

China's Health System: From Crisis to Opportunity

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At the end of 2002, a mysterious disease silently attacked Guangdong province. A few months later, this lethal infectious disease, first called "atypical pneumonia" in China and later known as Severe Acute Respiratory Syndrome (SARS), broke out elsewhere in China and spread to Hong Kong, Taiwan, and other metropolitan centers of the world.

For China, SARS truly was an unexpected disaster. However, the Chinese response to the problems created by SARS magnified the weaknesses of the Chinese health system. The medical infrastructure in China's capital, Beijing, is the best in the land, but for a long while, it was powerless to deal with the challenges of SARS. What truly struck fear was the prospect of SARS spreading to rural communities that lacked the money, manpower, and facilities to control the epidemic. Even as the immediate crisis of SARS has retreated, the alarm SARS raised for the Chinese health system cannot be ignored. If it is ignored, the heavy price we have paid in this disaster will have been entirely in vain.

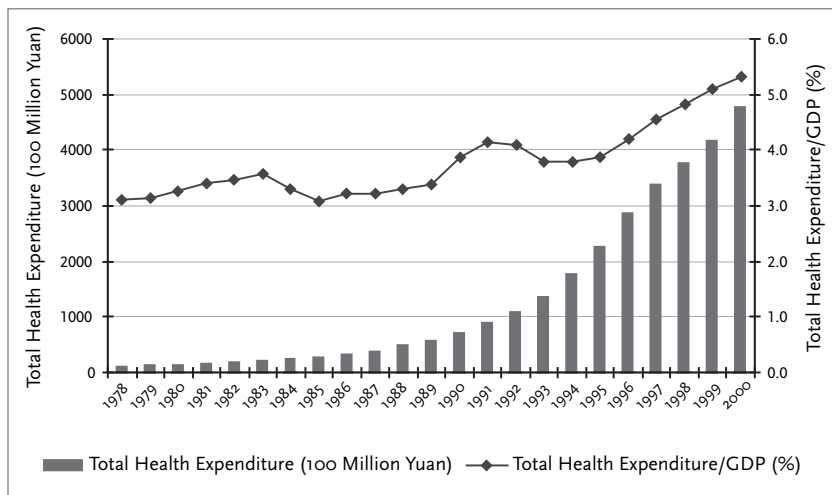
This essay analyzes China's health system, through an overview of its institutional and financial structures. There are five sections. Section 1 asks why, at a time of large-scale rises in overall health spending, China's health status has made only minimal gains and in some areas actually declined. Section 2 identifies two myths about economic growth and market efficiency. In the area of health, these

two beliefs have led to governmental neglect of its responsibilities to counter market failures. Sections 3 through 5 discuss such consequences of this governmental inaction as paralysis of the anti-epidemic system, growing health inequities and reduced effectiveness of the medical system. This overview reveals that China's health system has become not only more expensive but also less equitable and efficient than in earlier decades.¹

Mixed Picture of Uneven Gains and Losses

In discussing the underlying causes of the SARS crisis, some have emphasized low levels of expenditures for health care. Empirical data on changes in spending, however, support a different interpretation. Over the past two decades China's total spending on health has grown rapidly and, at 5.7% of GDP, now exceeds the world average of 5.3% of GDP (see Figure 1). In 1990, China's total health spending totalled 70 billion yuan, but by 2000, it had soared to 476.4 billion yuan. Parallel with the rising expenditures on health have been major improvements in China's health infrastructure. Compared to 1990, China in the year 2000 had 21.2% more beds in its hospitals and health centers, and 15.2% more trained health workers. Compared to 1995, in 2001 the number of health facilities, including clinics, rocketed by over 70%.

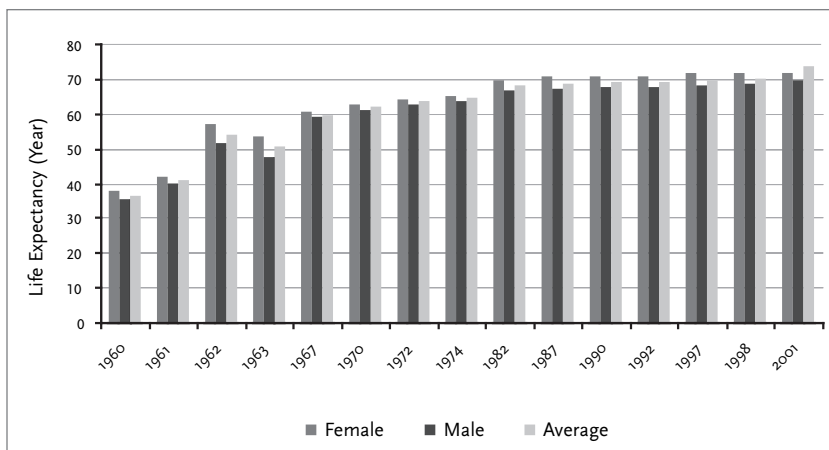
FIGURE 1: CHINA'S TOTAL HEALTH EXPENDITURE



Given this rising level of investment, one would expect to see a major improvement in the health status of China's people since 1990, but in fact the gains have been uneven. There are two indicators that are commonly used internationally to measure a nation's health status. One is average life expectancy; the other is

the infant mortality rate (IMR). China's government officials often proudly point out that China's life expectancy has increased from around 35 years before 1949 to 71.8 years in 2001, higher than the average for the whole world (65 years) and for middle-income countries (69 years). At the same time, the infant mortality rate has decreased from about 200 deaths per thousand live births (200‰) before 1949 to the current level of 32‰; the world average IMR is 44‰, and for middle-income countries it is 30‰. These officials are right to be proud for, based on these health indicators, the general health status of China's people now matches the level of a middle-income country. However, it is easy to overlook a simple fact: this magnificent accomplishment primarily took place in the 1960s and 1970s, and there have been only minor improvements since 1980 (see Figure 2).

FIGURE 2: AVERAGE LIFE EXPECTANCY

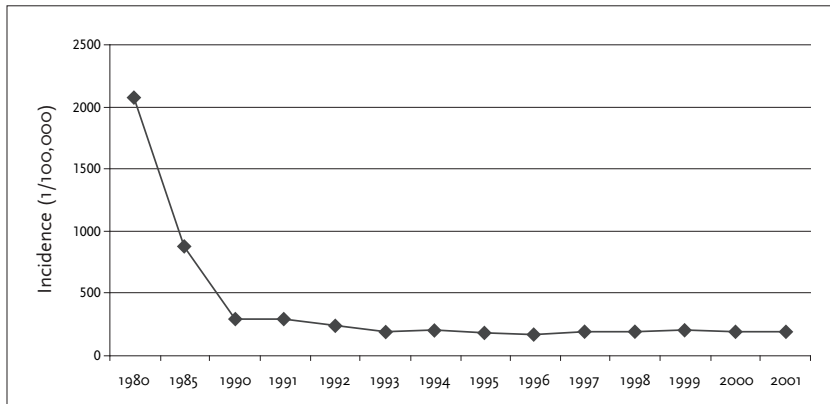


Some may say that once life expectancy approaches age seventy, further gains come more slowly. Yet trends in five countries or regions in the Asia-Pacific indicate otherwise (see Table 1). From 1980 to 1998, China's average life expectancy rose by two years, but Australia, Hong Kong, Japan, New Zealand, and Singapore, which started from a higher base, increased their average life expectancy by 4 to 6 years. Sri Lanka, whose base was similar to China's, increased average life expectancy by 5 years. Similar disparities can be seen in changes in infant mortality rates.²

TABLE 1: CHANGES IN HEALTH INDICATORS

	Life Expectancy		IMR		Changes in Life Expectancy	Changes in IMR
	1980	1998	1980	1998		
China	68	70	42	31	2	-11
Australia	74	79	11	5	5	-6
Hong Kong	74	79	11	3	5	-8
Japan	76	81	8	4	5	-4
S. Korea	67	73	26	9	6	-17
Malaysia	67	72	30	8	5	-22
New Zealand	73	77	13	5	4	-8
Singapore	71	77	12	4	6	-8
Sri Lanka	68	73	34	16	5	-18
Low Income Countries	51	55	108	79	3	-29
Middle Income Countries	64	69	53	30	5	-23
High Income Countries	73	77	15	6	4	-9
World Average	61	65	67	44	4	-23

FIGURE 3: INCIDENCE OF LEGALLY REPORTABLE INFECTIOUS DISEASES



In the second half of the 1990s, there were more and more signs that the Chinese health system was experiencing strain. For decades, China had been a model in reducing incidence of infectious diseases. In the 1950s, the incidence of legally reportable infectious diseases was 3,200 cases per 100,000 population (3,200/100,000); by 1990, the incidence rate had declined to 292/100,000 (see Figure 3). Thereafter, progress slowed, and in some areas, rates turned upward. Tuberculosis (TB) is an example. In the first 30 years after the founding of the PRC, the incidence of TB decreased 60–70%; in the subsequent 20 years, even as health expenditures rose and therapy was more advanced, TB incidence actually increased.³ It is estimated that approximately 400 million Chinese have been ex-

posed to the tuberculosis bacterium, of which almost 10% will develop the disease. At present, there are 5 million cases of pulmonary TB, the second highest total in the world, and approximately one-quarter of all TB cases worldwide. Moreover, a large proportion of these people are infected with drug-resistant tuberculosis.⁴ Viral hepatitis leaves even less room for optimism, for its incidence is higher than that of TB, and shows no signs of coming down. China at present has more hepatitis B carriers than any other country.⁵

In addition to TB and hepatitis, sexually transmitted diseases such as gonorrhea and syphilis, which had been virtually eradicated, have reached epidemic levels throughout China (Table 2). Since its introduction from outside China, Acquired Immune Deficiency Syndrome (AIDS) has spread rapidly, with the number of people infected with Human Immunodeficiency Virus (HIV), the virus that causes AIDS, increasing by 30% each year. According to the latest official numbers, China has 1 million people infected with HIV. Even if we accept this conservative estimate, the number of infected persons could reach between 10 and 20 million by the year 2010 if the growth in new infections is not brought down, giving China a rather inglorious claim to being first in the world. The few thousand cases of SARS currently cause great consternation, but SARS pales in comparison to the potential tragedy posed by AIDS.⁶

TABLE 2: INCIDENCE OF SEVERAL INFECTIOUS DISEASES (1/100,000)

	1995	1997	1999	2000	2001
Tuberculosis		32.73	39.03	41.68	44.06
Viral Hepatitis	63.57	64.35	68.93	63.04	65.15
Gonorrhoea	11.64	12.87	20.63	18.31	14.62
Syphilis	0.54	1.68	4.16	4.73	4.56
AIDS	0	0.01	0	0.01	0.03

The situation with endemic diseases is also problematic. On the one hand, the number of people suffering from Kashin-Beck disease, Keshan disease, and iodine deficiency has declined. On the other hand, schistosomiasis⁷ has returned after several decades of falling incidence. Before 1949, China had more than 20 million people who suffered from schistosomiasis. In the 1950s and 1960s, the Chinese government led people in the endemic areas to launch a “people’s war” to eradicate schistosomiasis, achieving the virtual elimination of this disease. But in the latter part of the 1980s, schistosomiasis returned. As seen in Table 3, the number of counties where schistosomiasis has become endemic has steadily increased. In some places, such as Duchang County in Jiangxi, and Jingzhou, Shashi, Jiangling, Huangshi, and Yangxin Counties in Hubei, the situation is especially grave.⁸

TABLE 3: IMPACT OF SCHISTOSOMIASIS

	No. of Infected Counties	Population in Infected Areas (in million)	No. of Infected People	No. of Cured People	No. of Counties That Have Largely Eliminated the Disease
1995	391	6,189.5	927,514	339,512	222
1997	404	6,667.5	790,851	294,373	234
1999	409	10,454.5	366,784	309,856	238
2000	413	8,471.0	694,788	356,885	243
2001	418	9,903.0	820,776	367,057	247

In addition, China confronts serious occupational diseases, increased incidence of mental illness, a suicide rate far above the international average, and a worsening of food safety and the environment. These additional public health issues, however, will not be discussed here for the sake of brevity.⁹

Before 1980, China's economic base was weak and the material standard of living was very low; nonetheless, in the field of public health, China was a model for the entire developing world. In 1949, China's health indicators ranked among the lowest in the world; by the late 1970s, China had become a nation with one of the most comprehensive systems of health safety nets, with 80–85% of the population enjoying access to primary health care. Since the start of the post-Mao economic reforms, China has experienced twenty years of sustained economic growth, and science and technology have made considerable progress. As noted, over these 20 years, per capita health spending has increased greatly. In these circumstances, one would expect major gains in health care. The results, however, have been disappointing. In 2000, the World Health Organization (WHO) ranked its 191 member nations on the overall performance of their health systems. China was ranked 144, worse than Egypt (63), Indonesia (92), Iraq (103), India (112), Pakistan (122), Sudan (134), and Haiti (138); Why is it that, despite a stronger economic base, a higher scientific and technical level, and greater expenditures, many indicators of the nation's health document no improvement or even decline? This question should have been a cause for reflection long ago. The SARS crisis serves as a warning: if we further delay this soul-searching, worse disasters could happen at any time.

Flaws in the Guiding Ideology

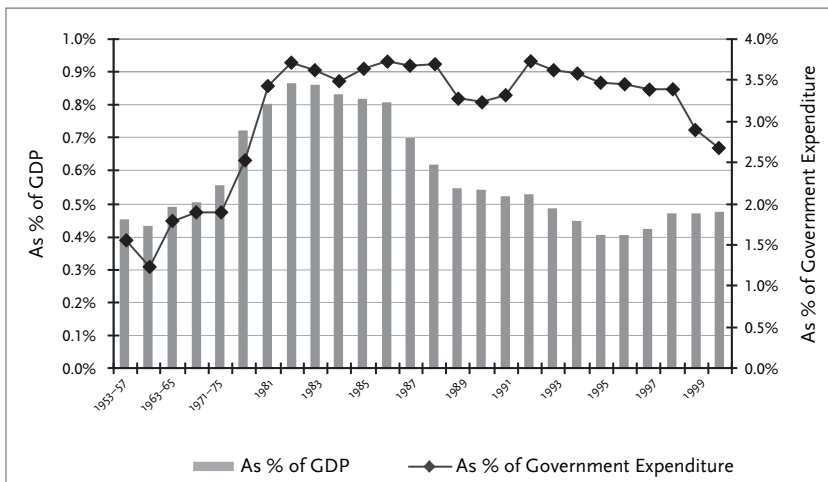
China's Ministry of Health must bear part of the responsibility for the worsening of public health in China. But more important causes lie within the ideology guiding the overall reforms.

The Myth of Economic Growth

The word “development” originally referred to comprehensive economic and social progress; it certainly never was limited to economic growth alone. But recently, when government representatives declared that we should “use development to solve the problems created as we move forward,” they appear to presume that as the economy grows and the “pie” gets bigger, all other problems will automatically be solved. Although the government has never stated openly that public health is not important, its allocation of public funds clearly tells us that public health is not a priority.

Government health spending, which mainly includes operational spending and capital spending, as a proportion of total government spending and of the GDP, both increased from 1953 to 1957, the First Five Year Plan Period, through the late 1970s (1976–1980, the Fifth Five Year Plan Period) (see Figure 4). Both reached their historically highest levels in the early stage of the reform period in the early 1980s. Since then, although the absolute amount of government input in health increased, it actually started a period of rapid decrease as a percentage of overall government spending, and only by the late 1990s did it level off at a level lower than prior to the economic reforms. We observe the same decrease of government health spending as a percentage of GDP since the start of the economic reforms, although in a more dramatic fashion, and this decrease only started to reverse slightly in the past 4–5 years. Looking at the distribution of government spending over the past 20 years, health does not appear to be a priority.

FIGURE 4: GOVERNMENT HEALTH SPENDING



We are not saying that economic growth will never improve the common welfare (including public health). When the fruits of economic growth are shared by everyone in the society, the welfare of the public will be improved. However, when these fruits are enjoyed solely by certain segments of society, growth alone, no matter how fast it is, cannot lead to an improvement for the entire society. As early as the 1970s, this problem aroused the interest of development scholars, and there is no end of examples. Unfortunately, the painful lessons of other countries have been totally ignored, as China for the past 20 years has devoted itself to “the wholehearted pursuit of development” (in fact, it has been “the wholehearted pursuit of economic growth”). Yes, economic growth is absolutely important, but social justice is perhaps even more important. The former is the means, the latter is the end. The means should serve the end; we must never reverse this, letting the end serve the means.

Precisely because the goals are vague, China’s reforms have changed from a “win-win game” to a “zero-sum game.” If it is true that before 1992–93 every social group benefited to a greater or lesser extent from the reforms, thereafter the benefits of reform gradually became concentrated within the hands of certain segments of society, while the costs of reform were borne by the majority who are farmers and workers. Following China’s transformation from a highly egalitarian society to a highly inegalitarian one, economic growth has become separated from improvements in public welfare. After 1993, China’s economy has grown by an average of 8–9% annually, but at the very same time, China’s public health has worsened, and social crises intensified. We are now tasting the bitter fruits of these changes.

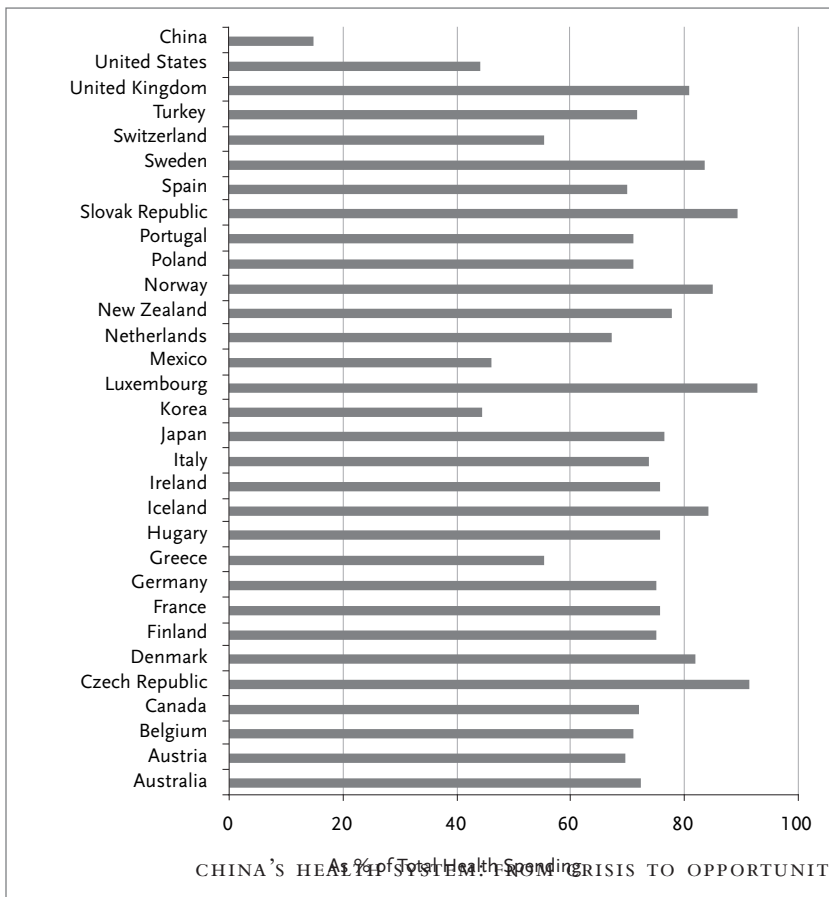
The Myth of the Market

Health reform began in the 1980s. The problems faced then shared the characteristics of an “economy of shortages”; it was said, for example, that “it is hard to see a doctor, it is hard to get admitted to the hospital, and it is hard to have an operation.” To relieve this mismatch of supply and demand, health reforms in the 1980s concentrated on expanding the supply of health services and revitalizing the internal operating mechanisms of health institutions. To this end, the government issued a series of policies to encourage expansion in the supply of health services. For example, the State Council approved the Ministry of Health’s “Report Seeking Instruction on Permitting Individuals to Open and Operate Medical Practices” (1980), “Report on Several Policy Questions in Health Work” (1985), and “Opinions on Problems Related to Expanding Medical and Health Services” (1989). Following the rapid expansion in the scale of health operations and significant improvements in hospital equipment, the problem of access to

doctors, hospital admissions, and operations was basically solved for urban and rural residents.

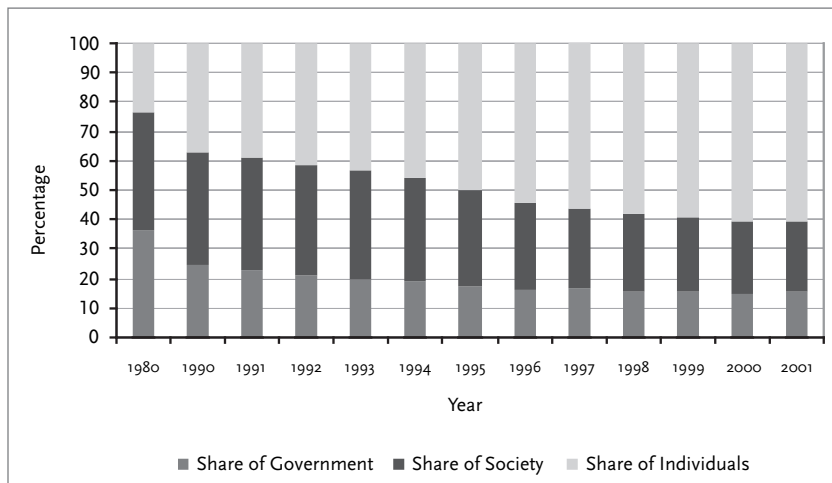
After the 1990s, when the development of a market economy became the established goal, health services were gradually forced into the market. The core of reforms in health insurance was establishing mechanisms to share burdens, so that the state need not try to manage everything. The focus of reforms within health institutions was revising the pricing system of the health services, creating the so-called “rational reimbursement mechanisms,” and reform of pharmaceutical production and distribution concentrated on introducing competitive mechanisms. Behind all of these reforms lay an unstated premise: the market would increase the efficiency of resource allocation, including health resources. However, Figure 5 shows that in countries that belong to the Organisation for Economic Co-operation and Development (OECD), the great majority of health costs are borne by the state. Of these 30 countries, the governments’ share of costs is less than 70% in only five countries.

FIGURE 5: PUBLIC SHARE OF HEALTH SPENDING
IN OECD COUNTRIES, 2000



What is the situation in China? As shown in Figure 6, in the first stage of the reforms, the government's budgeted health spending was 36% of total health expenditure. By 1990, it had dropped to 25%, and by 2000 to only 14.9%. At the same time, the share paid by society (work unit-supported health care) dropped from 44% to 24.5%. Conversely, the proportion of total health spending borne by citizens steadily increased. In 1980, it was 23% of total health expenditures; by 2000, it had reached 60.6%. In other words, individuals paid the increase in China's health spending over this period. No wonder ordinary people felt that their health burden was becoming heavier and heavier.

FIGURE 6: COMPOSITION OF CHINA'S TOTAL NATIONAL HEALTH EXPENDITURE



When comparing China to other countries, we discover that individuals pay the highest share of costs (see Table 4). In the year 2000, when total health spending in China was 5.3% of GDP or slightly higher than the WHO's recommended lower limit of 5%, individual citizens paid 60.6% of this amount. By contrast, citizens in the developed countries paid only 27%. Even if developed countries are excluded, as is the case when we compare China to the poorest counties, the Chinese government's contribution is especially low. If the governments of the world's poorest countries can pay almost 60% of total health expenditures, what excuse can there be for China, with its flourishing economy, not to do as well?

TABLE 4: BREAKDOWN OF HEALTH SPENDING IN DIFFERENT ECONOMIES, 2000

	Health Spending (% of GDP)	Individual Contribution (% of total)	Government Share (% of total)
China	5.3	60.6	39.4
Developed Countries	8.5	27	73
Transitional Economies	5.3	30	70
Poorest Countries	4.4	40.7	59.3
Other Developing Countries	5.6	42.8	57.2
World Average	5.7	38.2	61.8

Whether health costs are borne by individuals or by the government is certainly not just a question of whether money comes out of the left pocket or the right. If health costs are primarily borne by individuals, the distribution of income and wealth largely determines whether people receive necessary health care. Unless income and wealth are fairly distributed among all social groups, economic inequality will inevitably become health inequality. Health inequality will in turn affect the health status of the entire nation. When medical costs are primarily borne by the government, even poor people can enjoy a minimum level of health care and the overall health status of the population improves.

Faith in economic growth and the market have created errors in the ideology guiding reform. Although we might say that errors in the ideology were without apparent consequences in the 1980s, with the passage of time disastrous effects have become more and more evident. Despite economic prosperity, the result has been a succession of crises. With specific regard to the health sector, one observes governmental dereliction of duty and market failures. As a result of the market's allocation of resources, health outcomes have become less fair and resources are used less efficiently. In the next three sections, we will examine three major consequences of government and market failures.

“Stress Treatment, not Prevention”: The Public Health System Collapses at the First Blow

For a long period after the founding of the PRC, the government's emphasis in its health work was on the prevention and eradication of infectious diseases and similar basic public health services. The slogan then was “Prevention First.” Through this emphasis on prevention and the use of low-cost medical technology, despite a low level of economic development, China was able to guarantee basic health services to its entire people, thus creating the “China model” which became famous throughout the world.¹⁰ Widespread access to this primary health

care and the fairness of the system greatly improved the health status of China's urban and rural residents.

However, since the 1980s, the focus of health work quietly shifted from the villages to the city, from an emphasis on prevention to an emphasis on treatment, and from low costs to high technology and high costs. Although the government continued to pay lip service to "Prevention First," urban health care became its real priority. It was relatively easy for hospitals to get government approval for the purchase of very costly major medical equipment. In the past 10–15 years, the upgrading and replacement of major medical instruments have been very rapid, with a significant improvement in equipment. Now almost all hospitals attached to ministries have equipment rarely seen in the 1980s: > 800mA X-ray machines, CT, ECT, color ultrasound, and kidney dialysis. More than 50% of provincial hospitals have these five types of equipment. The level of equipment in prefectural-, prefectural city-, and county-level hospitals is not as high as in large cities, but a fair number of them also have advanced medical equipment.¹¹ With the general improvement of medical instruments, the ability of hospitals to diagnose difficult cases has been enhanced, with a corresponding drop in the rate of misdiagnoses. These changes should certainly be applauded. However, the excessive faith in high-level technology has diverted precious health funds to costly advanced medical equipment, reducing the funds available for other health areas. In fact, the amount spent in certain large cities on health resources has already reached or surpassed the level in advanced countries. The gamma knife is a good example: the gamma knife was invented in Sweden, but there is only one such device in the whole country. China has at least 34 (the number reported to the Ministry of Health). The same is true for CT and some other instruments: the number of machines on a per capita basis is higher in some Chinese cities than in major European and American cities. What is even more unfortunate is that, in some areas, the supply of major equipment is greater than the demand, such that the machines are under-utilized, thereby wasting health resources.¹²

In stark contrast, funds for disease prevention and surveillance remain in short supply. Frequently there are no financial inputs unless the disease is spreading widely. And as soon as the epidemic has passed, funds are cut off immediately: it seems that "the god of wealth" disappears along with the "god of plague." The fundamental cause of this situation is the transformation of the health system into a for-profit enterprise. In order to maximize profits, every level of health institution is focused narrowly on gathering every possible crumb of profit, totally neglecting the effect of this on the "big picture." Because the income from prevention is much lower than that for curative services, who would choose to focus their efforts on prevention?

Preventive departments do not get sufficient government allocations, and are thus unable to get new equipment for disease surveillance. In most of the villages in central and western China, many public health institutions at the county level and below have not upgraded their laboratory instruments in many years; some are barely able to pay salaries to their workers. Under these circumstances, they can hardly be expected to control infectious diseases and epidemics. Due to the lack of funds, many public health institutions, in order to ensure their survival, are forced to expand profitable services. A large number of health stations are thus forced to concentrate their efforts on opening outpatient clinics, filling hospital beds, and other profit-generating services. The epidemic prevention stations, in the name of “health inspection,” assess a variety of fines in order to survive. This has drastically lowered the ability to prevent and control large-scale epidemics. Public health, particularly in many villages, is on the verge of collapse. At present, government allocations to county level preventive health services cover only approximately one-third of their expenses; the rest of their funding derives from the income from professional services. With a serious lack of government inputs, only one-third of the county and lower level public health institutions are functioning more or less normally; another third is struggling on the verge of collapse, and the final third has already fallen apart.¹³ This shows us that China’s preventive health safety net has already disintegrated. Why, during the SARS crisis, were leaders at every level so afraid of the epidemic spreading into the countryside? Because they finally realized the enormous risks from neglecting disease prevention.

Because epidemic and infectious diseases threaten more than the immediate victims, disease prevention is the responsibility of governments. Only by guaranteeing that the disease prevention system can “eat the emperor’s grain” (i.e., have reliable government funding) can it focus effectively on its mission. Disease prevention is somewhat similar to national defense. National defense cannot be abandoned just because there has not been any war: “Soldiers are trained for a thousand days, but used for only an hour.” As soon as an enemy appears, the justification for funding an army in time of peace becomes apparent. Even the absence of an enemy threat does not signify that there is no need to support the nation’s defenses. It is very possible that it is precisely the strength of the nation’s defenses that discourages enemies from rashly invading. By the same logic, everyday disease prevention operations will require a certain amount of money, but it is still more economical than having to pay enormous sums after an epidemic has broken out. A few years ago, China’s military was asked to “be patient,” and there were large cuts in the military budget; the result was that the military had to be allowed to go into business, foraging, as it were, to support itself. The resulting slackness in the military was a very painful lesson. The SARS epidemic has taught us a very sound lesson in the costs of neglecting public health.

Serious Unfairness in Health Care

In the year 2000, WHO assessed the health system performance of its 191 member nations on three outcomes (see Table 5). China was ranked 188th for fairness in financial contribution, the fourth country from the bottom, only slightly better than Brazil, Burma, and Sierra Leone. India, which China has long regarded as a country with extremely large gaps between rich and poor, was ranked 43rd and Iraq, which had been subjected to almost ten years of economic sanctions, stood at 56th. All other countries with large populations, such as Pakistan, Indonesia, Egypt, and Mexico, ranked above China.¹⁴ For a self-styled “socialist” country, this truly was a great humiliation.

TABLE 5: RANKING OF THE FAIRNESS IN FINANCIAL CONTRIBUTION, WHO HEALTH REPORT, 2000

Country	Ranking	Country	Ranking
Germany	7	Pakistan	63
Japan	9	Indonesia	73
Sweden	14	Mongolia	97
Cuba	24	Egypt	126
France	27	Mexico	144
India	43	Russia	185
USA	54	China	188

We cannot simply explain away this ranking by blaming the WHO for not understanding China or having prejudices. Twenty years earlier, the same organization was full of praise for China’s public health system. Without doubt, China’s health sector truly has problems. China’s own statistics to a large extent confirm the WHO’s assessment. The inequality in China’s health system primarily manifests itself in three areas: gaps among regions, among urban and rural areas, and among social classes.

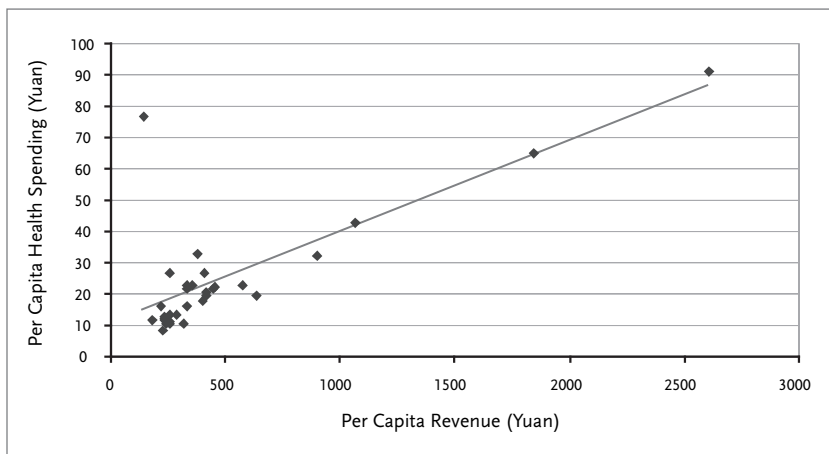
Regional differences

In recent years, China’s regional differences have aroused great interest both at home and abroad. Until the present, most research on these gaps has tended to emphasize the economic differences.¹⁵ In fact, the health gaps are not inconsiderable.

Regional differences in health can first be seen in the distribution of health spending. As discussed above, health spending has two main components: government allocations according to budgeted health expenditures and the spending of individuals on health-related costs.

It stands to reason that budgetary allocations for health should not contain very large regional disparities. After all, the government's responsibility is to provide generally similar basic public services, including health, for all of its citizens, regardless of where within the country they live. But this is not the case in China, where the source of health spending is primarily the local government, not the central government. For example, in 2001, total government spending on health was 54.6 billion yuan, of which only 3.543 billion yuan (6.5%) came from the central government. The remaining 51 billion yuan came from local governments within the provinces. This pattern determines that the level of per capita health spending in each province is the result of its financial strength. This is clearly shown in Figure 7. There is a strong correlation between each province's per capita spending on health and its per capita revenue, such that almost every data point lies on the correlation curve.

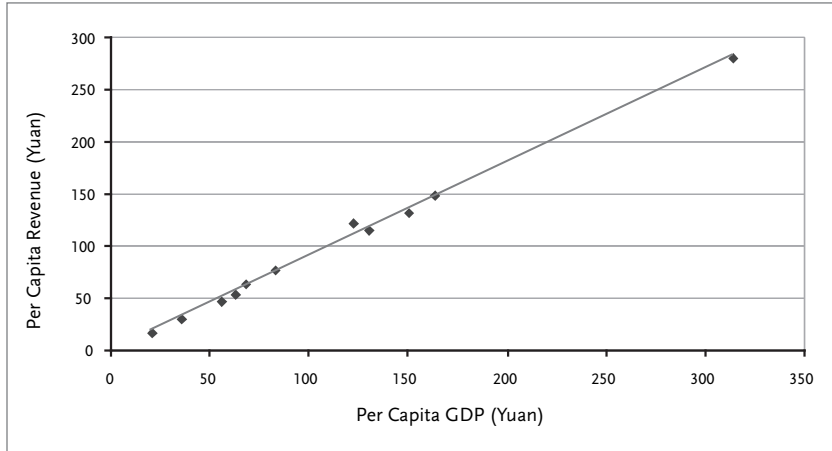
FIGURE 7: PER CAPITA REVENUE AND HEALTH SPENDING, 1998



What then determines the level of per capita revenue? The answer is obvious in Figure 8: the stronger the economy and the higher the per capita GDP, the higher the per-person revenue. Since the 1980s, when China began implementing the system of fiscal responsibility contracts—“eating in separate kitchens”—the level of public welfare benefits provided by each province for its residents has been determined by the level of economic development. The nation as a whole lacks an effective payment transfer system to balance the level of public services in each area, including health care. After implementing the “tax-sharing” system in 1994, there have been some improvements. But central government funds remain inadequate, and the forces necessary to push for inter-regional payment transfers are lacking. As a result, per capita spending on health, education, and other ser-

vices differs greatly by province. In Figure 7, we can see that in 1998, the highest level of per capita health spending was 90 yuan (Shanghai) and the lowest was 8.5 yuan (Henan). This ten-fold gap in spending is as different as heaven and earth.

FIGURE 8: PER CAPITA INCOME AND REVENUE, 1998



Year after year, the distribution of per capita government health spending has remained unequal, and over time we see increased disparities in staff and equipment. Figures 9 and 10 show how per capita government health operational spending relates to the number of hospital beds and the number of doctors per 1000 people. In provinces where the government health spending is higher, there are more beds and doctors per 1000 people.

FIGURE 9: PER CAPITA GOVERNMENT SPENDING ON OPERATIONAL HEALTH COSTS AND PER CAPITA HOSPITAL BEDS, 1998

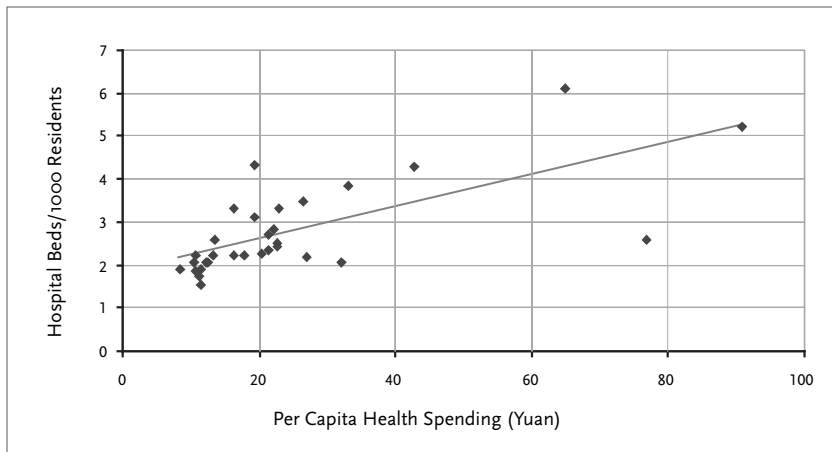
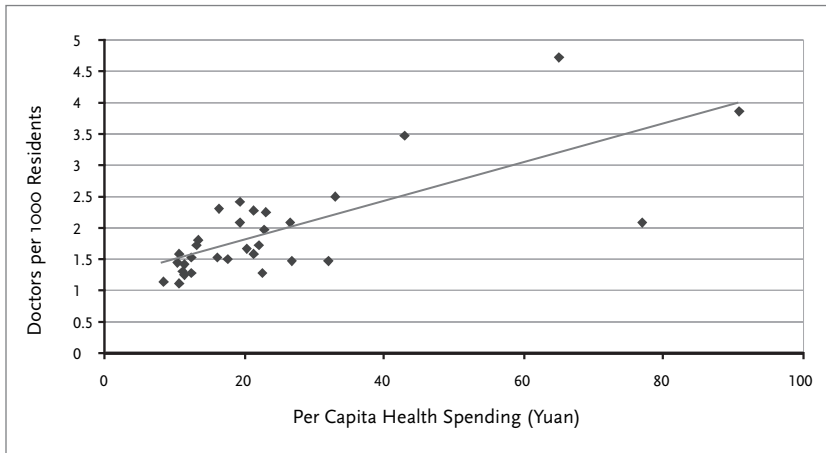


FIGURE 10: PER CAPITA GOVERNMENT SPENDING ON OPERATIONAL HEALTH COSTS AND NUMBER OF DOCTORS PER CAPITA, 1998



Of course, there were regional disparities 20 years ago, but they were far smaller than they are now. Figure 11 compares the number of hospital beds per thousand people at the start of the reforms and now. In 1982, Shanghai had the highest (4.33) and Guangxi had the lowest (1.39), but the gap was only a 3.1-fold difference. By 2001, Beijing had the highest bed number, with 6.28 beds per thousand; in the province with the lowest number, Guizhou, there were only 1.51 beds per 1,000 people, a 4.2-fold difference. In these 20 years, medical conditions have improved significantly in Beijing, Shanghai, and Tianjin (three cities directly under the central government control), and in the coastal provinces. But the central and western provinces have not been so fortunate: their improvements have been on a much smaller scale (e.g., Guizhou, Tibet, and Qinghai); in some provinces (Hubei, Hunan, Jiangxi, and Xinjiang) there has even been a slight decline in the number of beds.

The discussion above centered on problems with government health spending. While shortfalls at this level are significant, they represent only a small portion of the total national spending on health. What individuals themselves spend on health is the greatest share of expenditures. It can be easily seen that what individuals pay on average for their health care in each province depends entirely on their average income. The disparity in health spending by individuals is as large as the economic disparity among provinces. Given these large regional disparities in both government allocations for health and individual spending on their own health needs, it is inevitable that health indicators should show similar regional variation. If we use life expectancy as the indicator for evaluating the overall health status of different areas, we discover a correlation between each province's

per capita GDP and life expectancy (see Figure 12). The highest life expectancy is 77 and the lowest is 63.5 years. Compared to the categorization of other countries, the medical facilities and health indicators for China's provinces serve to prove the conclusion of Hu An'gang: China contains within itself "four worlds."¹⁶ Beijing and Shanghai are on a par with developed countries; the three northeastern provinces and the coastal provinces are comparable to the eastern European countries; the central and western provinces are somewhat better than most developing countries; some of the western provinces are a bit worse than most developing countries, but are better off than the least developed countries (see Table 6).

FIGURE II: REGIONAL VARIATION IN THE NUMBER OF HOSPITAL BEDS

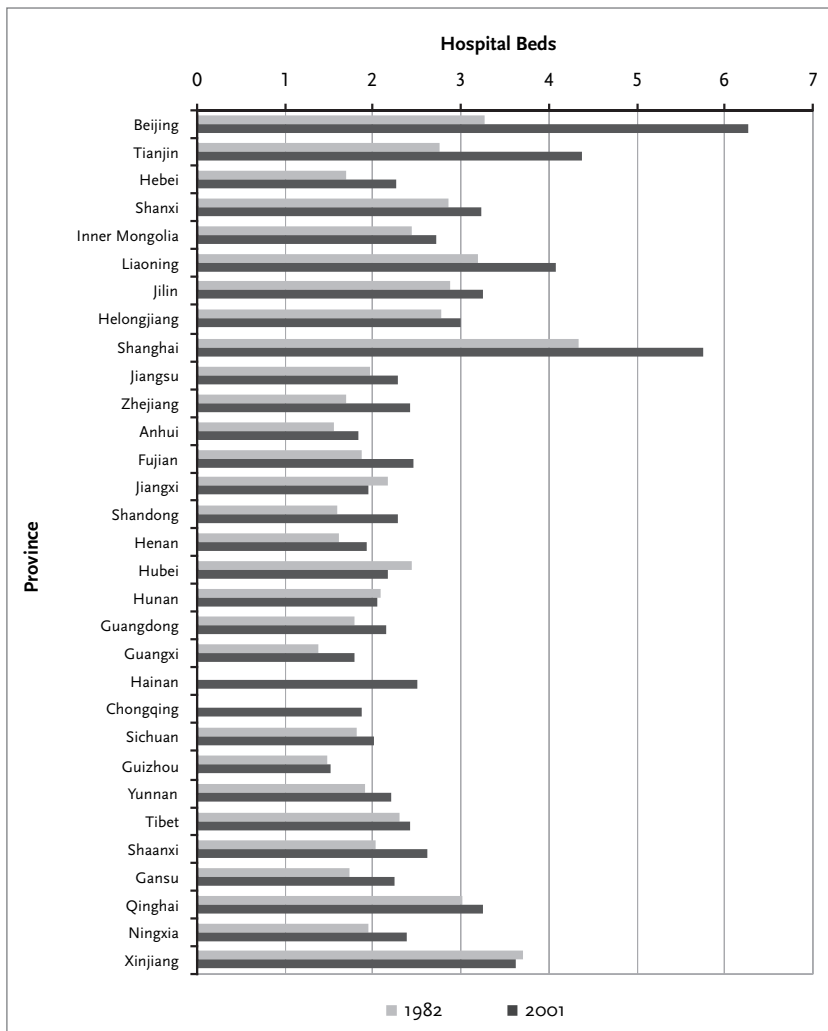


FIGURE 12: PER CAPITA GDP AND AVERAGE LIFE EXPECTANCY, 1998

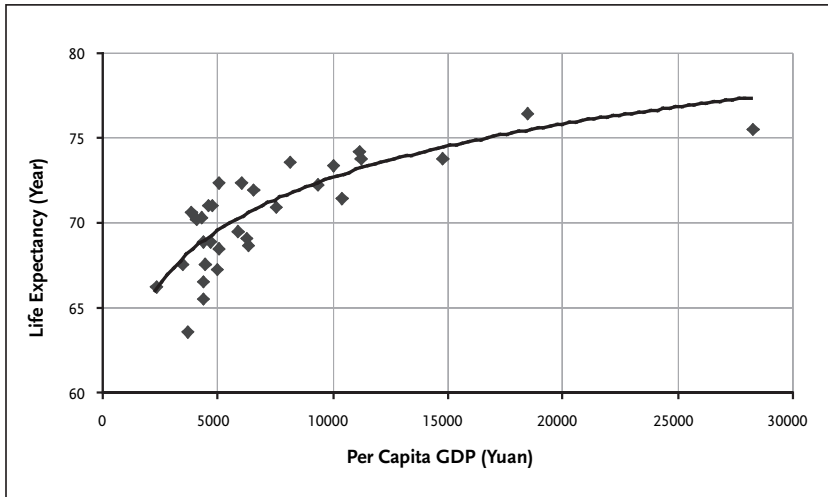


TABLE 6: ONE CHINA, FOUR WORLDS

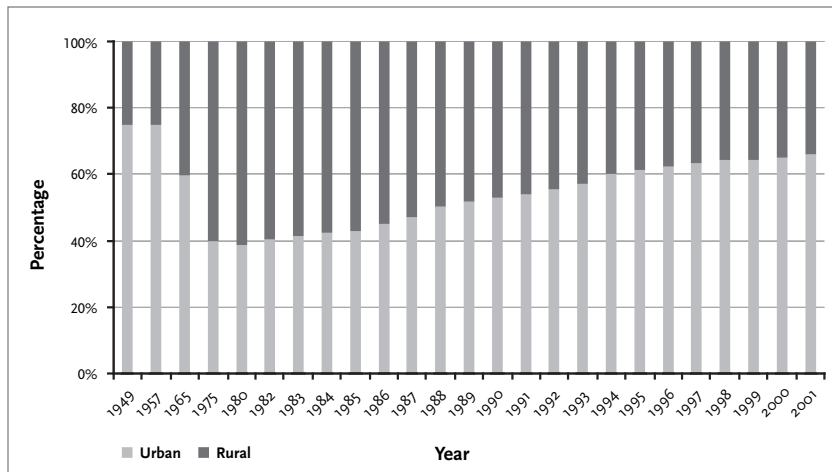
	Life Expectancy	Doctors per 1,000	Hospital Beds per 1,000
Beijing	76.41	4.62	6.28
Liaoning	72.72	2.45	4.08
Hubei	68.67	1.72	2.17
Tibet	63.53	1.99	2.43
Developed Countries	78.6	3.14	8.57
Transitional Countries	68.4	2.99	6.53
Developing Countries	67.3	1.12	2.08
Poorest Countries	52	0.14	0.67

Urban-rural differences

Before 1949, China’s villages had little access to doctors and medicine, infectious and endemic diseases were rampant, and the health status of the great majority of peasants was very low. After the founding of the PRC, the government vigorously promoted rural health at the same time that it was developing the economy, creating grassroots-level health organizations on a very widescale and thereby improving the health status of villages. However, Chairman Mao was still not satisfied with the pace of progress. On June 26, 1965, he issued the famous “6-26 Instructions,” calling for “the focus of medical and public health work to be shifted to the villages.” This reversed the previous situation, in which medical resources “stressed the cities, not the countryside.” The distribution of hospital

beds throughout China can serve as an example: in 1965, only 40% of the beds were in the countryside, but by 1975, only 10 years later, the proportion reached 60% (see Figure 13). This fundamental change greatly altered medical conditions in the countryside. At the same time, large numbers of professionals from the big cities formed medical teams which rotated in and out of the countryside, playing a major role in improving the ability of grassroot health organizations to prevent and treat disease, and in training barefoot doctors. At the end of 1968, Chairman Mao gave his approval to promoting the experience in the cooperative medical system of Leyuan Commune, Changyang County, Hubei Province. This rapidly gave rise to a wave of Cooperative Medical Systems (CMS) throughout China.¹⁷ By 1980, about 90% of the production brigades (comparable to the present day administrative villages) were implementing CMS, forming part of a three-tiered (county, township, and village) health services network that combined prevention, treatment, and health maintenance. In addition to 510,000 regular doctors, the network included 1.46 million barefoot doctors, who continued their regular work in the production brigades, 2.36 million production team health workers, and 630,000 village midwives.¹⁸ This health revolution in the Chinese countryside basically realized the goal of “treating minor diseases in the village, and major diseases in the township.” The WHO and the World Bank praised the “Chinese model,” which allowed “the greatest health benefits for the smallest inputs.”¹⁹

FIGURE 13: URBAN AND RURAL DISTRIBUTION OF HOSPITAL BEDS



Of course, even during this period there were still health disparities between the city and countryside, but much smaller than earlier. What happened after the economic reforms began?

Let us look first at government health spending in urban versus rural areas. China not only has a binary economy, it also has a binary society, with town and country separated by the residence permit system. This has resulted in a corresponding binary system of government financing: most of the government's revenue comes from the urban economy, and so government spending, especially for public services, primarily goes to urban residents. After the implementation in the 1980s of the financial policy of "eating in separate kitchens," government funding for rural health care was further weakened. According to the division of power practiced then for government financing, government funding was transferred level by level to the province, county, and township governments to spend as they saw fit; at the same time, it was required that health system funds be allocated by the local government. Because the evaluation of government officials at every level is based on their achievements with regard to economic efficiency, rural health work has never received sufficient attention. In addition, in many places the government coffers are bare, such that when the county and township governments prepare their budgets, health spending is cut back again and again. Even when funds are appropriated to health, they frequently are held back or used for other purposes. In 1994, public financing reforms introduced the tax-sharing system, leading to some improvement. Nonetheless, public funding for rural health remains weak. We do not have systematic statistics for the urban-rural distribution of government health spending, but the figures for the single year 1998 can perhaps illustrate the problem. In that year, total health spending nationwide was 377.65 billion yuan, of which the government's input was 58.72 billion yuan. The amount spent for rural health, 9.25 billion, was only 15.9% of the government's input.²⁰ In that year, the city and town population was approximately 379 million people; each person on average enjoyed the equivalent of 130 yuan of government health services; the rural population was 866 million, but each person received the equivalent of 10.7 yuan of health services. City people received 13 times what country people did. For a government to treat its citizens so differently is rarely seen elsewhere in the world.

Let us turn to health insurance. At present, medical insurance accounts for about one-quarter of total health spending. China's current health insurance system also contains the same seriously unfair disparities between town and country. People working in cities and towns formerly enjoyed either government-funded health care or labor health insurance; in 1998, even though only slightly higher than half of the urban residents (56%) were covered by some form of medical insurance, this was still much higher than the 13% of the rural population who had some form of medical insurance.²¹ In 2000, the cost of health insurance for workers in enterprises was about 60 billion yuan; the cost was about the same for those employed in government administrative or public service (schools, hospitals,

etc.) work units. Together the sum was about 116.8 billion yuan. However, at 1670 yuan per person, this large amount of money covered only about 70 million urban residents, less than 6% of China's 1.3 billion people.²² At the same time, the vast majority of rural residents did not have any health insurance, and health costs were entirely borne by individuals.

As described above, the rural Cooperative Medical System, as implemented by China in the past, won great international praise. However, since the introduction of the contract system with remuneration linked to output, the family has become the basic production unit in the countryside. At the same time, the government has adopted a *laissez faire* attitude towards cooperative medical care. Having lost the support of policy, the decline of the collective economy also undermined the economic base which the CMS needed for survival, leading to its rapid collapse. Two years after the dissolution of the people's communes, a survey conducted in 1985 showed that the proportion of administrative villages remaining in the CMS plummeted from 90% in the past to 5%; in 1989, this proportion fell to 4.8%. The only places one could still find the CMS were primarily in the outskirts of Shanghai, and in southern Jiangsu, an area noted for its collective economy.²³

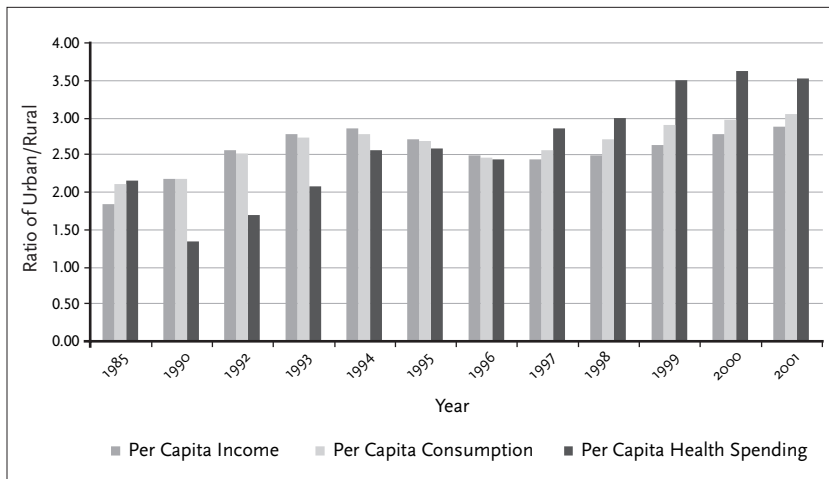
At the beginning of the 1990s, the Chinese government pledged to the World Health Organization to improve rural primary health care by the year 2000.²⁴ To this end, the government proposed the task of "restoring and reconstructing" the Cooperative Medical System. However, this appeal did not produce a response among most peasants and most of the cooperative medical pilot projects failed because the government had no intention of taking on responsibility for the peasants' medical insurance. Instead, the government insisted that "the primary source of funding should be individuals, then collective assistance, and then appropriate support from the government." In reality, few governments at the county and township levels had the fiscal resources to "support" rural health insurance. The result is that peasants bear the entire burden.²⁵ Therefore, after ten years of effort, the rural CMS has not been restored, and the coverage rate has never exceeded 10%. According to the "Second National Health Services Survey" conducted by the Ministry of Health in 1998, only 12.68% of rural residents nationwide received any level of medical insurance, and of this, the proportion receiving cooperative health care was only 6.57% (see Table 7). In other words, 87.32% of rural residents received no form of publicly funded medical insurance, and relied entirely on their own resources for medical care.²⁶ The former Minister of Health, Zhang Wenkang, admitted that even this pitifully small level of coverage was far from secure; all too often, health programs like this get off to a fine start but soon collapse.²⁷

TABLE 7: HEALTH INSURANCE IN THE COUNTRYSIDE*

	Average	Categories of Countryside			
		I	II	III	IV
1993					
Cooperative Health Care	0.1	0.35	0.02	0.04	0.02
Self-paid	84.11	64.14	88.1	95.4	83.07
1998					
Cooperative Health Care	6.57	22.22	3.61	1.61	1.83
Self-paid	87.32	71.79	92.53	94.78	81.49

* For statistical purpose, the Chinese government often divides rural communities into four categories, ranging from the richest Category I to the poorest Category IV. While Category I villages concentrate along the east coast, Category IV villages cluster in mountainous areas in the west.

FIGURE 14: THE URBAN-RURAL DISPARITY



Finally, let us look at people’s out-of-pocket expenses. Figure 14 shows three sets of data for urban-rural disparities in per capita disposable income, per capita consumer spending, and per capita health spending. As early as 1985, there was already a two-fold gap in per capita health spending between town and country, but this was roughly similar to the gaps in the other two indicators. Entering into the latter half of the 1990s, the gap in per capita health spending greatly exceeded that for per capita disposable income and per capita consumer spending, reaching a more than 3.5-fold difference. Using 2001 as an example, the per capita health spending of rural residents was 96.61 yuan, versus 343.3 yuan for urban residents,

a 3.55-fold difference, even as urban incomes were 2.9 times greater than rural net income. Adding together the disparities in government's budgetary allocations, medical insurance, and individual spending, we have the total disparity in urban-rural health spending. In 2000, health spending in China totalled 476.397 billion yuan, of which 22.5% was spent in rural areas where 63.8% of the population live. In other words, less than one-fourth of China's health spending went to two-thirds of China's population, while the one-third of the population living in the cities benefited from more than three-fourths of the spending.²⁸ It goes without saying that this inequity is totally contrary to the ideals of socialism; it contradicts even the most minimal notions of equality. Even more disquieting are the trends. According to our calculations, in 1993, rural health spending was 34.9% of the national total; in 1998 it fell to 24.9%,²⁹ and in 2000 it was only 22.5%; over 7 years the total health spending in rural areas dropped almost 2% each year. If this trend continues, what fate awaits the rural component of health care?

Health spending inequalities will inevitably manifest themselves in an unequal distribution of health resources. From Figure 13 we can see that after 1982, the focus of health work started to shift to the city. From 1982–2001, the number of hospital beds in China increased from 2.054 to 2.976 million, a 44.9% increase. During this period, urban hospital beds increased by 135.3%, from 832,000 to 1.959 million, however in rural areas they fell from 1.221 to 1.017 million. As a result, the rural share of hospital beds declined from 60% in 1982 to 32.2% in 2001, a percentage lower than the 40.2% in 1965. In 1965, Chairman Mao criticized the Ministry of Health as an “urban fat cat (chengshi laoye) Ministry of Health”; it seems that history is repeating itself.

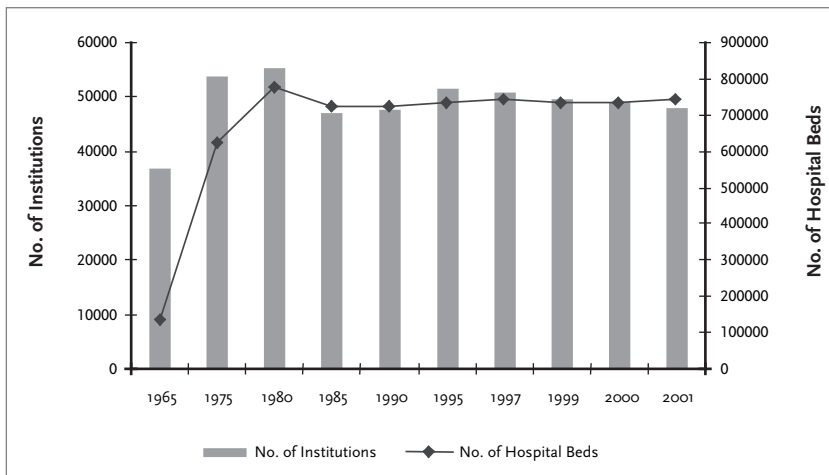
There is more. Among cities, health resources are concentrated in large cities; and within large cities, the resources are concentrated in the large- to medium-sized hospitals. By contrast, rural hospitals are severely under-funded, their equipment is out-of-date, and the capacity of their staff is far below urban standards. Moreover, within rural areas, improvements have been concentrated in county-level health facilities. Below the county level, the township and village clinics face a series of crises.

A three-tiered referral system of village, township, and county facilities once defined rural medical and preventive health care and played an essential role in the first health revolution. In this system, the township health center played the pivotal role in mediating between the village and county institutions. It also took leadership for preventive health care, basic medical care, health surveillance, health education, rehabilitation, family planning, and other basic health services. The village health clinic provided the initial point of entry, offering villagers safe and convenient diagnosis and treatment of common diseases, and thereby playing a

key role in public health and preventive health care. However, since the 1980s, large numbers of health professionals have left the countryside to return to the city, causing a large drain on the rural health workforce. In addition, the financial weakness of rural governments has reduced subsidies for township and county health centers and their existence is threatened.³⁰

According to the Minister of Health, one-third of rural health centers are very good, one-third are just getting by, and the remaining third have basically fallen apart. The very good rural health centers are concentrated in the eastern coastal provinces, while the rural hospitals in western China are in unbearably sad condition.³¹ Many localities, under the name of “reform,” have already leased out county and township health centers or even auctioned them off into the hands of private individuals. Rural hospitals still nominally in operation frequently have difficulty carrying out their work. Due to the lack of government funding, the township health centers have difficulty retaining staff and they rarely are able to upgrade their equipment;³² they thus have difficulty providing the health services that the people need. A lack of patients leads to a lack of health center income, a lack of income leads to a lower standard of service, and a lower standard of service leads to an even greater lack of patients. The consequence is that many township health centers are trapped in a downward spiral, where they must keep open with the decrease in funding but see quality of care decline (Fig 15).

FIGURE 15: CHANGES IN THE NUMBER OF TOWNSHIP HEALTH CENTERS AND THE NUMBER OF HOSPITAL BEDS AT THESE FACILITIES



The health resource used most often by the great majority of rural residents is the village health clinic, but in many places, the village clinic is in a state of

paralysis. The explanation is simple: after the collapse of the collective economy, many villages could not even pay the salary of village health workers; the best solution was to let the village doctor contract to take over the clinic, or simply to break up the clinic and leave the workers to their own devices. At present, about 50% of village health clinics around the country have become privately run medical clinics.³³ From Figure 16, we see that the number of village doctors now is only two-thirds the number in 1975, and the number of health workers has dropped from 3.28 million in 1975 to 270,000 in 2001. Furthermore, the number of midwives has declined by half, from 615,000 in 1975 to 322,000 in 1997. During this time, the rural population increased in absolute terms. The result of these opposing trends is that the number of village doctors and health workers per thousand people dropped from 1.55 in 1985 to 1.41 in 2001 (see Figure 17). Besides the relative reduction in the number of health workers, the capacity of those remaining is of concern. A large proportion of the village-level health workers received only a short period of training some 30 years ago, during the high tide of the Cooperative Medical System. Even though they have received some continuing education, in the marketized world they now live in, they are either unwilling or unable to provide basic health services in the village, such as preventive health care, reporting of infectious disease, etc.

The dissolution of the cooperative medical system has severely affected the health-seeking behavior of rural households: the damage to the three-tiered health net has allowed the resurgence of communicable diseases which had previously been eradicated or brought under control. In addition, the growing gap between urban and rural incomes has meant that urban-rural health disparities, rather than becoming smaller, have become greater. With regard to the pattern of diseases, cities are characterized by chronic, non-communicable diseases, while in the countryside, particularly in the villages of central and western China, the primary problems remain infectious diseases and malnutrition. The gap between urban and rural in the health of mothers and children is even more obvious. The rural maternal mortality and infant mortality rates consistently exceed urban rates (see Figures 18 and 19). Before 1995, the urban-rural disparity in these rates had been shrinking. But after 1995, the rates plateaued and by the late 1990s, the gap showed signs of widening.

FIGURE 16: CHANGES IN THE NUMBER OF VILLAGE DOCTORS, HEALTH WORKERS, AND MIDWIVES AT THE VILLAGE CLINICS

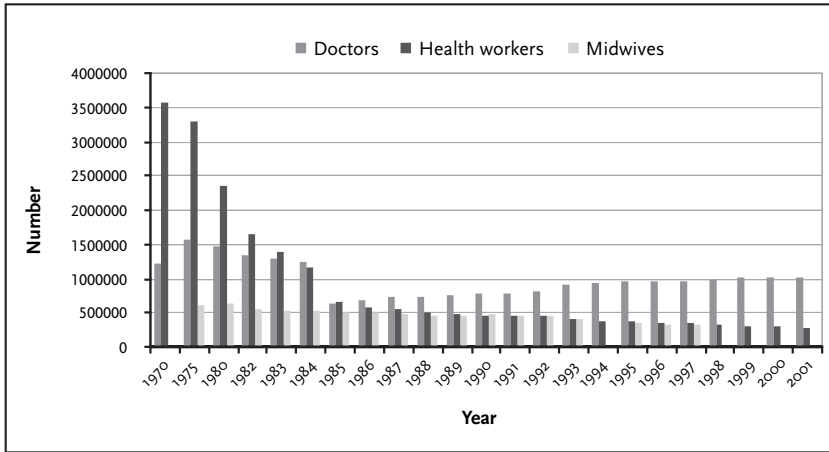


FIGURE 17: CHANGES IN THE NUMBER OF VILLAGE DOCTORS AND HEALTH WORKERS

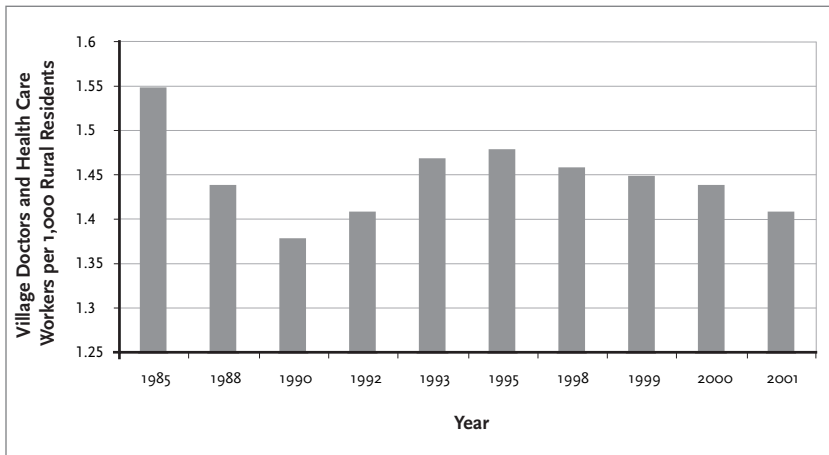


FIGURE 18: THE URBAN-RURAL GAP IN MATERNAL MORTALITY

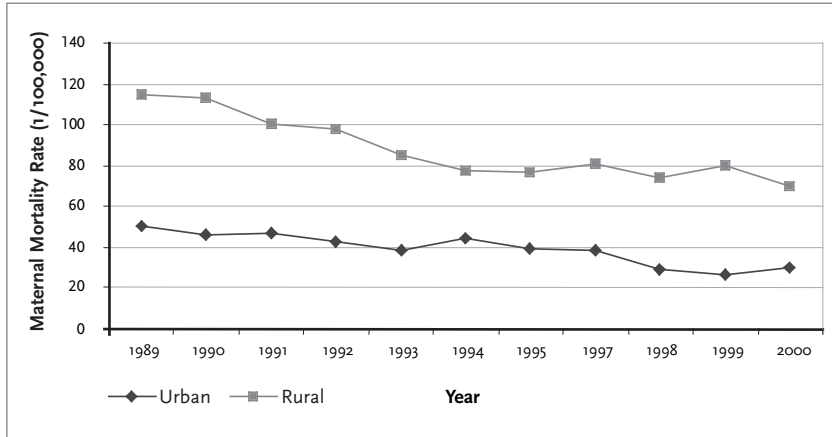


FIGURE 19: THE URBAN-RURAL GAP IN INFANT MORTALITY

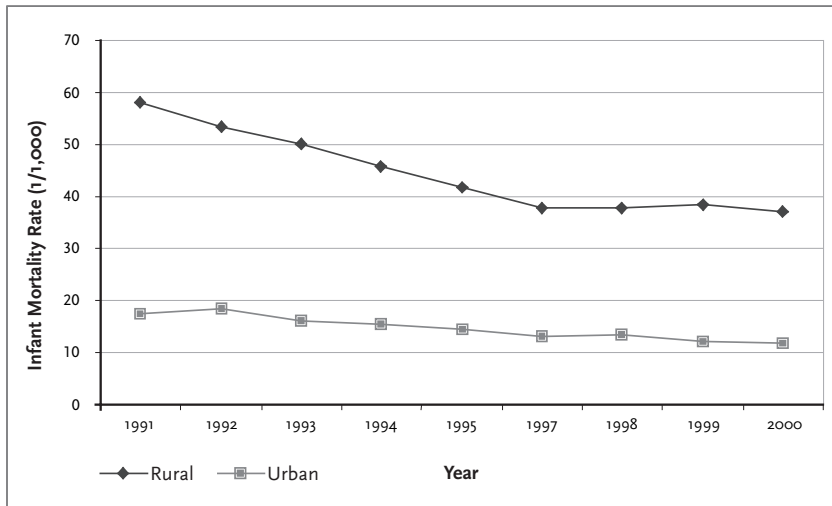
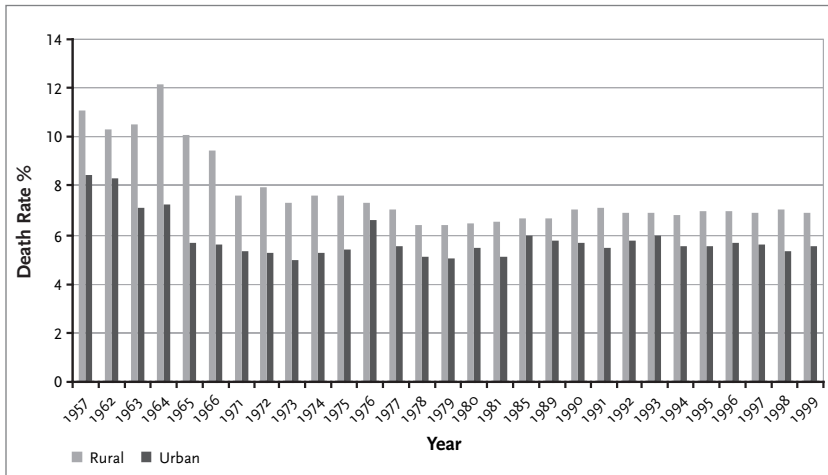


FIGURE 20: THE URBAN-RURAL GAP IN POPULATION MORTALITY



The data for population mortality tell a similar story (see Figure 20). From 1957 to 1980, rural mortality rates were declining at a faster pace than the city, narrowing the gap between city and country. But after 1980, there has been virtually no change in the rural mortality rate, whereas the urban mortality rate has shown some decline. As a result, in the more than 20 years of reform, the gap in the mortality rate has widened between city and country. One observes parallel outcomes in life expectancy. Using data from the 5th National Census of 2000, I calculate average life expectancies of 75.21 years in the cities and 69.55 years in the countryside, a gap comparable to that between high and middle-income countries (see Table 1).³⁴

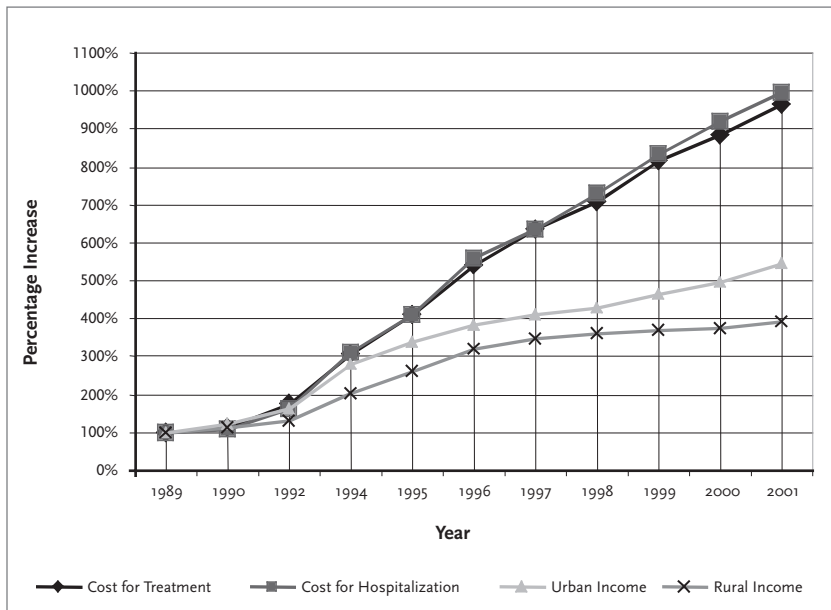
Class disparities

Influenced by the overall extension of the “contracting system” advocated by economic reforms, the health sector began during the mid-1980s to emphasize independent management and responsibility for profits and losses. Within health institutions, the government advocated application of the principle of “to each according to his labor, with more pay for more work.” Following the decline in government subsidies, health care became commoditized and policy makers increasingly ignored or downplayed the public welfare role of health enterprises. Prioritizing “efficiency,” health institutions began to regard profit maximization as their goal. The phrases of the Maoist era—“save the dying and aid the injured”—now had to submit to the market’s baton. Motivated by profit, outpatient and hospitalization fees soared.³⁵ Motivated by profit, many doctors became the middlemen for pharmaceutical companies, finding any excuse to sell unneeded medicine to patients. Motivated by profit, some medical facilities provided

unnecessary treatment for minor problems and dispensed medicine in the absence of a problem. Motivated by profit, some effective but unprofitable treatments went unused.

Failures of the government and the market have raised medical expenses and in the past decades, medical costs have risen far more quickly than has individual income. For example between 1989 and 2001, when urban residents' income increased 544% and rural incomes rose 393%, the cost for treatment and hospitalization increased by nearly 1000% (see figure 21). Even when we factor in the relatively lower costs of rural health services in comparison to urban health services, the increase in rural health spending outstrips that for city residents.

FIGURE 21: SURGE IN HEALTH COSTS VS. INCOME LEVEL



It is clear that the large increase in medical costs will have a different impact on populations with different levels of income, both in the city and the country. “The Second National Health Services Survey” (1998) examined separately the average incomes for different income levels in the city and country, average consumer spending and health spending (see Table 8). In urban areas, populations with annual incomes below 1000 yuan faced serious shortfalls in income versus expenses; those with an annual income from 1–2000 yuan had incomes slightly below expenses; those with annual incomes greater than 2000 yuan basically had incomes exceeding expenses. A further analysis of the proportion of total expenses spent on health reveals that the lower the population’s income, the greater the

proportion that was spent on health. In villages, populations with income below 500 yuan per year are severely unable to make ends meet, those with income between 500 and 1000 yuan per year can barely make it, and only those with income about 1000 yuan per year have income exceeding expenses. As in the city, the lower the income, the greater the proportion of expenses that goes to health.

TABLE 8: URBAN AND RURAL INCOME AND CONSUMER SPENDING
BY INCOME GROUP, 1998

Income Groups	% of the Population	Average Income	Average Spending	Health Spending as % of Average Spending
Urban				
<1000	3.45	722	1318	8.57
1000-	14.27	1497	1571	8.32
2000-	37.35	2873	2602	7.49
4000-	22.85	4642	3987	6.82
6000-	12.98	6504	5069	6.87
8000-	4.93	8558	6371	6.61
≥100000	4.76	14946	7945	6.37
Rural				
<500	4.18	325	642	11.38
500-	16.22	739	742	11.94
1000-	24.98	1186	1050	9.93
1500-	17.1	1664	1381	9.29
2000-	21.31	2307	1734	8.69
3000-	11.34	3570	2487	8.05
≥5000	4.86	7332	3839	7.15

The market favors “consumers” capable of paying. And as two recent national health services surveys document, the marketization of health care creates many access barriers (see Table 9 and Table 10). First, we see evidence of decrease in access by considering the rise in the percentage of people not seeking care. “Not seeking care” refers to people who are sick but do not seek care in a health facility. In 1998, a third of sick people were unable to seek treatment because of economic difficulties. In addition, the more economically undeveloped the area, the higher the percentage of the sick who did not seek care. In 1993, at least for urban residents, whether or not one sought care was not greatly influenced by income level. But, by 1998, low income severely limited people’s health-seeking behavior. Most strongly affected were the employees of failing enterprises, laid-off workers, unemployed people, and their families.

TABLE 9: PROPORTION OF PATIENTS “NOT SEEKING CARE”
FOR ECONOMIC REASONS

Survey	Category of City			Category of Countryside			
	Large City	Medium City	Small City	I	II	III	IV
1993	3.21	2.4	9.58	15.1	21.36	19.55	24.42
1998	36.69	23.48	42.96	30.09	31.67	42.29	38.72

TABLE 10: PROPORTION OF PATIENTS NOT HOSPITALIZED FOR
ECONOMIC REASONS

Survey	Category of City			Category of the Countryside			
	Large City	Medium City	Small City	I	II	III	IV
1993	34.09	33.78	53.47	47.95	63.15	61.14	67.72
1998	53.12	58.43	70.77	63.8	54.12	70.26	69.38

In general, if the disease is not serious, doctors will not ask patients to enter the hospital. But the 1993 and 1998 “National Health Services Surveys” both document that a large proportion of patients who should have been hospitalized were not, and that the most important reason for not being hospitalized was fear of being unable to pay the hospitalization fee (see Table 10). The proportion of rural people unable to be hospitalized for financial reasons is even higher than in the city; the same holds true for small cities versus large cities, and villages in western and central China versus those in the eastern coastal areas. Similar to the problem of people needing medical care who do not seek treatment, there were many more people not hospitalized for financial reasons in 1993 as compared to 1998.

There is yet another category of patients who have been hospitalized but ask to be discharged before treatment is finished. In large cities, 30.46% of all discharged patients fit this category, and in under-developed villages, they reach 48%. Why should they rush to be discharged when they are not yet well? Financial difficulty is the main reason: in large cities, 35.66% of the prematurely discharged patients did so for this reason, and in poor villages this proportion is 80% (see Table 11).

TABLE II: PROPORTION OF EARLY DISCHARGES DUE TO FINANCIAL REASONS

	Patients who ask for early discharges (%)	Those who ask for early discharges due to financial reasons (%)
Large City	30.46	35.66
Medium City	35.18	46.89
Small City	45.86	53.77
Country I	37.08	56.3
Country II	48.41	54.1
Country III	46.39	59.3
Country IV	48.21	79.94

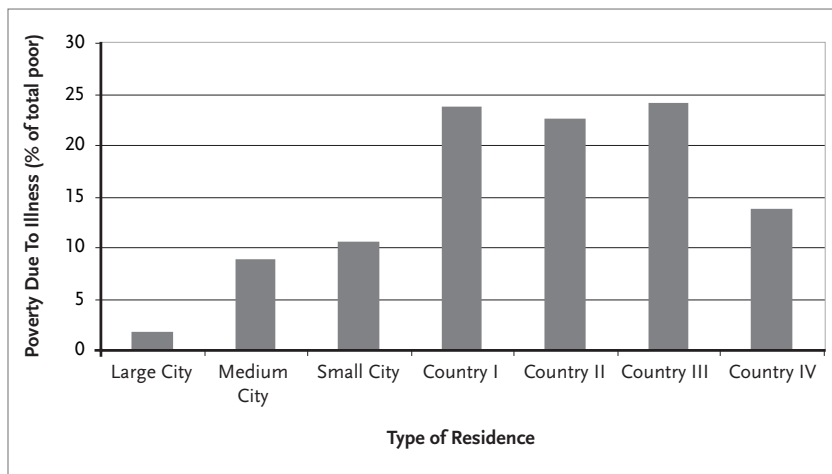
The three tables above show us that behind China's macro-level economic prosperity, there is a relatively large segment of poor households which cannot access the existing health care system. When they are sick, they do not dare see a doctor; when they are seriously ill, they do not dare enter the hospital; and when they are in the hospital, they rush out before they are well, afraid of being crushed by the heavy financial burden. Comparison between the results from the 1993 and 1998 Ministry of Health Health Statistics Center's multivariate analyses demonstrate how quickly income has become the decisive factor in determining which people receive hospital care in urban areas. In the multivariate analysis using 1993 data, income level, access to health services, and the health insurance system did not have much of an influence on the rates of seeking treatment and hospitalization for city-dwellers. But in the model using the 1998 data, income level, employment status, degree of poverty, and health insurance status (insured or not) had a highly significant effect on the rates of seeking treatment and hospitalization. Among rural patients, economic factors were already decisive in 1993, but had a stronger effect in 1998 than in 1993.

Marketization of medical services started in rural areas and only became pervasive in the cities during the mid-1990s. It would seem that marketization has been markedly effective in allocating medical services according to ability to pay: the high income classes enjoy international level, first-class medical care, while the low income classes have no choice but to endure minor health problems and put off dealing with major ones.

The consequence of "enduring minor diseases and delaying treatment of major ones" is that minor health problems become major ones, and major health problems lead to the loss of the ability to work and even the bankruptcy of the family. More and more evidence indicates that the malicious cycle of "poverty due to illness" is becoming a prominent social problem in China's cities and villages. Massive medical bills or the loss of the ability to work has brought many

people's standard of living below the poverty line. The "Second National Health Services Survey" in 1998 found that disease and injury were the major cause of rural poverty. At least for the present, disease is not a major cause of urban poverty, but in medium- to small-sized cities, about 10% of poor people are poor because of illnesses. But in the villages without any health insurance whatsoever, one case of major illness can sink a once well-off family into dire straits, and make a once poor family absolutely impoverished. The percentage of illness-caused poverty is thus 22% of the total poverty in rural areas (see Figure 22). In fact, in some provinces the role of illness in aggravating rural poverty is much more serious.³⁶ Government surveys of typical rural families in Hubei, Jiangsu, and Guangdong have shown that up to 30% of poor families are poor because of illness; in Henan, Shaanxi, Sichuan, and even counties surrounding Beijing, 40–50% of all poor families are poor because of illness;³⁷ and in Qinghai, the proportion reaches 50%.³⁹ The heart-rending expression of rural people—"we don't fear being poor, just getting sick"—stems precisely from the serious threat that illness poses not just to poor people's health but also to their very livelihoods.

FIGURE 22: MEDICAL IMPOVERISHMENT IN CHINA, 1998



Decreased efficiency in health institutions

In the previous section, we discussed the unfairness of China's health system. Is the system also inefficient? Many people think that fairness and efficiency are mutually exclusive; sacrificing some fairness for the sake of increasing efficiency is worth it in the end. The problem is that as fairness was being sacrificed, marketization actually lowered, rather than increased, the efficiency of health institutions.

According to health statistics, in the past few years the number of inpatient and outpatient visits in China's health facilities has declined, despite the continuing increase in the population. In 2001, the total number of outpatient visits (person-times) to hospitals and clinics was 2.087 billion, 0.483 billion fewer than the 2.57 billion visits in 1992. Could it be that Chinese people's health has improved, so they are getting sick less often? This is clearly not the case: the biweekly sickness rate for people in towns and the countryside increased from 140.1 per 100,000 people in 1993 to 149.76 per 100,000. The explanation for the decline in in-patient visits is very simple: medical costs continue to climb, surpassing the ability of many people to pay, thus effectively suppressing the demand of urban and rural residents for medical services.

At the same time that there is a reduced number of inpatient cases, there has not been much of an increase in the number of hospitalizations, but the number of health care workers continues to grow, resulting in an inevitable waste of medical resources. This can be seen from three indicators: the average number of patients a doctor sees in a year, the number of hospital bed-days per doctor, and the hospital bed occupancy rate. Figure 23 shows that compared to the 1980s, the first two indicators showed a decline: patients per doctor per year fell from 1652 in 1989 to 1180 in 2001, and the hospital bed-days per doctor per year declined from 767 to 509 in the same period. The hospital bed occupancy rate also showed a marked decline. In the 1980s, the occupancy rate was consistently above 80%, but since the 1990s, the rate has continued to decline, and it has reached the present rate of 60% (Figure 24).

FIGURE 23. AVERAGE ANNUAL WORKLOAD OF DOCTORS

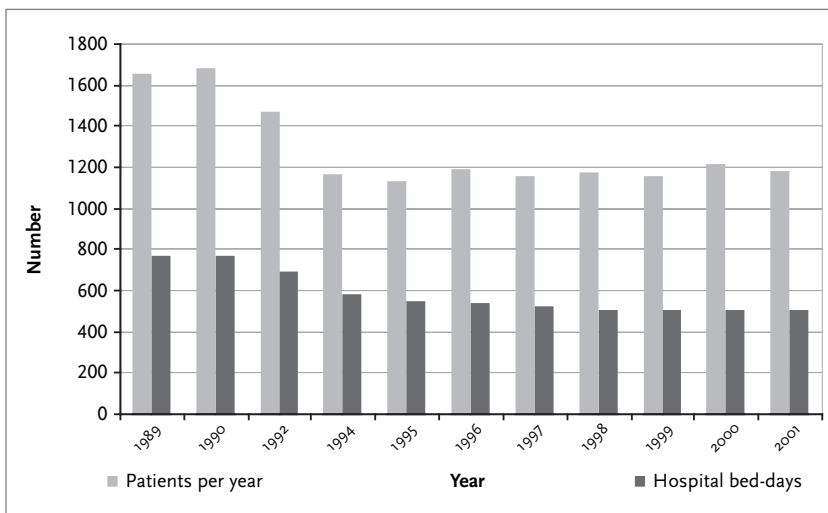
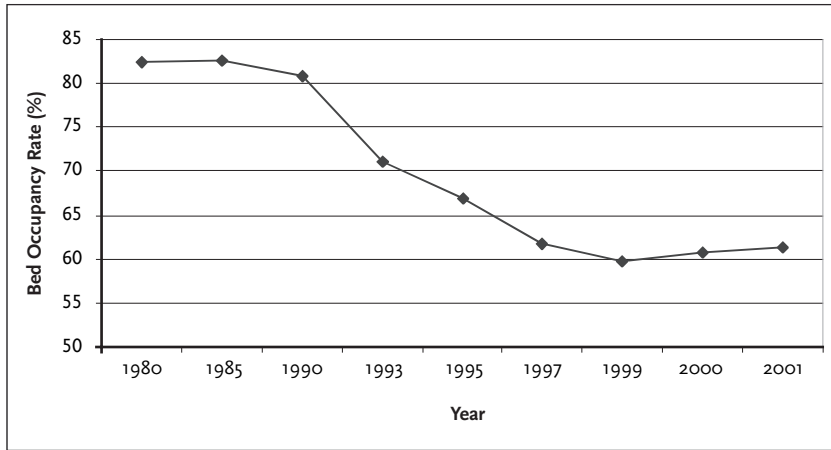


FIGURE 24. CHANGES IN BED OCCUPANCY RATE AT COUNTY-LEVEL OR ABOVE HOSPITALS



The efficient use of resources in health facilities below the county level is also declining. The number of doctors in township hospitals increased from 425,000 in 1995 to 519,000 in 2001, but at the same time, the number of people seeking treatment in these hospitals declined from 938 million to 824 million visits. Assuming that a doctor works 300 days per year, the number of patients seen each day by a doctor fell from 7.36 to 5.29 person-times. During this same period, the number of beds increased in township hospitals, but there was a sharp drop in the number of hospitalizations, from 19.6 million in 1995 to 17 million in 2001 (see Figure 25). As a result, the township hospital bed occupancy rate fell from 40.7 to 31.3% (see Figure 26). In addition, the utilization rate for instruments such as EKG, ultrasound and X-ray was also very low. Even in relatively developed, category I rural areas, the average daily use of EKG, for example, is only 1.2 times; in backward, category IV villages, the instruments are only used once every 10 days.

China's current medical resources cannot be described as abundant. But while many sick people avoid seeing the doctor and being admitted to the hospital, many precious medical resources are not fully used, and this is the greatest waste. It is very clear that the Chinese medical system, transformed by the market, is neither fair nor efficient.

FIGURE 25: UTILIZATION OF TOWNSHIP HEALTH CENTERS

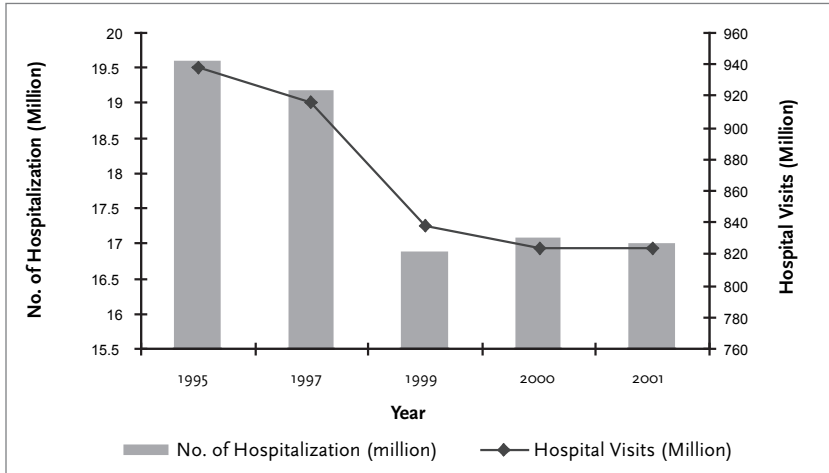


FIGURE 26: BED OCCUPANCY RATE AT TOWNSHIP HEALTH CENTERS

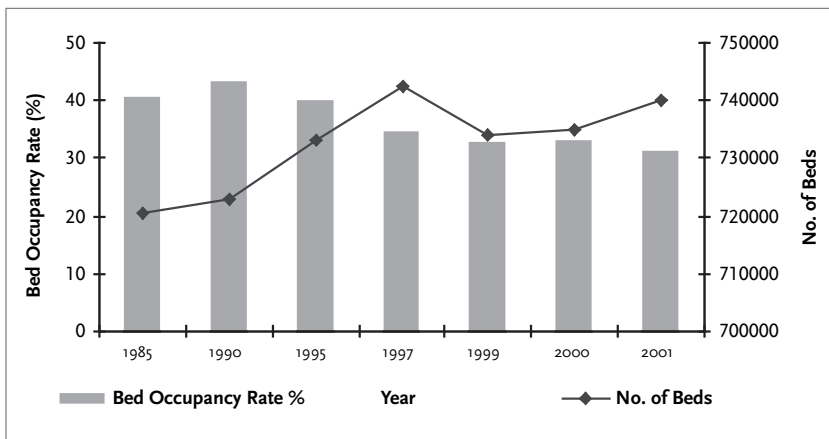


TABLE 12: PERFORMANCE OF HEALTH SYSTEMS, 1998

	Per Capita	Public Share of	Ranking of Overall	
	Health Spending (PPP\$)	Health Spending (%)	Health System Performance	Fairness Index
USA	4178	44.5	37	0.954
Switzerland	2952	54.9	20	0.964
Germany	2520	74.8	25	0.978
Norway	2439	84.7	11	0.977
Luxembourg	2361	92.4	16	0.981
Canada	2285	70.8	30	0.974
Denmark	2241	81.9	34	0.979
Iceland	2204	83.9	15	0.976
France	2109	76	1	0.971
Australia	2058	69.8	32	0.971
Netherlands	2040	67.8	17	0.973
Belgium	2008	70.6	21	0.979
Austria	1968	71.4	9	0.976
Sweden	1748	83.8	23	0.976
Japan	1735	77.4	10	0.977
Ireland	1576	76.2	19	0.978
Finland	1529	76.3	31	0.977
UK	1527	79.9	18	0.977
New Zealand	1450	77	41	0.972
Spain	1384	70.5	7	0.971
Portugal	1345	67.5	12	0.951
Greece	1307	54.4	14	0.963

In the course of reform, Chinese are very fond of using the United States as the basis of comparison. It is worthy of note that, at least for the health system, America provides a cautionary lesson. Table 12 compares 21 developed countries in Europe and North America. Among these countries, America's per person medical expenditures are 41.5% higher than the next highest spending country, Switzerland. But exorbitant medical spending has not brought about a correspondingly high level of medical care. The U.S. infant mortality rate is higher than any other country in the table, and its life expectancy is lower than most of these countries.⁴⁰ If we compare the overall performance and fairness of the medical systems in these countries, America is second from the bottom. For overall performance, America is 37th in the world, only slightly better than New Zealand; for fairness, its score is 0.954 (with 1.0 as the highest), only slightly better than Portugal. What is it that causes the exorbitantly expensive U.S. health system to be both unfair and inefficient? It seems that excessive marketization is the primary reason. Among the 21 developed countries, only in America is the government's share of total health expenditures less than 50%.

China is not as developed as the United States, but it seems that its health system, even at its low level, has caught the “American disease:” soaring medical costs, great inequities in medical services, inefficient use of medical resources, and stagnating or even deteriorating health indicators. For a nation which once was an example to the world, to sink to this level is cause for great sorrow.

Conclusion

The lessons of SARS go very deep. The most direct lesson is that public health crises can produce enormous economic losses, affecting short-term economic growth. However, the lessons to be learned are not limited to economics. First, we must reconsider the proposition that “development is an absolute prerequisite.” “Development” must never be reduced simply to economic growth; development refers to overall progress in the economic and social livelihood of all citizens. Economic growth is not a goal in itself, but is the means to realize the goal of overall development. If we believe that economic growth is an absolute prerequisite, then ensuring social justice, environmental protection, basic education for all children, and a healthy life for all are even more absolute prerequisites. The experience of the past 20 years has proved that presuming that economic growth automatically resolves all shortages is as preposterous as “climbing trees to find fish.” Public health is an important facet of overall social development, because people only live once; health care is a basic human right, affecting both the length and quality of life. If a country loses control of communicable and infectious diseases—lowering the population’s level of health, subjecting people to the ravages of disease, and bankrupting families afflicted with serious illnesses—it does not matter how fast the economic growth of this country is, how modern the cities appear to be, and how many people have private cars.

Next, we must clearly understand the limitations of the market. First, while the market may efficiently allocate resources, it is incapable of resolving the problem of fairly allocating resources. Second, in many areas of the economy, where externalities are strong and information is asymmetrically distributed, the market frequently fails to perform. Under such circumstances, markets may actually reduce efficiency. Fairness in health is even more important than fairness in the allocation of income and property, because it affects the quality of life and potential to earn a living of every individual. Even if we do not analyze problems from the standpoint of morality and justice, providing an assurance of basic health services to everyone is also a prerequisite for building a comprehensive public health system. SARS told us that it is impossible to build an advanced disease prevention system that would create a cordon sanitaire for just the wealthy classes in the big cities. If an epidemic spreads among the poor there is nowhere for the wealthy classes to escape. For public health problems, we are all in the same boat. Given the

great importance of fairness in public health, it is a complete mistake to leave it to the market. Furthermore, health care is a classic example of a sector where information is asymmetric. Health professionals can use their superior command of information to deceive their patients, and patients can use their own superiority in information to cheat insurance companies. Precisely for this reason, the great majority of developed countries provide for their citizens a publicly financed universal health care program; they do not force patients and health care workers into the marketplace.

In the past ten to twenty years, China has continually sought to reform the health system within the context of a market economy. Due to a lack of experience and errors in our understanding of the problems, it was inevitable that there would be a few wrong turns. If this epidemic of SARS can sound the alarm and make us clearly recognize the importance and urgency of “investing in the people’s health,” as well as to recognize the many different flaws in the current health system, then it is possible for something good to come out of bad: this crisis can become the turning point for the rebuilding of China’s public health and health system in general.

It was back in 1977 that the World Health Organization proposed a global strategy of “primary health care for all by 2000.” In 1986, China’s government clearly pledged to achieve this goal. But the year 2000 has already passed, and the goal of “primary health care for all” has yet to be achieved. The Chinese government should now reaffirm its pledge of seeking “primary health care for all.” To truly achieve this goal, the government must greatly increase its investment in public health. At present, government spending on health is approximately 3% of all government spending and 0.5% of the GDP. With the economic foundation laid by twenty years of reform and opening up to the outside world, we should increase these two percentages in the short term to 5% and 1%, and in the medium- to long-term to the world average levels of 11% and 2.5%; this is entirely within China’s means. In addition to strengthening public financing of health, the focus of support must also shift from the eastern coastal provinces to those of central and western China, from the big cities and big hospitals to the rural basic healthcare and disease prevention systems, from the wealthy classes to the poor. Even when China was “dirt-poor,” its health system was able to bring honor to the nation; if we can take off our ideological blinders, we can do the same thing again.

May 22, 2003

Tolo Harbor, Hong Kong

NOTES

1. The primary sources of international data in this essay are: the World Health Organization's annual World Health Report, www.who.int/whr2001/2001/archives/index.htm; the OECD's *OECD Health Data*, 2002 4th ed., www.oecd.org/EN/statistics/o,,EN-statistics-194-5-no-no-no-0,00.html. The primary sources of Chinese data are: the Ministry of Health's annual *China Health Yearbook* 中国卫生年鉴; the annual *Abstract of China Health Statistics* 中国卫生统计提要; www.moh.gov.cn/tjxxzx/index.htm; "First National Survey of Health Care" "第一次国家卫生服务调查" (1993) and "The Second National Survey of Health Care" "第二次国家卫生服务调查" (1998) www.moh.gov.cn/tjxxzx/index.htm. Using these sources, the author has created his own database. Numbers mentioned in the text which are not attributed to other sources are derived from this database.
2. Peter Nolan, "Death Rates, Life Expectancy and China's Economic Reforms: A Critique of A.K. Sen," *World Development*, Vol. 20, No. 9, pp. 1279-1303; Amartya Sen, "Life and Death in China: A Reply," *World Development*, Vol. 20, No. 9, pp. 1305-1312.
3. In the 1990s, China launched a campaign against TB with the support of a World Bank loan. Including matching funds, about 1.3 billion yuan have been spent. See "Tuberculosis: Current status and strategies" 结核病现状与对策 www.jshealth.com/special/jingcai/j2.htm
4. Tong Tong 佟彤, "400 million people infected with TB" "四亿人感染过结核菌" *Beijing Morning News* 《北京晨报》, December 21, 2000, <http://health.sohu.com/54/09/harticle15730954.shtml>
5. Liming Li 李立明 China Center for Disease Control and Prevention, 2003 Work Report 中国疾病预防控制中心 2003 年工作报告 February 18, 2003, www.chinacdc.net.cn/xinwen/view.asp?fnwid=172
6. "AIDS in China increasing by 30% each year, specialists promote 5 major strategies" "我国艾滋病每年以30%速度递增专家推五大策略," *Yangzi Evening News* 《扬子晚报》, October 18, 2001, www.specialneeds.org.cn/aids/actuality/aidso5_1.htm
7. Schistosomiasis, a tropical disease caused by infestation with schistosomes through the use of contaminated water, is widespread in rural areas of Africa, Asia, and Latin America through use of contaminated water. It is and characterized by infection and gradual destruction of the tissues of the kidneys, liver, and other organs.
8. According to the New China News Agency dispatch from Wuhan, February 26, 2002, "Jingzhou currently has more than 290,000 *mu* infested with the snail. Schistosomiasis is found in more than one thousand administrative villages, more than 70,000 people have schistosomiasis, of whom more than one thousand people are in the late stage of the disease. More than 400 head of cattle are also infected. The threat of schistosomiasis in Yangxin County is on the increase, spreading into paddies in the hills. More than 20,000 people are infected, of whom more than 400 have severe infections. The spread of schistosomiasis has seriously affected the health of the people and is limiting the development of the rural economy." www.unn.com.cn/GB/channel281/282/1431/200202/27/163114.html^o
9. Further information can be found in the essay by Jushi Li 李菊石, "Public health in China today" "当前的中国公共卫生", <http://www.zazhi2.org/2002/zso205c2.txt>
10. World Bank, *China: Long-term problems and strategies in changing health models* 《中国: 卫生模式转变中的长远问题与对策》, Beijing: China Finance and Economics Publishing House 中国财政经济出版社, 1994.
11. Ministry of Health, Health Statistics Center, "Brief survey of Chinese hospital resources and their utilization since the 1980s" "八十年代以来我国医院资源及其利用简况" November 27, 1998, <http://chsi.moh.gov.cn/jk98/yy80-97.html>

12. Speech by Wenkang Zhang at the Chinese Academy of Science forum on innovative strategies, 张文康在中国科学院创新战略论坛上的演讲, January 31, 2002, www.cas.ac.cn/html/Dir/2002/01/31/5616.htm
13. Ibid.
14. WHO, *World Health Report, 2000*.
15. This includes work done by this author and Hu An'gang: Wang Shaoguang, Hu An'gang, "The Political Economy of Uneven Development: The Case of China" (Armonk, NY: M.E. Sharpe, 1999).
16. "‘One China, Four Worlds’ Analyzing regional development disparities" "‘一个中国、四个世界’析地区发展差距," *China Economic Times* 《中国经济时报》, April 17, 2001, <http://finance.sina.com.cn/d/53140.html>
17. Zhendong Hu 胡振栋, "The father of cooperative medicine" "中国合作医疗之父", <http://www.56-china.com.cn/mztj/3/yi3-11M6.htm>
18. Health Yearbook Editorial Committee 卫生年鉴编委会 *China Health Yearbook, 1982* 《中国卫生年鉴1982》, p. 60
19. World Bank, 1993 *World Development Report: Investing in Health* 《1993年世界发展报告: 投资于健康》, Beijing, China Financial and Economics Publishing House 中国财政经济出版社, 1993.
20. Yanling Zhou 周雁翎, "Enormous disparities: China's health care faces a serious challenge" "差异悬殊: 中国卫生保健事业面临严峻挑战," *China's Reforms* 《中国改革》, 2002, Vol. 4.
21. Ministry of Health. *Guojia weisheng fuwu yanjiu* (Research on National Health Service). 1999.
22. Sina.com 新浪网, "The lessons from fund raising in Adan—who can arouse the love within every person's heart?" "阿旦募捐的启示——谁才能把每一个人的爱心都调动起来?" March 11, 2003, <http://newbbs4.sina.com.cn/arts/view.cgi?forumid=691&postid=5811>.
23. Cited by Yanzhong Wang 王延中, "A preliminary discussion of the role of the state in rural health insurance" "试论国家在农村医疗卫生保障中的作用" www.cc.org.cn/wencui/020603200/0206032015.htm
24. "Regarding plans and goals for achieving 'Health for all by 2000' in China's countryside (draft version)" "关于我国农村实现‘2000年人人享有卫生保健’的规划目标(试行), March 15, 1990, www.chinaeh.com/zhengcefagui/yizheng/yizheng3.htm
25. Cooperative health care only functions effectively in a few areas such as the environs of Shanghai or Zhongshan City, Guangdong Province, where the level of economic development is high, there are ample financial resources, and the collective economy is well established, and then only with strong financial support from the government and collective enterprises www.ah.xinhua.org/jiandu/2002-11/12/content_44518.htm. However, the Chinese government has recently decided that, starting in 2003, the central government will subsidize, at the rate of 10 yuan per person annually, cooperative health care in central and western China (excepting cities) for peasants participating in new cooperative health programs. Local governments are also required to subsidize participation in these programs, at an annual rate of no less than 10 yuan per person: www.ccrs.org.cn/big/zgmingnian.htm
26. Ministry of Health, "Second National Health Services Survey," www.moh.gov.cn/tjxxzx/index.htm
27. Wenkang Zhang's speech at the Chinese Academy of Sciences forum on innovative strategies 张文康在中国科学院创新战略论坛上的演讲, January 31, 2002.

28. A study of health conditions in Qinghai Province discovered that “overall health resources are poorly allocated, and there is a serious lack of inputs into rural health. There is a surplus of health resources in the city and a shortage in the farming and animal husbandry areas; the 20% of the population in the cities enjoy 80% of health resources, while the 80% of the population in the countryside receive only 20% of these resources.” See Ziquan Chen 陈资全, “Report on health conditions in the villages (animal husbandry areas) of Qinghai Province” “青海省农村 (牧区) 卫生情况报告” www.qhwtst.gov.cn/leader/ljdh3.htm
29. Jianfeng Zou 邹建锋, “Rural health services seek policy support” “农村医疗服务寻求政策支持,” www.ccrs.org.cn/big/ncylfwxqzc.htm.
30. According to the survey in Qinghai, the county and township governments in most areas pay only about 70% of the per person charges in township hospitals, with the lowest being 60%; the subsidy to county hospitals is 60–70%, with the lowest only 40%. Moreover, there are basically no inputs into capital construction and the purchase of equipment for county and township level health institutions. There are no specific allocations for preventive work; the only guarantees are for per person expenses. Ibid.
31. See footnote 27.
32. For example, Shanxi Province has more than 1800 township hospitals, but each year the province specifically designates only about 10 million yuan for rural health projects and rural hospital construction; this is truly only a fraction of the need. In China as a whole, Shanxi is a province where the grassroots health system is relatively sound. See Shuli Hu, Yi Lou, QiyanLi 胡舒立、楼夷、李其谚, “SARS invades the West, Part 1: the epidemic in Shanxi” “SARS西侵系列之一: 疫区山西,” *Caijing* 《财经》, May 9, 2003.
33. See footnote 9. 朱玲: 办公村级卫生室对保障基本医疗保健服务供给的作用, www.cass.net.cn/chinese/so1_jjs/grxszlsuelingdao/zhuling/03.htm
34. “In 10 years, China’s life expectancy increases 2.85 years” “我国人口平均预期寿命十年提高 2.85岁,” *China Information News*, 《中国信息报》 June 21, 2002.
35. Even worse, some medical institutions, especially township hospitals, have sold to patients expired, banned, fake, or substandard medicines, have re-used disposable needles and syringes, and secretly reduced dosages by half. These activities not only increase the burden on patients, they also to differing degrees threaten the patients’ health.
36. Mo Hao’s 郝模 (Fudan University Medical School) sample survey shows that the proportion of poverty due to health problems may be inversely related to the level of economic development. In villages with a high economic level, 49.3% of poor households were poor due to health problems; in villages with a medium or low economic level, the proportions were 20.7% and 21.2%. Cited by Deyuan Zhang 张德元, “Old age insurance in rural society: yesterday, today, tomorrow” “农村社会养老保险的昨天、今天明天,” *Civil government journal* 《民政导刊》, 2002, Volume 3.
37. See Deyuan Zhang, Ibid.
38. See footnote 12.
39. See Ziquan Chen, footnote 28.
40. OECD Health Data 2002 4th ed.

REFERENCES

- Chen, Z.Q. 陈资全, Report on health conditions in the villages (animal husbandry areas) of Qinghai Province 青海省农村(牧区)卫生情况报告, from www.qhwst.gov.cn/leader/ldjh3.htm
- China Health Yearbook 中国卫生年鉴 Abstract of China Health Statistics 中国卫生统计提要, from www.moh.gov.cn/tjxxzx/index.htm (1993), First National Survey of Health Care 第一次国家卫生服务调查, from www.moh.gov.cn/tjxxzx/index.htm
- Health Yearbook Editorial Committee 卫生年鉴编委会 (1982), *China Health Yearbook, 1982* 《中国卫生年鉴, 1982》, p. 60.
- Hu, S.L., Lou, Y., and Li, Q.Y. 胡舒立、楼夷、李其谚, (2003, May 9). SARS invades the West, Part 1: the epidemic in Shanxi SARS 西侵系列之一: 疫区山西, *Caijing* 《财经》.
- Hu, Z.D. 胡振栋, The father of cooperative medicine 中国合作医疗之父, from www.56-china.com.cn/mztj/3/yi3-11M6.htm
- Li, J.S. 李菊石, Public health in China today 当前的中国公共卫生 from www.zazhi2.org/2002/zso205c2.txt
- Li, L.M. 李立明, (2003, February 18). China Center for Disease Control and Prevention, 2003 Work Report 中国疾病预防控制中心中心2003年工作报告, from www.chinacdc.net.cn/xinwen/view.asp?fnewid=172
- Ministry of Health, (1999). *Guojia weisheng fuwu yanjiu* (Research on National Health Service).
- Ministry of Health, Health Statistics Center, (1998, November 27). Brief survey of Chinese hospital resources and their utilization since the 1980s 八十年代以来我国医院资源及其利用简况, from <http://chsi.moh.gov.cn/jk98/yy80-97.html>
- Ministry of Health, Second National Health Services Survey, from www.moh.gov.cn/tjxxzx/index.htm
- Nolan, P., Death Rates, Life Expectancy and China's Economic Reforms: A Critique of A. K. Sen. *World Development*, 20, (9), 1279-1303.
- (October 18, 2001) AIDS in China increasing by 30% each year, specialists promote 5 major strategies 我国艾滋病每年以30%速度递增专家推五大策略, *Yangzi Evening News* 《扬子晚报》, www.specialneeds.org.cn/aids/actuality/aidso5_1.htm
- OECD Health Data*, (2002) 4th ed, from www.oecd.org/EN/statistics/o,,EN-statistics-194-5-no-no-no-0,00.html
- Sen, A., Life and Death in China: A Reply, *World Development*, 20 (9), 1305-1312.
- Tong, T. 佟彤, (2000, December 21). 400 million people infected with TB, *Beijing Morning News*, from <http://health.sohu.com/54/09/harticle15730954.shtml>
- Tuberculosis: Current status and strategies 结核病现状与对策, from www.jshealth.com/special/jingcai/j2.htm
- Wang, S.G. and Hu, A.G., (1999). *The Political Economy of Uneven Development: The Case of China*, Armonk, NY: M.E. Sharpe.
- World Bank, (1993). 1993 *World Development Report: Investing in Health* 1993年世界发展报告: 投资于健康 Beijing, China Financial and Economics Publishing House 中国财政经济出版社.

- World Bank, (1994). *China: Long-term problems and strategies in changing health models* 《中国：卫生模式转变中的长远问题与对策》, Beijing: China Finance and Economics Publishing House 中国财政经济出版社.
- World Health Organization, (2001). *The World Health Report 2001—Mental Health: New Understanding*, New Hope, from www.who.int/whr2001/2001/archives/index.htm
- World Health Organization, (2000), *World Health Report, 2000—Health systems: improving performance*, from www.who.int/whr/2000/en/
- Zhang, W.K. 张文康, (2002, January 31). Speech given at the Chinese Academy of Science: Forum on Innovative Strategies, from www.cas.ac.cn/html/Dir/2002/01/31/5616.htm
- Zhou, Y.L. 周雁翎, (2002). Enormous disparities: China's health care faces a serious challenge 差异悬殊：中国卫生保健事业面临严峻挑战, *China's Reforms* 《中国改革》 4.
- Zou, J.F. 邹建锋, Rural health services seek policy support. from www.ccrs.org.cn/big/ncylfwxqzc.htm
- Citation: Wang, Y.Z. 王延中, A preliminary discussion of the role of the state in rural health insurance 试论国家在农村医疗卫生保障中的作用, from www.cc.org.cn/wencui/020603200/0206032015.htm
- (1990, March 15). Regarding plans and goals for achieving Health for all by 2000 in China's countryside (draft version) 关于我国在农实现“2000年人人享有卫生保健”的规划目标(试行), from www.chinaeh.com/zhengcefagui/yizheng/yizheng3.htm and from 朱玲: 公办村级卫生室对保障基本医疗保健服务供给的作用, www.cass.net.cn/chinese/so1_jjs/grxszsuelingdao/zhuling/03.htm
- (1998). The Second National Survey of Health Care 第二次国家卫生服务调查, from www.moh.gov.cn/tjxxzx/index.htm
- (2001, April 17). One China, Four Worlds: Analyzing regional development disparities “一个中国、四个世界析地区发展差距,” *China Economic Times* 《中国经济时报》, from <http://finance.sina.com.cn/d/53140.html>
- (2002, June 21). In 10 years, China's life expectancy increases 2.85 years 我国人口平均预期寿命十年提高2.85岁, *China Information News* 《中国信息报》
- (2003, March 11). The lessons from fund raising in Adan—who can arouse the love within every person's heart? 阿且募捐的启示——谁能把每一个人的爱心都调动起来?, from <http://newbbs4.sina.com.cn/arts/view.cgi?forumid=691&postid=5811>
- Website, www.ah.xinhua.org/jiandu/2002-11/12/content_44518.htm
- Website, www.ccrs.org.cn/big/zgmingnian.htm