
The Issue of Over-prescription: Drug Prescription Relating to the Government Power in China

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Abstract:

To facilitate the understanding of policy development and implementation process, I have found it useful to distinguish between three different levels of analysis, which are related in complex ways and reveal quite different ideological views about the issue of over-prescription and healthcare policies related to the issue. Specifically, I identified these following three levels in the course of my study: 1) over-prescription within the political economic context of healthcare reform, 2) the diagnosis of the failure of state intervention in regulating over-prescription practice, 3) the failure of policy implementation: the roles of healthcare institutions and bureaucrats.

This paper discusses the government's influence on the character of healthcare services and on the use of medicines, setting out three key changes in which government policy affects medicine use. I start, however, by looking at more detail in the context of these government policy changes, examining the decentralization of the government's roles in healthcare sector and exploring its implications for medicine use. Secondly, I examine the effect of Chinese government funding on prescribing, focus on reduced government subsidy and a salary scheme that generates incentives for hospitals and doctors to prescribe. Thirdly, I review the recent Chinese government intervention in the form of a price-setting for medicines and its creation of incentives to overprescribe.

Key Words: Healthcare Policy, Over-prescription, Government Power

1. INTRODUCTION AND RESEARCH QUESTIONS

Under market-oriented economic reforms starting in the early 1980s, China's healthcare system has begun to unravel. Studies in this field thus far have shown that China's healthcare sector has encountered deep problems since these reforms were initiated. With reduced government subsidies, state-owned hospitals encountered numerous challenges and obstacles in trying to survive.

In order to generate enough revenue, most hospitals have established complex systems of incentives to encourage prescription on the part of medical doctors and the use of medical services beyond what is required. Doctors' salaries are tightly bound to the performance of their individual medical departments. The more revenue the department generates, the larger the bonus received by doctors.

Apart from cash-starved hospitals' own strategies of seeking profits, pharmaceutical companies and medical equipment manufacturers have added another layer of economic incentives and kickbacks to the existing incentives in hospitals by offering doctors drug commissions. It is widely noted that offering medical doctors drug commissions on each prescription motivates prescription and this has become one main strategy adopted by most pharmaceutical companies and manufacturers to motivate medical personnel, including doctors.

Unsurprisingly, hospital corruption, including over prescribing, over providing medical services and demanding illicit profits from medical instrument purchasing, have soon become pervasive. In the proposed study I am seeking to examine one major source of dysfunctions in Chinese hospitals: over-prescription. Over-prescription is defined here as *the practice of over prescribing medicines, prescribing unnecessary costly medicines, and the use of inappropriate expensive medical instruments and diagnostic procedures*.

The prevailing interpretations of these dysfunctions in healthcare provision lie in the criticism of market-oriented healthcare reform. Recent debates highlight market-oriented healthcare reform for impeding adequate healthcare provision and for rising healthcare costs. Critics then argue for the return of government interventions in the healthcare sector. There is little doubt that the government plays a vital role in regulating the healthcare sector and preventing corruption and abuse in healthcare provision. Yet, in the case of China, even though the government is well aware of the phenomenon of over prescription and has launched several campaigns and initiatives to control it, it has met with little success. Most of the effort made to work against healthcare malpractices was either ineffective or barely enforced.

To demonstrate the various mechanisms that allow this practice to continue vigorously in the context of Chinese healthcare system and to explain reasons why government interventions have not been successful enough to correct this practice, I am seeking answers to the following research questions: 1) how is over-prescription possible? 2) What are the essential political and economic forces shaping the healthcare sector, changing the nature of medical work, and eventually lead to distortions such as over-prescription? 3) What are the policies that have been

developed to correct the problem of over-prescription? 4) Why do these policies fail to generate satisfactory outcomes?

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

To facilitate the understanding of policy development and implementation process, I have found it useful to distinguish between three different levels of analysis, which are related in complex ways and reveal quite different ideological views about the issue of over-prescription and healthcare policies related to the issue. Specifically, I identified these following three levels in the course of my proposed research:

2.1 Over-prescription within the Political Economic Context of Healthcare Reform

At this level, I am interested in identifying the activities within the broad political, economic and social environment and how these have changed and shaped the healthcare sector, the nature of medical work in specific settings, influenced healthcare policies, and finally lead to the problem of over-prescription. This level of discussion provides a dense and essential presentation which sets the scene for further discussion in following levels.

It has been widely noted that the unique political and economic features of a society place constraints on, and shape the way in which the healthcare sector has been formed and operates (Berman and Bossert 2000; Twaddle 2002:4). In China, structural and economic changes imposed by the transition to a market economy have had a profound impact on the healthcare sector (Berman and Bossert 2000). According to Gu(2005), the central government issued a series of new policies regarding hospital reforms in 1989, main points of which included: allowing hospitals to make profits by providing medical services and selling drugs, and deregulating price control over some high-technology services not covered by the government insurance healthcare schemes. In urban areas, state-owned hospitals had survived by billing China's two state insurance schemes, which covered most urban workers, namely GIS and LIS. Hospitals tended to choose expensive pharmaceuticals and medical procedures over cheaper options.

Unsurprisingly, such a change led to different voices and triggered great debates within the healthcare sector over the nature of Chinese healthcare institutions and the relationship between economic development and social effectiveness. However, the government seemed to be very determined to push the healthcare sector in the market economy. Vice president Li Xiannian further emphasized the "rightness" of the reform by stating that the principle was to urge the state-owned institutes (*shi ye danwei*) to operate like enterprises (*qi ye*) and be responsible for their own profits and losses. Correspondingly, the government also changed its way of subsidizing the healthcare sector. Instead of subsidizing a health institute based on its personnel and facilities, the state would provide a fixed amount of subsidy. The government limited support for health care to basic personnel wages and restricted new capital investment to about

25-30% of hospital expenditure (Wang, Zhang and Wang 2007:156). In 1992, Deng Xiaoping, at the age of 88, set off an explosion of economic growth with an inspection tour in January to Shenzhen, Zhuhai, Wuhan and Shanghai. Foreign investment for 1992 was doubled that of all previous years combined. Inflation and GDP growth rate reach double digits. Hospitals scrambled to purchase costly foreign medicines and medical equipments to generate revenue from state insurance schemes (Economic Intelligence Unit 1998:17). According to the 1997 World Bank Report (1997), 60% of China's health spending goes to pharmaceuticals. China devotes more of its health spending to pharmaceutical sales than most low-income countries 52% in 1993 (World Bank, 1997). Over-prescription, promoting profitable pharmaceuticals and encouraging costly high-technology diagnostic intervention became the financial salvation for most hospitals in China.

The shift of the healthcare sector into the market altered the social and economic relations between the pharmaceutical industry and the healthcare sector. The business ties between the pharmaceutical company and the hospital is becoming even tighter than before. In order to marketing their drugs, pharmaceutical companies invasively penetrate in different levels of the healthcare sector. They have sales forces dealing with the government officials, hospital administrators and medical doctors. Their strategies include bribing, offering gifts and drug commissions, sponsoring medical conference, and sometimes, dealing with family matters of the doctors. Most of the pharmaceutical sales persons have a fixed amount of budget for "promotion fee", which is used to offer the commissions and to buy gifts in order to motivate the wide use of drugs and promote prescription.

2.2 The Diagnosis of the Failure of State Intervention in Regulating Over-prescription Practice

At this level, I am interested in providing a diagnosis of the causes of over-prescription, its impact on healthcare provision, as well as to examine how the healthcare policies aiming to prevent such behavior fail to be effective.

As healthcare cost increases dramatically, Chinese government is determined to cut healthcare costs and spin-off the commercial drug interests. A set of complex and comprehensive policies have been establish to combat "improper" behavior in the healthcare sector and to build a corruption-proof healthcare system, such as limiting the drug profits below 15%, de-coupling hospital revenue from the sale of drugs to patients, which meant the proportion of drug revenue had to remain below a certain level. Ironically, these efforts were barely effective in controlling either drug commissions or over-prescription practice.

It has to be noted that new pharmaceutical products and diagnostic procedures do not drive up costs itself. It is rather the way in which the healthcare system applies that pharmaceutical or diagnostic procedures, and the incentives which its behavior, as a market, creates problem for the system (Evans 1985:15-6). In the case of China, the reduced government role in subsidizing and regulating the healthcare sector builds incentives for the profit-seeking behavior into the

healthcare provision system, which leads to the escalation of misuse of pharmaceuticals and high technology diagnostic procedures.

State intervention per se was no longer the central point of dispute; the type of intervention and the effectiveness of intervention are the most important issue to consider (Starr and Immergut 1987:228). In the case of over-prescription, it is obvious that the Chinese government does not recognize the challenges that it confronts in developing effective policies to combat the illicit practice, which requires to address root causes of such practice, and to correct the distorted incentives of the system. As Yip and Mahal(2008)have pointed out: A more fundamental but often neglected cause of medical impoverishment and unaffordable access is the rapid rising cost of health care that stems from the organization and incentives built into the delivery system. Limited government funding has left a vacuum in the provision of health care services in China...China has maintained public ownership over most health facilities, making public provision of care the dominant mode for the majority of services while legitimizing profit-seeking behavior at public facilities through a set of perverse incentives.Yip and Mahal point out that inadequate funding issue has resulted in failure to provide efficacious healthcare. We have good reason to believe that much of the care being provided in Chinese hospital is of questionable efficacy, or is unnecessarily costly. Healthcare costs translate into hospitals revenues regardless of the efficacy or efficiency of the clinical activity generating the costs. Nevertheless, the way how the Chinese healthcare system operates is based on the profit-seeking principle rather than to fulfill its social functions, because the system could barely maintain or develop itself if it does not provide care for profit. In the regard, this system is self-distorted in the sense that it is a combination of “a government unable to uphold welfare obligation to employees”, “the influx of well-capitalized foreign drug companies”, cash-starved hospitals and underpaid healthcare professional (Economic Intelligence Unit 1998:123), and it acts defensively to protect its profit-seeking behavior. State intervention would be really difficult to be effective if the profit-seeking incentives of the system remain unchanged.

2.3 The Failure of Policy Implementation: the Roles of Healthcare Institutions and Bureaucrats

In the third area of focus, I am concerned with what roles healthcare institutions and healthcare bureaucrats have play in implementing healthcare policies which aim at preventing over-prescription, and why this implementation fail to be effective.

The Chinese healthcare system, a model largely inherited from the Maoist times, is faring poorly under modern economic conditions. With the rapid pace of the healthcare sector marketization, the organization of healthcare authority in China experiences a trend of decentralization. According to Singer and Baer (1995:146), the decentralization process in China's healthcare system has varies from time to time and reflected changes in political and economic policies. In Maoist time, a centralized organization of healthcare is instituted, the central government remains sole authority over regional and local healthcare providers, from the management of healthcare delivery, the selection of healthcare personnel, to pricing

pharmaceutical products and medical services. In the 1980s to the 1990s, regional and local industry flourished under local governments and collectives. Beyond a small amount of taxes for the higher-level of the government, the regional and local governments are allowed to keep the surplus. "In tandem with fiscal decentralization and the considerable autonomy" of the regional and local governments, the tendency towards "devolution in public spending obligations" that buttresses social services is also clear (Huang 2000:24; Pranab 2008). The roles of the local governments are becoming more and more important in accumulating, distributing resources and establishing new welfare system, with the central government responsible for only a small part of social provision expenditures. However, as indicated by healthcare bureaucrats, the local governments always have less inclination to fund the healthcare sector.

Together with local governments' reluctance in funding the healthcare sector, the lack of effective regulations of healthcare bureaucrats also enhance the chaos in healthcare market. It is noted that although in China the state has a dominate power and unlimited authority, its subordinated levels tends to be less willing to enforce policies that are detrimental to their private and local interest. The decentralization process in China's healthcare sector not only result in inadequate financial support in the healthcare at the regional and local level, but also create grounds for corruptions among health bureaucrats. Huang (2000:17), who wrote extensively on China's political institutions and health bureaucrats, points out that a successful policy implementation process demands certain level of "bureaucratic competencies and organizational coherence" in order to carry out the decisions from the central authorities, and efficiently channel the fiscal resources into the public society. This explains the reason why the central government promise to control the healthcare cost, to improve the quality of healthcare provision, or to correct abuses among healthcare sector sometimes cannot always be realized. Health care weighs clearly less important as in the key development agenda at the local government level. The local authorities lack incentives to efficiently channel the central regulatory mechanism into the local level healthcare institutions, which greatly impede the policies to be effectively functioning and leave the healthcare market largely unregulated.

In the domain of healthcare, MOH is theoretically playing the role of establishing and enforcing regulations. However, the MOH and its local branches have their own health institutions (hospitals and healthcare centers) directly subordinated to them, which run and regulate the largest pharmaceutical network of circulation and distribution in the country. Pharmacies owned and run by the hospitals and healthcare centers not only enjoy a nontaxable income of selling drugs at a mark-up of 15% but also received a discount at 10-13%. The enormous profits in selling drugs help to explain why local and private levels lack the incentives to regulate the healthcare market, especially when the regulation is to harm their own interests (Huang 2000:138).

However, it would be unfair to say that the central government does not make effort in controlling hospital corruptions related to drug prescription issues. In fact, the central

government is well aware of the corruptions in hospitals and has launched several campaigns to control it. Little success has been gained. One notable mechanism is to de-couple the drug income from hospital revenue in most major cities. The mechanism is designed to control over-prescription and supply-induced prescription of expensive drugs. Doctors who neglect the drug caps risk heavy fines and punishment. Unfortunately, this mechanism is barely effective. In order to maintain the drug revenue, hospitals tend to use more medical services and high-technology diagnoses to balance the drug caps regulation imposed by the government.

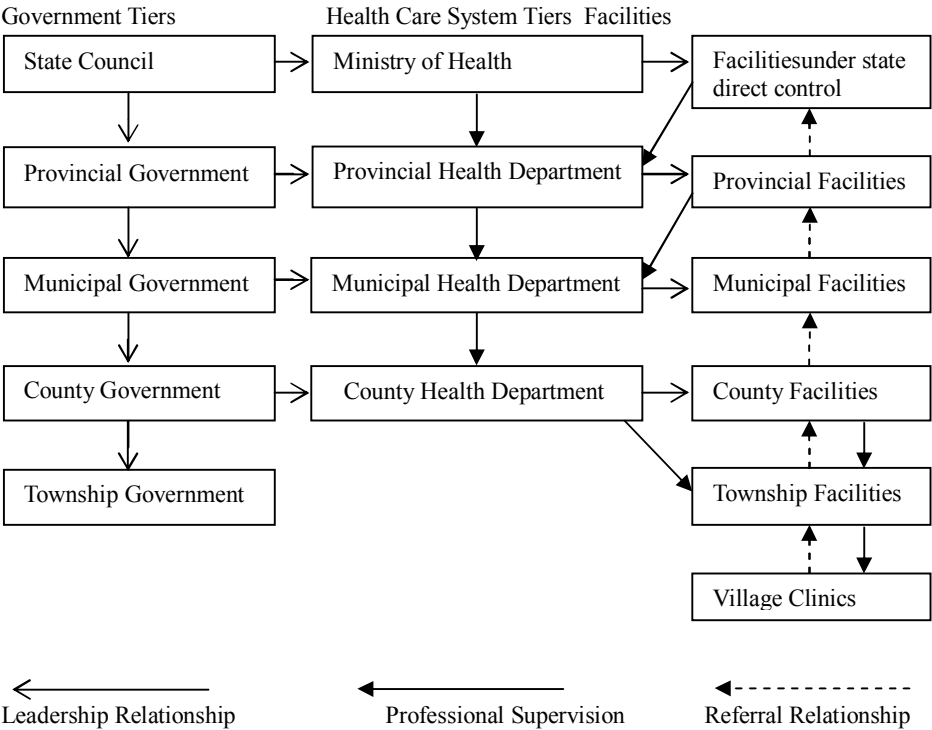
Top-down policies are not always able to address all facts of institutional change and the organizational incentives, which are mostly mediated by the broader political and economic context, and in this case they may meet difficulty in the policy implementation process (Huang 2000:21). In the case of hospital corruptions in China, especially over-prescription issue, it is very hard to effectively enforce a regulation to control the over-prescription or unnecessary use of expensive drugs practice, when the incentives of the healthcare providers and the healthcare bureaucrats remain unchanged. Likewise, health bureaucrats who are responsible for regulating the healthcare markets either have no incentives to act their duties for a long term or are themselves part of the corruptions system. As with all state bureaucracies in China, the healthcare sector has its own strict administrative hierarchy. Local healthcare authorities wield great power in determining hospital ranking, government subsidy, and in turn, staff incomes and equipment-purchase allowances. Hospital directors control all important matters regarding hospital operations. Hospital pharmacists and other key figures in medical departments determine drug procurement and medical equipment purchasing. However, noted by many scholars, most of these healthcare bureaucracies in China are poorly-paid, bureaucratic, profit-driven, and in many cases, corrupt. Pharmaceutical companies are known to offer very compelling packages to key decision-makers at large city hospitals. These people are the key figures in the drug purchasing decision chain, and they are often among the wealthiest employees.

3. THE DEVOLUTION OF GOVERNMENT

Several government policy changes in the 1980s particularly affected medicine use. The most important change was decentralization, which has affected *government functions* and *the extent of private practice* especially in rural China. In this period, the Chinese government has adopted hierarchical administrative subdivision, devolving responsibility for implementation of national policy to progressively lower levels (Wong, 2010; Zhou, 2010). This political regime change has had a major impact on rural health services and the use of medicines. In rural areas, the implementation, funding, and evaluation of current China's health care system exemplifies the hazards of the decentralization of governmental powers.

Government functions have been radically decentralized, for example, in 1983-84 the government replaced the commune and brigade system of collective organization with township governments and village administrative committees. The rural economy was de-

collectivized and all townships and villages adopted the “household responsibility system”, which entitled each household to work an amount of land in proportion to its size (Powell, 1992). As a result, households now have full financial responsibility for production. This has reduced the capacity of local administrative bodies to mobilize resources for collective use. In the meantime, local governments and state enterprises have been given greater autonomy. An important aspect of financial reform was a rearrangement of revenue sharing between the central and local governments (Wong et al., 1995).



* Note the Ministry of Health (MOH) has now been reformed and given the new name as the National Health and Family Planning Commission (NHFPC) in 2013.

Figure 1: Overview of Governmental and Health Care System Tiers in China.

In China’s current healthcare system, the devolution of responsibility for financing and management of township health centres to township governments occurred as part of the broader economic and institutional reforms since the late 1980s. At first the richer counties implemented this policy; but as more and more county health bureaucrats hoped that township governments would increase funding for their health centres, this policy became popular and was extended throughout China. Devolution in the health sector was believed by policy makers to be consistent with the on-going economic reform that emphasized improvements in efficiency and effectiveness. (Sheng et al., 1992). In theory, this devolution was to put pressure on township governments to allocate additional funds to health centres, in the belief that

decentralizing the financing and administration of the health sector could enhance the quality, equity, and responsiveness of local services. However, this assumes prioritisation by local authorities and adequate vertical and horizontal accountability and governance (Uchimura, 2006). As shown in Figure 1 below, in China, local government remains largely accountable to higher-level authorities, not the local population, and economic, not social development is its primary objective (Zhou, 2010).

Chinese economic reforms have had in particular a substantial impact on the organization and finance of its rural health services in particular (Jamison et al., 1984; Huang, 1988; Young, 1989; Yu, 1992; Bloom and Gu, 1997). In fact, the relationships between county health department, township governments and health centres have changed remarkably. Health centres, which previously received funds from the county health department, are funded by township governments. The township governments are now responsible for defining and developing local health care plans, and are also responsible for the appointment of personnel. Since devolution the county health department can no longer control the appointment of health centre directors, or the recruitment of health centre staff. Township governments are now responsible for these activities, in consultation with the officials in county health bureau. County health department still transmit national guidelines to them and provide technical support when requested. However, health centres do not necessarily have to take the views of the county health department into account (Tang and Bloom, 2000). Consequently, while the higher level government bodies expect the lower level government bodies to carry out the medical plans or programmes, sometimes the lower level government bodies do not entirely follow their guidance.

As the unintended consequence of devolution, the local government bodies have allowed private medical practices, given increasing autonomy to public health institution, and allowed the public health institution to contract operation and partly outsource the services etc (Zhang, 1987; Kan, 1990). In rural areas, village health stations were sold or contracted to individual, township hospitals were closed or sold to private practitioner, public health facilities reduced quickly with rapid expansion of private medical care. Since 2000, the local government further encouraged the reform of health property right, many village health stations are now privately managed and many village health workers function as charging for services. There are three main features of the development of Chinese private health sectors affecting medicine use in rural area that have been sharply criticised. Firstly, contrary to perspectives that private health clinics provide higher quality services than public ones in other developing countries (Bitran, 1995; Newbrander and Rosenthal, 1997), the quality of health services provided by private clinics in rural China is generally poor due to the fact that rural private practitioners are usually less qualified for medical practice, and there is less government power control over the doctors' behaviour, which implies that the private doctors' behaviour tends to be driven by financial motivation no matter what the health benefit to patients. For example, private doctors are less likely to refer their patients to a higher level of health service when referrals were needed

(Nanquan County Government, 1983; Lin and Ma, 1990). Secondly, private village doctors are considered to be less willing to provide preventive healthcare services than doctors working in public clinics since preventive healthcare services are not economically profitable (Lin and Ma, 1990). Consequently, with lack of disease prevention in rural China, the opportunities and risks of medication are increased. Finally, privatization has given local politicians and governments strong incentives to encourage profit-seeking on the sale of pharmaceuticals and prescriptions (White, 1993; Oi, 1999). Consequently, rural private practitioners are more likely to provide unnecessary health care and medicines for a greater profit because their income comes totally from charges for services (Hou, 1990; Liu et al., 1994).

In contrast, in urban areas, the Chinese government's interests have been aligned with the state-owned hospitals' interests. For example, all presidents of state-owned hospitals hold administrative titles equivalent to governmental officials, while the performance of a state-owned hospital is an important criterion for evaluating the performance of a government official who is responsible for monitoring that hospital. On the other hand, the government is responsible for hospital supervision on behalf of its citizens. The government has been playing two roles: a player in the game with strong self-interests and a referee who should be fair and impartial. These roles contradict one another, thus the governments have conflicting objectives, and an effective external monitoring system has not been established to coordinate them to resolve the tension.

Instead of being a responsible subsidy provider or supervisor, the government has retained its administrative role inherited from the planned economy era. The state-owned hospitals at provincial, city/county level have never functioned as independent entities with autonomous development planning and decision-making power. In effect, they are being micro-managed by government bureaucrats (Wang, 2009). As a result, competition in the medical market in urban China is limited due to the government's monopoly power. Although the private hospitals still exist in urban China, they are not prominent in the market. The private hospital sector has been fundamentally undeveloped not only in terms of market share but also in terms of professional level. This means there are very few choices available to patients. Without competition, the health policy and regulation, behaviour of medical professionals can hardly be improved due to the lack of inherent developmental forces, after all, any possible transformation in the social medicine based on the government's recognition of the problems and its initiatives of reform (Du, 2007).

4. REDUCED GOVERNMENTAL INVESTMENT AND THE IMPLICATION FOR INCENTIVES

There are further two key government policy changes of particular importance for medicine use in China. The first is the reduction of government funding of health services, which has a significant effect on prescribing through distorted incentives for hospitals and doctors arising from insufficient government subsidies and poor medical salaries. For example, public health

care providers such as public hospitals, face financial pressures as shrinking government budgets caused dramatic cuts in subsidies. There was a gradual shift in hospital financing from an average of 50% government provision of public hospital revenues in the 1980s to less than 10% in 2000, it also means that the average percentage of Chinese state-owned hospital income from government sources declined 40% within two decade (Eggleston and Yip, 2004; Ramesh and Wu, 2009), though these hospitals continued to be called public. This reduction meant that public hospitals, the large majority of hospitals in China, were forced to operate like for-profit private providers in order to generate sufficient revenue (Yip and Mahal, 2008). Consequently, malpractice, misuse of drugs, and supplier-induced over-utilization of pharmaceuticals are becoming increasingly common.

To compensate for the loss of funding, public hospitals, they were allowed to charge payers or patients themselves more than average cost for other services, such as high technology diagnostic procedures and many prescription drugs (Yip and Eggleston, 2004: 268). As I shall discuss and give more detail in the later section, the pricing scheme is potentially a second-best government intervention, trading off pricing efficiency for equitable access. Unfortunately, the distorted incentives implicit in this price system can lead to large adverse consequences when combined with supply-side (pharmaceutical companies and hospitals) market power in health care. As could have been predicted, Chinese hospitals began to view high technology medicine and prescription drugs as their financial salvation, and put pressure on medical professionals to increase demand for these services.

The health sector faces difficult financial problems, particularly in poor areas (World Bank, 1997a). The cooperative medical schemes, which were partly funded by the collective economy at township and village levels, collapsed in most of the country. Their coverage declined from almost 90% of villages in the late 1970s to less than 10% in the early 1990s (Feng et al., 1995). Most rural residents now pay for health services out-of-pocket. This has allowed particular regions and sectors to race ahead, whilst some poorer regions have experienced major financial difficulties. For example, township level health services have also changed a great deal, although the direction of change varies between rich and poor localities. Some health centres in rich townships have expanded and acquired new equipment (Xiang and Hillier, 1995). In contrast, there are many health centres in poor areas that face severe difficulties related to lack of funding and loss of skilled medical professionals (Tang et al., 1994; Gong et al., 1997).

Government subsidies can significantly decrease the drug expenses of a facility, thereby decreasing the use of medicines and injections (Zhang and Wang, 2005). However, very few statistical data on the direct correlation between prescriptions for medicines and injections, and subsidies have been reported, although the WHO has claimed that sufficient government subsidy is needed to promote rational drug use (Gosden et al., 2000). High government subsidies may increase the possibility of appropriate prescriptions for medicines and injections. Few studies have used representative survey data to indicate the effect of government subsidies on injection prescription utilization. A previous study has suggested that medicines and

injections have been overused in primary health care institutions in rural China because of the insufficient government subsidy for both the facilities and the staff (Zhang and Wang, 2005). Another study examined the prescription behavior of village doctors and reported that government subsidy can help in the improvement of prescription quality and reduce the use of antibiotics and injections (Dong et al., 2011).

Consequently, the decrease in government subsidies has caused a significant reliance of state-owned hospitals upon non-state revenues, primarily in the form of user fees and drug sales. In fact, an increasing percentage of income from 1985 to 1999 came from the sale of drugs (39% to 50%) and user fees (26 to 37%). Although there was a slight increase in government subsidies from 2002 to 2004, income from drug sales and medical services have been major ways of hospital cross-financing in China (see Table 1).

Table 1: The Percentage of Government Subsidy for Hospitals in China (2002-2004).

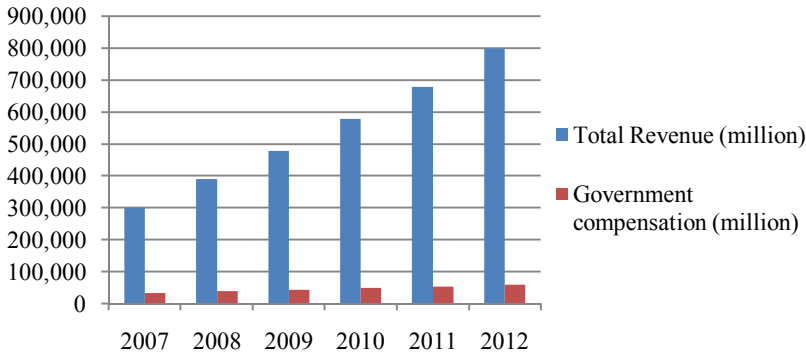
	Government subsidy %	Drug income %	Medical services %	Others%	Total%
2002	10.2	43	44.2	2.6	100
2003	8.8	43.4	45.1	11.5	100
2004	12.8	40.3	44.6	15.1	100

Source: Chinese Ministry of Health, Health Statistics (2002–2005).

Greater autonomy in revenue generation has not been accompanied by better performance of hospitals. The reliance on user charges for financing has driven the hospitals' focus from health improvement to profit-seeking. According to Wu et al. (2013), they studied the therapeutic choice in China, found that generic substitution increased the pharmaceutical expenditure, and it typically showed that a trend of transfer from cheap products to expensive ones (Xiao and Zheng, 2008). Therefore, doctors prefer expensive ones; that is, cost-effective generics have been replaced by expensive equivalents, and expensive high-tech diagnoses have been utilized more frequently, even unnecessarily. Consequently, there is an issue with the incentive compatibility of the contracts. As I have noted, doctors currently have an incentive to prescribe unnecessarily expensive drugs, as revenues from these more expensive drugs go directly to the hospital. Therefore, the hospital will give the doctor a higher bonus or a raise as a reward for the increase in revenues (Wang, 2009).

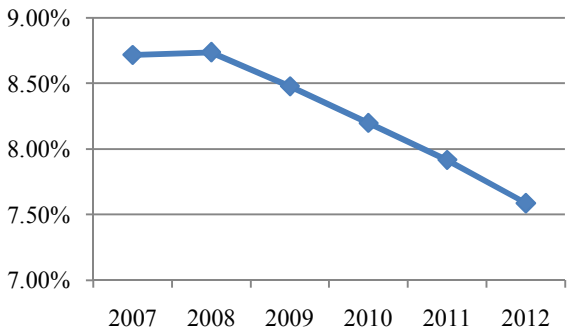
With the reduction of government will and ability to sustain the public health services, the financial support from government has been decreased year by year (see Figures 2 and 3 below), whilst in order to maintain the normal running of hospitals, the government gives them much autonomy including the power over personnel, distribution rights, financial power, etc. The most direct "policy" in these powers is that hospitals are permitted to increase prices to a certain extent on drugs and medical examination. The "mark-up" in the price are "profit" which can be controlled by hospitals and this part has become the main source of hospital revenues.

This has provided a legal way for medical professionals to create income. “Profit-making” has become the mainstream and active behavior of hospital and doctor. Consequently the entire health services system environment gradually takes to a market-oriented path.



Source: Data from Chinese Health Statistical Yearbook (2007-2012).

Figure 2: The government compensation to public hospital (2007-2012).



Source: Data from Chinese Health Statistical Yearbook (2007-2012).

Figure 3: The percentage of government compensation in total revenue to public hospital (2007 -2012).

Before the economic reforms of the 1980s, the Chinese public hospital and doctors’ salaries were fully supported by the government. With the formation and development of market-oriented healthcare system, a new salary scheme was instituted by government; the public hospitals and doctors have to be self-supporting, they have to make their own management decisions and take full responsibility for their own profits and losses, that also means they have to run themselves and sustain all staff remuneration without government subsidies (World Bank, 2010).

The effect of the market-oriented healthcare reform by Chinese government over the past 10 years has been negative for doctors. Doctors in China have long been a group of people whose

low financial income and social position are distinctively in contrast to their high training costs, academic degrees, the technical demands of their career, and professional risks (Chen and Godfrey, 1991). Incentives have arguably removed the independence of the profession and are eroding the adequacy, safety, and social values of health services (The Lancet, 2000). The difficulty in seeing a doctor and the high cost of getting a diagnosis and treatment are common in China. The primary cause of this problem is the policy of turning the sacred cause of curing the sick and saving the dying into a commercial competition (Blumenthal and Hsiao, 2005). At the same time, the government uses some official media reports (i.e. Chinese Central Television (CCTV), China Daily, local news channels and newspapers, etc) to transfer public attention by suggesting that the scarcity and high cost of medical attention is a reflection of a decrease in social morality on the part of the medical profession. Thus in the eyes of many ordinary Chinese people, the term “doctor” is likely to be linked with “grey income”, “prescription abuse”, “excessive examination”, or even “medical accidents” (Yang et al., 2008).

Therefore, with a low basic salary, the components of Chinese doctor’s compensation have largely changed. The percentage of the basic salary provided by the government has decreased to approximately 30%, while other compensation components, such as performance-related bonuses and incentives for physicians, have increased significantly (Wang, 2009: 601). The bonuses distributed by the hospitals have been largely dependent on hospitals’ profits, which are driven by the sales of profitable medical services and drugs. As such, doctors have been sharing the same interests as hospitals, resorting to providing profitable services and drugs, which are primarily high-tech diagnoses. This type of compensation scheme has transformed some doctors from health care providers into health care “salesmen.” The overuse of high-tech services and high-price drugs has contributed to the healthcare expenditure escalation in China during the past several decades (Ibid). In recent years the government has also noted the controversial issue of the market economy.

5. GOVERNMENTAL PRICE-SETTING AND THE IMPLICATION FOR INCENTIVES

Another key change of government policy that considerably influences the use of medicines is through the direct government price control in market-oriented healthcare sector. From the early 1980s, with China privatization of its economy, there was a sizeable disruption in health care services. The Chinese government believed that the health care price schedule needed to be revised, and prices need to be aligned with actual costs, these efforts are needed to reduce existing incentives to overprescribed pharmaceuticals and overpriced, unnecessary medical procedures. Also during the 1980s, as the market reforms began to take effect, the Chinese government set prices for basic care below cost in order to maintain a low cost of care to the patient at the point of delivery and to ensure access for the poor, a system of price regulations was established. Controls over what publicly owned hospitals and clinics could charge were put in place in an effort to ensure access to basic care (Chee, 2006).

Between 1980 and 2000, the government controlled entire tiers of drug prices, from manufacturers' exit prices, to wholesale and retail prices. Manufacturers' exit prices were based on production cost plus a 5% mark-up, to which a 15% mark-up was added for the wholesale price, and addition of a further 15% mark-up constituted the retail price (CSCPD, 1998). However, faced with the rapid expansion of the pharmaceutical sector and asymmetry of access to cost information between price regulators and manufacturers, the government was unable to generate the necessary cost estimates for setting appropriate exit prices. Furthermore, since mark-ups for both wholesalers and retailers, including hospitals, were a fixed percentage, expensive drugs were preferred by both. In order to attract wholesalers and hospitals to their products, manufacturers requested higher prices. Under this system, drug prices in China were thought to be unreasonably high, for example, the ex-works price of Azitromycin Dispersible Tablets for the pack of 0.5g/unit \times 12 is less than 5 Yuan, but the retail price per pack is nearly 70 Yuan in average, which is 15 times more than the ex-works price (Hu and Li 2001; Du 2002; Wang and Wei 2003).

Since 2000, new government price-setting policies have come into effect. The Central Government, State Development and Planning Commission (SDPC) decided to set retail prices for drugs listed under the Urban Health Insurance Scheme, because these were believed essential and frequently used. There are two parts to this list, A and B. Prices of Part A drugs are set by the central government and are definitive ceilings for retailers, setting maximum retail prices for A-list medicines on the national Basic Medical Insurance (BMI) drug lists, and for patented innovator and first-class new drugs (i.e. the active ingredient and its preparation materials extracted from plants, animals or minerals, etc), which have not previously been on sale in China and for second-class new drugs (i.e. newly discovered drugs or preparations). Central Government also sets the factory price/landed price of first-class drugs used in mental health, anaesthetics, immunization medicines, and family planning medicines, leaving retail pharmacies and public hospitals to set their own retail price – which cannot be higher than the maximum retail price (CSCPD, 2000).

The central government also sets guiding prices for Part B drugs, which are used by the provincial governments. Provinces can set price ceilings 5% higher or lower than the central guiding prices for Part B drugs. All retail prices charged to the users must be lower than these ceilings. The government declared that retail prices should be reduced by an average of 15% before the end of 2001 (CSDA, 2003). Provincial governments set prices for B-list drugs, and the wholesale prices and retail prices of first-class drugs used in mental health and anaesthetics. Since 2000, SDPC has only set the prices of prescription drugs and provincial price bureaux set OTC medicine prices. SDPC began to set factory prices and maximum retail prices for selected samples of drugs. Prices are based both on declared costs by manufacturers and calculated as

factory or import prices with duty/taxes and retail distributional profits incorporated¹. Manufacturers can apply for special pricing permission for higher prices if their drugs have greater efficacy and safety or if the treatment cycle and expenses are much lower than those of other manufacturers producing the same drug. Consequently, this loophole in the government price policy ambiguously leaves a gap for pharmaceutical manufacturers to allow them setting higher prices, seeking for more profits by “differentiation” (CSCPD, 2000).

The price of off-patent innovators can be set up to be 35% higher for injections and 30% higher for other formula than generics produced by Good Manufacture Practice (GMP)certified manufacturers (CSDA, 2003). For patented drugs, manufacturers or distributors can set prices themselves in the year after they received their import registration license, but after one year, the SPDC makes an official assessment of the price. However, all prices not set by the Chinese central government have to be registered with the government pricing authority on the basis of market prices. Drugs with GMP Certification can be priced up to 40% higher for injections and 30% higher for other dosage forms than non-GMP certified products (Ibid). In practice, the factory price set by manufacturers is usually much higher than the actual production cost, because the Government pricing authority does not have enough capacity to check these costs. Different prices for the same drug exist in different areas because of local competition, procurement transparency and local protection. For medicines with market pricing, the retail price is set based on production costs, market supply and demand. Wholesalers, retail pharmacies and hospitals can set the actual selling price but cannot exceed the retail price set by the manufacturer (Chen and Schweitzer, 2008).

Generally speaking, the government price controls have not been effective, as the government permitted facilities to earn profits from new drugs, new tests, and technology (Blumenthal and Hsiao, 2005). Hospitals benefited from the investment of high-priced technologies and the sale of new drugs in a variety of ways. For example, due to special price schemes, the prices for drugs and technology-based diagnostic procedures such as computerized tomography scans, magnetic resonance imaging, and ultrasound were set high and often well above the average cost for other hospital services. This unbalanced pricing of hospital services created distortions in the mix of services provided. There was an incentive for hospitals to use the high-technology equipment frequently, especially for those insured patients who bear much less of the cost of these procedures. At the same time, the State Price Bureau allowed hospital pharmacies to charge a 15% markup on the wholesale price of drugs, encouraging hospitals and medical

¹Formula to Calculate Drug Retail Price: The formula to calculate drug retail price of domestic drugs is “retail price=factory price (inc. tax) *(1+distribution price differences)”;The formula to calculate drug retail price of imported drugs is “retail price= border price*(1+distribution price differences)”;The formula for the factory price of domestic and imported subpackage drug is “factory price = (manufacture costs + period expenses) / (1-sales profit rate) * (1+VAT)”; The formula for the border price of imported drugs is “border price = C.I.F. * (1+duty rate) * (1+VAT) + border expenses”.

Note: C.I.F.= Cost, Insurance and Freight; VAT=Value-Added Tax

profession to overprescribe pharmaceuticals, especially new and expensive drugs (Liu et al., 2000).

The high rate of use of new high-technology medicine and drugs contributed to a rapid increase in hospital spending. From 1995 to 2005, the average annual medical expense per outpatient in China's general hospitals increased from 39.9 Yuan to 126.9 Yuan (or from roughly US \$5 to \$16), and per inpatient expense increased from 1667.8 Yuan to 4661.5 Yuan (or from roughly US \$211 to \$590) (MOH, 2006). Pharmaceuticals now account for half of all health care costs (Hesketh et al., 2005). In the 1990s, a revenue-related bonus increased doctors' pay through the provision of services and use of prescription medications. This system encouraged unnecessary admissions and surgical procedures as well as over-prescription of many medications (Liu and Mills, 2005). Many hospitals instituted bonus systems linked with the use of high-tech equipment and new expensive drugs, where doctors were offered monetary compensation for new expensive drug sales and ordering diagnostic procedures. At the same time, hospitals were overcharging for unnecessary health services such as unnecessary tests and prescriptions (World Bank, 2005).

As mentioned early, with artificially low prices for basic care set by government regulation, providers were encouraged by a policy that allowed a 15% profit margin on drugs to use pharmaceuticals to cross-subsidize the below-cost pricing for basic services. Although the purpose of the economic reform was to increase access, providers sought instead to increase utilization of high-revenue services such as pharmaceuticals and high-technology testing, creating inequity of finance and barriers to access (Wagstaff et al., 2009). This regulation-induced incentive to increase prescribing was added to existing incentives from the market. Pharmaceutical companies often share profits with prescribers, physician bonuses from their clinical department may be based on how much revenue their services generate (Reynolds and McKee, 2009). It has been argued that high levels of supplier-induced demand have ensued due to these "perverse incentives to overprescribe drugs and high-tech diagnostic services and procedures." (Yip and Mahal, 2008) Today, it is estimated that at least 30% of drug spending in China is on unnecessary prescriptions (Hsiao, 2008).

6. CONCLUSION

The combination of rapid economic growth and unprecedented consequence of commercialization has led to the spectacular market failures in the Chinese healthcare sector; the introduction of market mechanism is too inexperienced to provide all of the services previously provided by the government in China. However, contrary to the opinion that over-prescription problems existing in Chinese healthcare are primarily caused by market failure, this chapter attempts to argue that the ambiguous and inappropriate roles of government in the provision of health care and the use of medicine should be re-examined. As we can see the government has played a crucial role over the healthcare sector and medicine use, which is a powerful actor, so finding the optimal balance of power between market and government is the

first important issue ahead of government control over the Chinese over-prescription problems. This study is expected to contribute the strategies and recommendations to reduce this overuse and improve healthcare system with policy design, implementation, and evaluation. The analytical results of this research will also shed some critical light on the current global issues addressing the role of the state and effective healthcare policy implementation in the healthcare domain.

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