng Tongji Tiyao 2008* [Overview of Health Statistics in China 2008]

Fig. 29 Bed Occupancy Rates



Source: Compiled using data from *Zhongguo Weisheng Tongji Tiyao 2008* [Overview of Health Statistics in China 2008]

3. Approaches to System Design — Public Health Insurance Schemes

Medical service access for the poor cannot be improved solely through supply-side reforms. Un-

der the existing public health insurance structure, even if there are improvements in the quality of medical institutions as ultimate service providers, and even if costs are halved, there is still no guarantee that there will be any improvement in access for rural people and peasant workers. Outlined below are some of the improvements that will need to be made in public health insurance systems.

① Reduction of Out-of-Pocket Payment Ratios under the New Cooperative Medical Scheme

To maximize the income redistribution effects of public health insurance schemes, the government should switch to compulsory membership for all schemes and integrate the urban and rural schemes. From a practical standpoint, however, the short-term priority should be to facilitate medical service access for the poor by reducing out-of-pocket payment ratios under the New Cooperative Medical Scheme to a level that is affordable for the poor.

There are three options for reducing out-of-pocket ratios: (1) the reduction of the standard amount, (2) an increase in reimbursement rates, and (3) an increase in maximum benefit payments. The problem will be funding. In 2010, the government plans to increase the subsidy from 100 yuan to 120 yuan per insured person⁽⁴⁰⁾. While this measure may help to popularize the scheme, it will not reduce the out-of-pocket payment ratios for rural people.

The simplest approach would be to increase government health expenditure, raise the subsidization rate for premiums, and inject money into the insurance fund. An increase in the subsidization rate would not be sufficient to cover all health care demand, but it would be possible to reduce the out-of-pocket payment ratio for the poor through in various ways. For example, the central and provincial governments could reduce subsidization rates in high-income areas, and township governments could differentiate subsidization rates according to household income levels. It is not necessary to have a uniform subsidization rate for the entire rural sector.

② Improving Confidence in the New Cooperative Medical Scheme

In a survey cited in the 2009 *Shehui Qingshu*

[Blue Book], respondents were asked to name sectors that they saw as having a high standard of fairness. The public health care sector was cited by 66.7%, placing it third behind the compulsory education system 85.8% and the university entrance exam system (74.4%). The score for the public health sector represents an improvement of 16.1 percentage points compared with the 2006 results. The spread of the New Cooperative Medical Scheme has clearly enhanced the sector's reputation for fairness.

However, advertising targeted to potential members has tended to overemphasize the benefits provided under the New Cooperative Medical Scheme, and many members have been disappointed by aspects of the system, including low reimbursement rates, and complex procedures that make the system difficult to use. Actual reimbursement rates are significantly lower than those stipulated in the regulations (Zhang et al. [2006]), and the system's strong reputation for fairness appears to reflect expectations more than reality.

The government needs to take steps to ensure that expectations toward the New Cooperative Medical Scheme do not turn to disappointment. Instead of making the expansion of coverage its goal, the government should work to improve understanding of the system among insured people. Many people insured under the system are dubious about how the insurance premiums that have been levied will be controlled. The transparency of the fund should be improved through information disclosure.

③ **Facilitating Coverage for Peasant Workers under the Basic Medical Insurance scheme for Urban Employees**

Peasant workers in all regions should be eligible for coverage under the Basic Medical Insurance scheme for urban employees, and coverage should be made compulsory rather than voluntary. It is possible that such changes would not be welcomed by employers, who would face higher costs, or by peasant workers, whose lifestyles are based on relocation at regular intervals. However, peasant workers could be motivated to join the system by improving the portability of insurance cover.

To improve portability, it would be necessary to integrate the funds, which are currently managed at the city level. One likely obstacle would be a structure under which insurance premiums and benefits vary from region to region. However, the government is creating a pension structure under which urban pension funds will be integrated, allowing people to receive their pensions anywhere. There is no reason why the same approach cannot be taken with health insurance.

Conclusions

China's national goal is to increase per capita income by maintaining a high growth rate, and this has also been seen as the key to maintaining social stability. The prevailing view at present is that social stability can be maintained by keeping the growth rate at around 8%. However, while an 8% growth rate may be essential for social stability, it is not the only requirement. China cannot improve its social stability unless it improves fairness through income redistribution.

The Japanese media frequently carry stories about events that are indicative of social instability in China, including riots over land seizures, direct petitions to the central government, and strikes. However, these problems are limited to specific regions, and while confrontations between the parties involved can become extreme, they do not necessarily involve problems with which Chinese society as a whole can identify. It would be rash to interpret increases in the incidence of such events as an indication of growing social instability.

The conclusion that emerges from the analyses in this article is that social instability is synonymous with the vulnerability of the poor. Although income levels are rising in China, a growing number of people are worried about medium- to long-term risks, including problems relating to illness, education and old age. All of these issues have an important bearing on the day-to-day lives of Chinese people, but because they are not limited to specific regions, they are unlikely to come to the surface in such forms as social unrest.

While this situation may appear to work to the government's advantage, the fact that public dis-

satisfaction is not visible on the surface carries with it the risk that something could ignite this accumulated energy, leading to a sudden eruption of social instability that could jeopardize the legitimacy of government authority. The 11th Five-Year Plan has explicitly called for an increased emphasis on social fairness, so that all people could share the benefits of reform and development. Medical policy reform can be seen as a litmus test for this commitment.

End Notes

1. Mainichi Shinbun, January 29, 2009 edition, *Chugoku — Wagako o okizari ni ?! Kogaku na iryo hi ni kurushimu* [China — Children Abandoned by Parents Unable to Pay Expensive Medical Bills]
2. Searchina, April 3, 2008, *SBI Werunesu Banku: Chugoku fuyuso taisho no nippon kenshin tsua* [SBI Wellness Bank: Health Check Tours to Japan for Wealthy Chinese] (http://news.searchina.ne.jp/disp.cgi?y=2008&d=0403&f=enterprise_0403_001.shtml)
3. State Council, *Guowuyan changwuhuiyi shenyibing tongguo yiyao weisheng tizhi gaige yijian* [Opinion on Pharmaceutical and Health Reforms Approved after Deliberations by the Permanent Committee of the State Council] (http://www.gov.cn/ldhd/2009-01/21/content_1211859.htm)
4. To date, cases of SARS have occurred only in cities. Some observers have stated that it would be impossible to control an outbreak in a rural area. (Economist, August 19th 2004, *China's Health Care — Where are the Patients?*)
5. World Bank, Health, *Nutrition & Population in China* (<http://web.worldbank.org/WEBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/CHINAEXTN/0,,contentMDK:20365392~isCURL:Y~menuPK:318981~pagePK:1497618~piPK:217854~theSitePK:318950,00.html!#AAA>)
6. Searchina, May 23, 2006, *Iryo mondai : seifu kei shuppan butsu ga gyosei tokyoku o kibishiku hihan* [Health Care Problem: Authorities Severely Criticized in Government-Affiliated Publication] (http://news.searchina.ne.jp/disp.cgi?y=2006&d=0523&f=national_0523_002.shtml)
7. This article will focus exclusively on the affordability of health care. The problem of accessibility is apparent from the fact that patients wishing to see particular physicians at general hospitals in urban areas are required to line up from early morning just to obtain a ticket to join the waiting list.

8. One reason for this high figure is the fact that the percentage of people in China who initially await a natural recovery rather than taking medicine is higher than in other countries. This behavior was highlighted by the results of a Nielsen survey. 60% *Ijo ga "Byoki de mo kusuri wo nomazu ni gaman"—Chugoku* [Over 60% of Sick People Endure without Taking Medicine—China] (<http://www.recordchina.co.jp/group/g26234.html>). This figure may seem abnormally high from a Japanese perspective, but readers should also be aware that Japanese people visit hospitals 13.8 times per year on average, which is significantly higher than the OECD average of 6.8 times (OECD [2007]).
9. Consultation fees were calculated by using data from the *China Statistical Yearbook* to identify all medical and health care services in the consumer price index.
10. "Chinese? Don't get ill," *Financial Times*, August 29, 2007 (<http://www.ft.com/cms/s/0/bfe4a990-563d-11dc-ab9c-0000779fd2ac.html>)
11. Capgemini and Merrill Lynch (2008)
12. Cabinet Office of Japan, *Annual Economic Report* (<http://wp.cao.go.jp/zenbun/keizai/wp-je96/wp-je96-00304.html>)
13. This indicator measures "healthy life expectancy," excluding years of sickness. For details, refer to Mathers et al. (2000).
14. These percentages were calculated by multiplying the percentage of patients who discharged themselves from hospital, based on data from the 2003 NHSS, by the percentage who did so for financial reasons.
15. *New York Times*, "Wealth Grows, but Health Care Withers in China," January 14, 2006
16. Peru and Vietnam had the highest multiples at 2.2 times, but the differences in other developing countries were below 2.0 times.
17. Unlike NHSS data, which are averages for individuals who received out-patient and in-patient care, per capita health expenditure is calculated here by dividing total health expenditure by the total population covered by household surveys. As a result, these figures are lower than the NHSS results.
18. *Record China*, August 29, 2008, "*Dekasegi rodosha, 2-okunin wo toppa—Chugoku*" [Migrant Worker Population Exceeds 200 Million—China] (<http://www.recordchina.co.jp/group/g23363.html>)
19. See the 2008 report on human resource and social security development statistics (http://w1.mohrss.gov.cn/gb/zwxx/2008-06/05/content_240415.htm).
20. The Ministry of Agriculture estimates that 150 million of these 226 million are employed by township enterprises, which means that 76 million migrant workers have moved into cities. Based on the peasant worker population living in cities, the insurance coverage ratio reaches 41.2%. However, the insurance coverage ratio for peasant workers as published Ministry of Human Resources and Social Security also includes other types of health insurance, including insurance provided by township enterprises, and it is therefore impossible to determine the percentage covered under the Basic Medical Insurance scheme for urban employees.
21. As noted earlier, data from the 2003 NHSS were affected by a sample selection bias. This problem may have increased the percentage of low-income people in the sample, causing the urban average or the figures for the second and third quintiles to deviate from their true levels. However, this problem would not have caused the result for first quintile to deviate from reality and does not therefore constitute a significant obstacle to comparisons between the first and fifth quintiles.
22. This was calculated using data from the 2007 *Financial Yearbook of China* (central government subsidies—central government transfer payments)/(total expenditure—total income).
23. Merit goods are private goods that governments require individuals to consume whether they want to or not because they provide specific public benefits. Examples include compulsory education, nursing care and health services. Compulsory consumption has the effect of generating uniform demand, thereby helping to correct disparity.
24. See OECD (2005) for a comparison of the division of government services between central and regional governments and the extent to which all services are left to regional governments in Japan, India, Malaysia and Vietnam.
25. The four levels of regional government administration in China are ① province level (provinces and province-level cities), ② prefecture level (prefectures and urban districts), ③ county level (county-level cities, counties, urban districts), and ④ village level (villages, townships). For details, refer to Council of Local Authorities for International Relations (2000).
26. For details refer to World Bank (2005b).

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27. See Note 2.
28. State Council, *Guowuyuan guanyu Jianli Chengzhen Zhigong Jiben Yiliao Baoxian Zhidu de Jueding* [Decision of the State Council Concerning the Establishment of a Basic Insurance Scheme for Formal Sector Workers in Cities and Towns], State Council Notice 44, 1998 (http://www.gov.cn/banshi/2005-08/04/content_20256.htm)
29. Hospitalization Insurance Net of Anhui, *Guanyu Jinyibu Wanshan Hefei-shi Jiben Yiliao Baoxian Zhengce Youguan Wenti de Tongzhi* [Notice Concerning Policy Issues Relating to the Improvement of the Basic Medical Insurance Scheme in Hefei City], Joint Policy No. 146 (2001), (<http://www2.ahldt.gov.cn/ylibx/index.htm>)
30. The reimbursement rates are 90% for amounts under 100,000 yuan (95% for retirees) and 95% for 100,000-150,000 yuan (97.5% for retirees).
31. The Basic Medical Insurance scheme for urban employees basically operates using contributions from employers and employees. Because there is no input of public funds, frequent use of the insurance system does not increase the benefits received. However, government funds do flow into the medical institutions that provide the services. Frequent use of the health insurance system is equivalent to frequent use of health care, which means that ultimately the benefits received will be greater. In contrast with the urban sector, providers in the rural sector receive little government funding, but government funds flow into the system in the form of insurance premium payments. This means that the benefits received will increase in proportion to the frequency with which the insurance scheme is used. The formula that applies in both urban and rural sectors is that frequent use of insurance equals frequent use of medical services, which ultimately increases the benefits received.
32. The coefficient of concentration is a concept similar to the Gini coefficient, which is a measure of income inequality. The cumulative number of people ranked in order of income is shown on the horizontal axis, and the cumulative amount of health expenditure on the vertical axis. The coefficient of concentration is double the area enclosed by a 45° slope (Endo [2007]). If the coefficient is greater than zero, the benefits of government expenditure are pro rich. If it is smaller than zero, the benefits are pro poor.
33. For example, the inoculation rates in 2006 for children aged one year or younger were 93% for MCV, 93% for DPT3, and 91% for hepatitis B. China's rates are closer to the averages for the higher middle-income group (94%, 94%, 92%) than those for the lower middle-income group (89%, 89%, 85%). However, China's public health ratios, including access to safe drinking water (88%) and access to hygienic toilet facilities (65%), are close to the averages for the lower middle-income group (88%, 68%). China is positioned in the middle of the lower middle-income group and deserves recognition for the achievement of standards above its income level.
34. State Council, *Guowuyuan guanyu Kaizhan Chengzhen Jumin Jiben Yiliao Baoxian Shidian de zhidao Yijian* [State Council Guidance Concerning the Development of Pilot Township Basic Health Insurance System], State Council Notice 20, 2007 (http://w1.mohrss.gov.cn/gb/ywzn/2007-09/18/content_197212.htm)
35. See Note 3.
36. A survey of 5,000 people conducted by the Beijing Health Security Association revealed that even when medical examinations were carried out in workplaces, 70% of people avoided them out of fear that illnesses would be discovered. Record China, September 28, 2008, "Interiso 7-wari ga shindan ukezu, byoki hakken wo kenen—Chugoku" [70% of Intellectuals Avoid Medical Examinations, Concerned about Discovery of Illnesses—China] (<http://www.recordchina.co.jp/group/g24406.html>). However, it seems more appropriate to attribute this situation not to demand-side ignorance, but rather to a lack of confidence in the medical institutions.
37. The concept of a health transition is based on an integrated interpretation of economic development and related changes in epidemiological patterns in relation to other socioeconomic systems, including demographic, economic and industrial structures. The first stage of the transition is from infectious diseases to lifestyle diseases, and the second stage is from lifestyle diseases to geriatric disease (Hiroi [1994]). Respiratory diseases were traditionally the leading cause of death in rural China, but by 2002 they had fallen back into third place behind cancer and strokes. In the urban sector, respiratory diseases had slipped to third place by 1995, while cancer and strokes had moved into first and second place.

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38. It is not clear whether or not this variation is unique to China. In Japan, at least, there is no conspicuous variation in bed occupancy rates according to the size of the hospital. See Ministry of Health, Labour and Welfare, *Heisei 18-nendo byoin hokoku* [2006 Hospital Report] (http://www.dbtk.mhlw.go.jp/toukei/data/170/2006/toukeihyou/0006424/t0141555/BYO06J0037_001.html).
 39. In developing countries, it is assumed that there will be cases in which the most effective way to reduce mortality rates with limited expenditure is to use funds in urban areas, and that it will be impossible to achieve both efficiency and fairness (McPake et al. [2007]). However, China is improving its rural infrastructure, and there is considerable scope for the improvement of health care systems, as described in this section, so it should not be impossible to achieve improvements in fairness as well as efficiency.
 40. See Note 3.

References

1. Brown, P., de Brauw, A. and Du, Y. (2007), *The New Cooperative Medical System: Does it Help Farmers with Health Shock Maintain Living Standards?*, Colby College
2. Brown, P., de Brauw, A. and Du, Y. (2008), *Understanding Variation in the Design of China's New Cooperative Medical System*, Colby College
3. Capgemini and Merrill Lynch (2008), *Asia-Pacific Wealth Report*
4. Das, Jishnu (2006), *A New Look at Quality of Medical Care in Low-Income Countries*, World Bank
5. Dib, H., Pan, H. and Zhong, H. (2008), "Evaluation of the New Rural Cooperative Medical System in China : is it working or not?" *International Journal for Equity in Health*, July 2008
6. Gao, Qin (2006), *Social Benefit in Urban China*, Research Paper No.2006/117, World Institute for Development Economic Research, United Nations University
7. Hewitt Associates (2006), *Health Care in China*, Hewitt Global Report
8. IBM (2006), *Healthcare in China: Toward Greater Access, Efficiency and Quality*
9. Mathers, C. et al. (2000), *Estimates of DALE for 191 Countries: Methods and Results*, Global Programme on Evidence for Health Policy, Working Paper No.16, World Health Organization (<http://www.who.int/health-info/paper16.pdf>)
10. OECD (2005), *Governance in China*
11. O'Donnell, O et al.(2005a), *Who pays for Health Care in Asia?* EQUITAP Project: Working Paper #1, ERUITAP ("Equity in Asia-Pacific Health Systems")
12. O'Donnell, O. et al.(2005b), *Paying Out-of-Pocket for Health Care in Asia: Catastrophic and Poverty Impact*, EQUITAP Project: Working Paper #1 ERUITAP "(Equity in Asia-Pacific Health Systems")
13. O'Donnell, O. et al.(2005c), *Who Benefits from Public Spending on Health Care in Asia?* , EQUITAP Project: Working Paper #1, ERUITAP ("Equity in Asia-Pacific Health Systems")
14. Poullier, J., Hernandez, P., and Kawabata K. (2002), *National health Accounts: Concepts, Data Sources and Methodology*, WHO/EIP/02.47, World Health Organization
15. Quigyue, M. (2005), *Review of Health Care Provider Payment Reform in China*, World Bank
16. Tabor, S. (2005), *Community-Based Health Insurance and Social Protection Policy*, World Bank
17. Hougaard, J., Osterdal L. and Yu, Y. (2008), *The Chinese Health Care System: Structure, Problems and Challenges*, Department of Economics University of Copenhagen
18. Hong, M. and Xiaolin, W. (2006), *China's Budget System and the Financing of Education and Health Service for Children*, United Nations Children's Fund and Office of the National Working Committee on Children and Women Under the State Council
19. Wagstaff, A., Lindelow, M. et al. (2007), *Extending Health Insurance to Rural Population: An Impact Evaluation of China's new Cooperative Medical Scheme*, WPS4150, World Bank
20. Wang, H et al. (2005), "Community-Based Health Insurance in Poor Rural China: the Distribution of Net Benefits", *Health Policy and Planning*, Oxford University Press
21. World Bank (2003), *East Asia Decentralizes: Making Local Government Work*
22. World Bank (2005a), "China's health Sector-Why reform is Needed", *Rural health in China: Briefing Note Series*
23. World Bank (2005b), *Assessing Government health Expenditure in China* (Final Draft)
24. World Bank (2005c), *Pilot program of NCMS in China: System Design and Progress*
25. World Health Organization (2000), *The World Health Report 2000*
26. World Health Organization (2008), *World Health Statistics 2008*

27. Yan, K. (2007), *Zaisei bunken to chugoku no ken-go zaisei kinou no kubun* [Financial centralization and the categorization of the financial functions of China's counties and townships], (final report from a joint research project on the allocation of roles between central and local governments and the implications for finance, by the Ministry of Finance Policy Research Institute of Japan and the Department of Macroeconomic Research of the Development Research Center of the State Council of China)
28. Endo, H. (2007), *Iryou sabisu no keizaiteki tokucho* [Economic Characteristics of Health Services], in Nishimura, S., Tanaka, S., Endo, H. ed., *Kouza iryou keizai seisakugaku dai-ikkan: Iryo keizaigaku no kiso riron to ronten* [Course on Medical Care Economics and Policy Vol.1: Basic Theories and Issues in Medical Economics], Keiso Shobo
29. OECD (2007), *Health at a Glance: OECD Indicators 2007* (Japanese version translated by Kanegae, Y.)
30. Ogata, H. (2007), *Senshin shokoku no iryo hoshou, teikyou taisei no ruikai ron to seido kaikaku no doko* [Classification of Medical Care Security and Medical Care Provision Systems and Trends in Institutional Reform in Developed Countries], in Tanaka, S., Niki, R. ed., *Kouza iryou keizai seisakugaku dai-rokkan: Iryo seido kaikaku no kokusai hikaku* [Course on Health Care Economics and Policy Vol. 6: An International Comparison of Health System Reform], Keiso Shobo
31. Kajitani, K. (2004), *Zaisei-kinyu kara mita chuo to chiho* [A Fiscal and Financial Perspective on Central and Local Government], in Kato, H., Uehara, K., *Chugoku keizairon* [Theoretical Discussion of the Chinese Economy], Minerva Publishing Co., Ltd.
32. Kubota, M. (2007), *Chugoku no iryo hi koto mekanizumu no bunseki—korei ka to iryo sangyo no kanten kara* [Analyzing the Mechanisms of Rising Medical Care Costs in China—from the Perspective of Demographic Aging and the Medical Care Industry], in *Ajiken Warudo Torendo* No. 142, [Ajiken World Trends], IDE-JETRO Institute of Developing Economies
33. Kenjo, Y. (2007), *Iryo keizaigaku no choryu—shin koten ha iryo keizai gaku to seido ha iryo keizaigaku* [Trends in Medical Care Economics—Neoclassical Medical Care Economics and Institutional Medical Care Economics], in Nishimura, S., Tanaka, S., Endo, H. ed., *Kouza iryo keizai seisakugaku dai-ikkan: Iryo keizaigaku no kiso riron to ronten* [Course on Medical Care Economics and Policy Vol.1: Basic Theories and Issues in Medical Care Economics], Keiso Shobo
34. Ministry of Health, Labour and Welfare (2003), *2002-2003 kaigai josei hokoku* [2002-2003 Report on the International Situation]
35. Ministry of Health, Labour and Welfare (2007), *2005-2006 kaigai josei hokoku* [2005-2006 Report on the International Situation]
36. Council of Local Authorities for International Relations (2000), *Chugoku no chihou gyousei seido* [China's Local Government Systems]
37. Council of Local Authorities for International Relations (2008), *Chugoku no shakai hoshou seido—Shakai hoken wo chushin toshite* [Social Security Systems in China—With Particular Emphasis on Social Insurance]
38. Tokita, T., Nakayama, N. (2001), *Nihon no iryo to koteiki kisei* [Medical Care and Official Regulations in Japan], Discussion Paper No. 26 for the Project on Intergenerational Equity (Priority Research Project), Institute of Economic Research, Hitotsubashi University
39. Shiromoto, R. (2000), *Chuugoku no iryo seido kaikaku* [Medical Care System Reform in China], *Jinmon Shakai Ronso Daiyongo* [Essays on the Humanities and Society No. 4], Faculty of Humanities, Hiroshima University
40. World Bank (2000), *World Development Report 1999/2000—Entering the 21st Century* (Japanese version published by Toyo Keizai Shinposha)
41. World Bank (2004), *World Development Report 2004—Making Services Work for Poor People* (Springer-Verlag Tokyo)
42. World Bank (2006), *World Development Report 2006—Equity and Development* (Japanese version published by Ittoshia)
43. Tsugami, T. (2004), *Chugoku chiho zaisei seido no genjo to mond* [Basic Medical Insurance scheme for urban employeesaiten—kinji no henka o chushin ni] [Current Trends and Issues in Local Government Finance in China—With Particular Emphasis on Recent Changes], *RIETI Discussion Paper Series 04-J-020*, Research Institute of Economic, Trade & Industry
44. Chen, J. (2006), *Chugoku nosonbu no shakai hoshou seido no seibi—iryo seido o chushin ni* [Development of Social Security Systems in Rural China—With Particular Emphasis on Health Care Systems], in *Shakai bunka kagaku kenkyu*, March 2006, Chiba University

-
45. Hiroi, Y. (1994), *Iryo no keizaigaku* [Health Care Economics], Nikkei
 46. Hori, M. (2000), *Iryo hi shiharai hoshiki ga iryo shisutemu ni ataeru eikyo—beikoku no keiken* [The Effect of Payment Systems on Medical Systems—The American Experience], in the *Annual Report of the Public Policy Studies Association of Japan*, 2000, Public Policy Studies Association of Japan
 47. McPake B., Kumarayake, L., and Normand C. (2007), *Iryo keizaigaku nyumon* [An Introduction to Health Economics], University of Tokyo Press
 48. Li L. (2003), *Chugoku no iryo hoken seido kaikaku—keizai taisei kaikaku to no kanren o chushin ni* [Medical System Reform in China—With Particular Emphasis on the Relationship with Economic System Reform], in *Ajia Keizai* [Asian Economics], April 2003, IDE-JETRO Institute of Developing Economies
 49. Han, J., and Luo, D. (2005), *Zhongguo nongcun Yiliao weisheng zhuangkuang Baogao* [Report on Health and Sanitation in Rural China], Development Research Center of the State Council of China
 50. Zhang, L., Yan, Y., Luo, S., and Wang, H. (2006), *Xinxing nongcun hezuo yiliao de shishi xiaoguo fenxi - laizi quanguo wu sheng 101ge cun de shizheng yanjiu* [Benefit Analysis of the New Cooperative Medical Scheme—Based on Corroborative Research in 101 Villages in Five Provinces throughout China], *Shehui jingji pinglun* [Socioeconomic Essays], 26th period