

China's Rural Health Insurance and Financing: A Critical Review

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Summary

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I. INTRODUCTION

China's rural health system is characterized by a 3-tier structure – county health facilities (including county hospital, disease prevention station, maternal and child health center), township health centers, and village health posts. Since the 1980s China's fiscal system is decentralized, with the county government (county health bureau) taking the main responsibility for financing and managing health facilities. Except for special projects or programs such as SARS surveillance and reporting, the 3-tier system receives little assistance from governments above and beyond the county government. Supply-side financing takes the form of regular budget allocations from the county and township governments to cover some basic salaries of the staff and capital development and depreciation. The money from these government budgets, however, only accounts for less than 30% of the total income of the county and township health facilities. The rest of their income comes from services fees these facilities charge and from the proceeds of drug sales (the dominant source of revenue). Furthermore, since the majority of village health posts are private practitioners, they receive almost no budget allocations from the governments, and thus rely totally on revenues for their income.

From the demand-side point of view, China's rural health insurance and financing has experienced very substantial transformations. China was the first large nation in the world to develop a nationwide rural health insurance system in the 1970s. Its community-based rural health financing and provision system, called the Rural Cooperative Medical System (RCMS), was an integrated part of the overall collective system for agricultural production and social services (Zhang 1992). Under the RCMS, the financing of health care relied on a pre-payment plan. Most villages funded their RCMS from three sources: (1) premiums—depending on the plan's benefit structure and the local community's economic status, 0.5 to 2 percent of a peasant family's annual income was paid to the Fund; (2) the collective welfare fund—each village contributed a certain portion of its income from collective agricultural production or rural enterprises into a welfare fund, according to State guidelines; (3) subsidies from higher-level government structures. In most cases, this subsidy was used to compensate health workers and purchase medical equipment. By the mid-1970s, about 90 percent of China's rural villages, called "communes" at the time, were covered by RCMS schemes. This community financing and organization model of health care was believed by many to have contributed significantly to China's success in accomplishing its first 'health care revolution' (Sidel and Sidel 1982; Chen and Bunge 1989; Sidel 1993; UNDP 1998).

Since the 1980s, China has moved away from central planning towards a market economy, a trend that is also reflected in the health system (Jamison and et al 1984; Hsiao and Liu 1996). Along with growing commercialization within the economic sector, access to health care has been increasingly dictated by ability to pay. In rural areas, the transition from agricultural collectives to what is termed the household responsibility system weakened the financial base of the cooperative medical system. The RCMS schemes collapsed in the majority of rural communities. In 1993, insurance coverage for rural residents had fallen to 12.8% (Ministry of Health 1994). By 1998, only 9.5% of the rural population were insured (Ministry of Health 1999). This decrease in insurance cover for the rural population has taken place at a time when medical costs have escalated (see Table 1). Internationally, as a country's income

increases, the share of that country's total health expenditure accounted for by government also tends to increase (Commission on Macroeconomics and Health (CMH) 2002). But in China, a country with very rapid income growth, while total health spending as a percentage of GDP increased from 3.2 percent in 1980 to 4.8 percent in 1998, the government share of that total decreased from 36.4 percent to 15.5 percent. Over the same period, the private spending share increased from 23.2% to 57.8% (Health Economics Institute 2000). Since the collapse of the once successful RCMS in the early 1980s, many rural residents, especially the poor, have faced severe problems. User charges and high direct costs now effectively block access for the many people who lack sufficient income to purchase basic healthcare when they need it. Moreover, medical expenses have also caused financial catastrophe for many rural families (Yuan, Wang et al. 1998; Liu, Rao et al. 2003).

As indicated by Table 1, demand-side financing in China, particularly in rural China, is dominated by the out-of-pocket spending.

Table 1: Health Care Spending in China (1990-2000)

	1991	1995	2000
% of Total Health Expenditure by Government	22%	17%	14%
% of Total Health Expenditure by Individuals (out of pocket)	38%	50%	60%
% of Government Health Spending on Public Health	75%	72%	70%

Source: MOH website

According to the MOH's national health services surveys, nearly 80% of the rural residents do not have any insurance coverage today, although overall insurance coverage improved somewhat (mainly due to an increasing percentage of people buying private insurance) over the 10-year period between 1993 and 2003 (Table 2).

Table 2. Percentage of Rural Households Covered by Insurance Schemes

Type of coverage	1993	1998	2003
Basic Social Medical Insurance	0	0	1.5
Government Insurance	1.6	1.2	0.2
Labor Insurance	1.1	0.5	0.1
Cooperative Medical System	9.8	6.6	9.5
Other Government Schemes	3.1	3.0	1.3
Private Insurance	0.3	1.4	8.3
Uninsured	84.1	87.3	79.0

Source: Ministry of Health (1994; 1999; 2004)

Lack of insurance coverage coupled with escalating medical costs causes serious access and impoverishment problems for Chinese rural residents. According to the China 2003 National Health Services Survey, 30% of the rural patients who were recommended hospital admissions by the doctors refused to be hospitalized. The majority of those who had forgone hospitalization (70%) cited lack of financial means as the major reason for their decision. Even among those who were hospitalized, 43% discharged themselves against medical advice. When officially

designated rural “poor households” were asked to identify the major reasons for their impoverishment, the most frequently cited reason was disease and injury.

Why has a rural health insurance system not emerged to meet the needs illustrated above? Liu (2004) analyzed some major factors affecting the development of rural health insurance system in China. These factors include lack of ability to pay by low-income families, adverse selection among those who are able to pay, and lack of the organizational capacities needed to run such schemes. But by far the most important issue is the weak role played by the government.

Based on the recognition that many rural communities cannot establish the rural health insurance schemes they need by themselves, the government recently changed its previous policy of requiring RCMS to rely totally on local resources. The new policy stipulates that for the 400 million rural residents who live in China’s midland and western regions, the Central government will provide 10 yuan (US\$1.25) premium subsidies per capita, to be matched by at least 10 yuan contributions from the provincial and lower levels of government, and at least 10 yuan contributions from the individual families (Yin 2002). Twenty yuan (US\$2.50) per capita support from the government may not seem very much, but for the past 30 years the Chinese government has paid almost nothing to support the purchase of healthcare services by the rural farmers. In that context, the new policy represents a breakthrough.

Currently, these new CMS schemes are being piloted in 304 counties in 31 provinces, enrolling about 65 million people with a relatively high enrollment rate of 70%. The major difficulties encountered by the pilots include financial strain on the local government budget, high administrative costs in collection, and lack of administrative capacity. For those poor households who cannot afford to pay the premium to join the new CMS, government plans to cover them through the rural Medical Assistance (MA) schemes, the exact structure of which is yet to be defined. The MA system is administered by the Civil Affairs Administration. Moreover, the government is also considering how rural public health services (e.g. disease surveillance and immunizations) can be strengthened through separate and vertical purchasing mechanisms by the central government.

II. AIMS OF THE REVIEW AND ANALYTICAL FRAMEWORK

2.1 Aims

The major objective of this review is to take stock of relevant domestic and international experiences pertaining to the major issues on the agenda and identify critical knowledge gaps. Key issues on the agenda include:

- a. Given the voluntary nature of the new CMS, how can adequate participation be ensured?
- b. Is the subsidy large enough to attract participation?
- c. How can the contributions by the local governments be secured?
- d. How can the weaknesses in management capacity be overcome and trust in the system be built?
- e. Should the schemes be focused on covering catastrophic medical spending?

f. How should new payment systems be introduced to improve efficiency?

We will offer a critical review of the major design features of the new CMS schemes, so that the major strengths and weaknesses of the schemes can be revealed. The Chinese experience in rural health financing reforms will be examined in the international context. Drawing on international experiences, we will offer some critical observations regarding the future directions of China's rural financing and insurance.

2.2 Analytical framework

One of the major value-added by this critical review is to apply a comprehensive framework to analyze China's rural health insurance and financing. Since financing is a sub-system of health system, we will begin by defining what a health system is. Then we provide a working definition of health financing and describe our framework for critically reviewing China's rural health financing reforms.

2.2.1 *Health system: structure and goals*

Health systems today provide the critical link between the development of interventions capable of achieving significant population health improvements and the realization of this improvement. WHO recently defined health systems to include four major functions: creating resources; financing; service provision; and stewardship (World Health Organization 2000). In Getting Health Reform Right: A Guide to Improving Performance and Equity, Roberts et al (2004) further developed the notion that health systems' performance can be affected by five "control knobs" or areas of policy action: financing, payment, organization, regulation, and behavior. These frameworks provide a useful conceptual basis for health systems research and can be linked to important questions, theories, and methods used in health systems research.

For the purpose of this review we adopt the following working definition of a health system: a health system can be defined to include the people, organizations, and institutions that:

- **deliver** health care, including treatment, prevention, and promotion
- **finance** and pay for health care
- **produce** or provide the specialized inputs to health care
- **organize**, control, and regulate those that do the above.

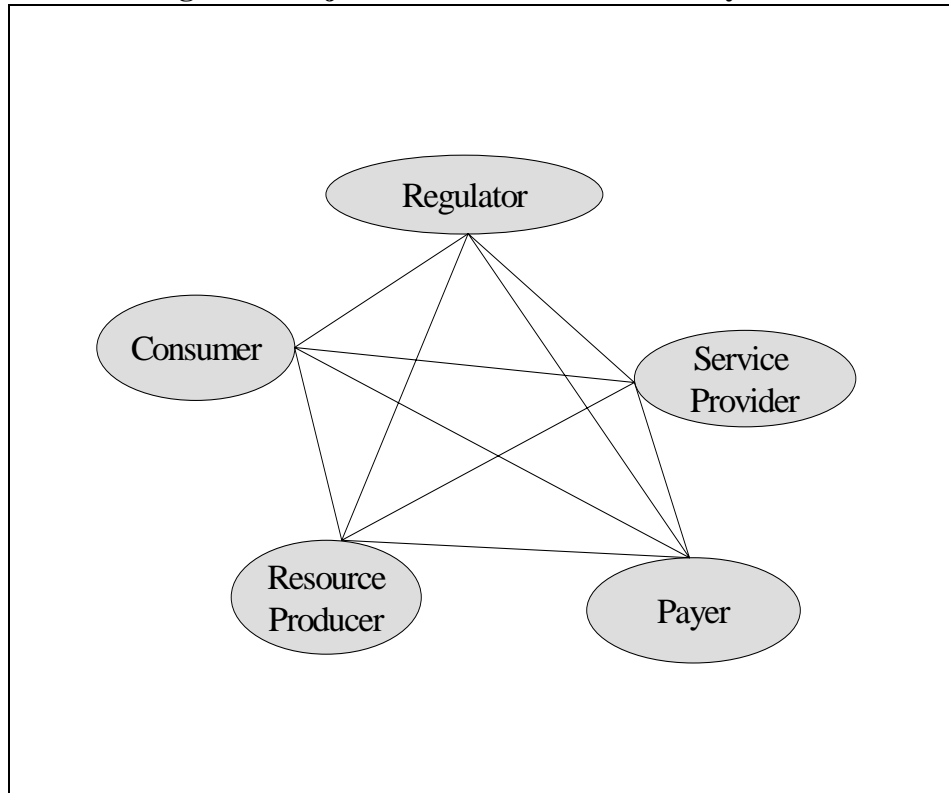
Therefore, a health system can be described by a web of inter-relationships among the five major stake-holders (Figure 1): consumers (patients as well as general public), resource producers (producing material as well as human resources such as pharmaceutical manufacturers and medical schools), service providers (e.g. hospitals for providing inpatient care and schools for providing health education), payers (e.g. government, employers, insurance companies, and of course households), organizers and regulators (e.g. government agencies and professional associations).

A health system is a means to an end. It converts resources into outputs, which produce desirable outcomes. These outcomes (or goals of health systems) include:

- a. health status,
- b. financial risk protection, and

- c. consumer satisfaction (both levels and fair distribution).

Figure 1. Major Stake-holders of Health Systems



2.2.1 Health financing: structure and goals

Health financing serves as an effective intermediary between providers and end users, linking planning and budgets to service delivery. The purpose of health financing is to provide financial resources to the health system, making sure that individuals have adequate access to public health and personal health care, and setting financial incentives for providers to deliver healthcare services in a cost-effective way. Health financing thus serves three main functions: Resource Mobilization, Risk-Pooling and Provider payment.

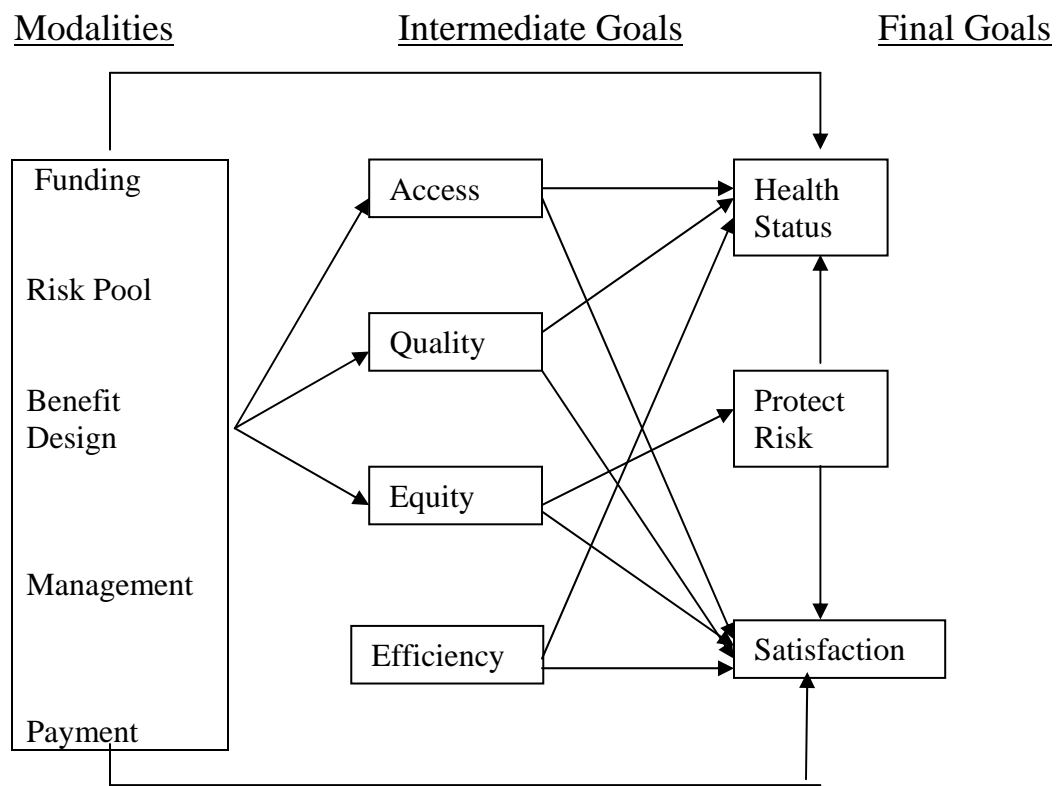
- Resource Mobilization is the process by which the health system receives money from households, individuals or organizations. This process of generating revenue includes several methods such as general taxation, mandatory social health insurance, voluntary commercial insurance, community financing, and out-of-pocket payments at the point of service. The last financing method and some community financing schemes (e.g. CMS) characterize current rural health financing in China.
- Risk Pooling involves accumulation and management of the collected revenues to create a 'risk pool' such that the risk of having to pay for health care in the event of an illness is borne by all the members of the 'pool', thus taking the burden off the individual. Traditionally known as the "insurance function" of the health system, the main purpose of the pooling is to share the financial risk of health interventions. Obviously, the extent of risk pooling by a

financing system depends on the size of the pool (how many contributing members and beneficiaries) and the size of the fund for the pool. For example, CMS schemes operated at the township level have a larger risk pool than schemes operated at the village level.

- Provider payment is the process involving payment of pooled funds to providers for delivery of a set of health interventions. Depending on specific organizational structures of different health systems, payments to hospitals and doctors can be made separately. Different payment methods are used in different countries to pay providers: payment by budget/salary, payment per itemized bill, payment by diagnosis, payment per inclusive hospital day, and capitation. Different payment methods create different financial incentives. For example, under a capitation payment system, providers have an incentive to use fewer resources than under a salary payment arrangement.

As indicated by Figure 1, financing affects behaviours of consumers, providers, and resource producers. Figure 1 also indicates that the way in which a financing system is structured, which is influenced by the regulatory regime. Therefore, health financing is one of the important 'control knobs' of health system performance, which affects the three goals of health systems through intermediate outcomes. The following diagram, which is adapted from Roberts and Hsiao et al (2004), demonstrates the relationship between financing instruments and goals of the health system. Financing policies have direct effects on the intermediate goals of the health system, which include access, quality, equity in financing and allocative efficiency, all of which in turn contribute to the three main goals described above.

Figure 2. Financing Instruments and Goals



First, a health financing system provides financial access to available services. This helps increase utilization of healthcare services, which in turn contributes to better health status. Second, quality of services, as an intermediate criterion, is valuable for its role in health improvement as well as achieving consumer satisfaction. Different financing modalities can influence the quality dimension of healthcare services via levels of funding, targets of funding (e.g. through different benefit package designs), and financial incentives created by different payment methods. In this respect the perceived quality of care by consumers is important, affecting demand for services as well as demand for health financing systems. Third, equity in financing addresses the important questions of who gets the benefits and who bears the costs. The two major sources for concerns about equity in financing are financial risk protection and equitable distribution of healthcare services. Therefore, equity in financing is usually defined as “paying for healthcare according to one’s ability to pay” (Wagstaff and van Doorslaer 1993). The related concept of equity in healthcare utilization is defined as “using healthcare according to one’s need”. If richer people pay a higher proportion of their income to healthcare, the financing system under consideration is deemed “progressive” (another word for “equitable”). If the opposite is true, then the system is called “regressive”. A financing system dominated by out-of-pocket payment such as that in rural China is regressive and inequitable, because the same medical price represents a higher proportion of income to the poor than to the rich.

Therefore, from an equity point of view, one of the most important functions of a financing system is providing mechanisms for financial risk protection. Financial risk protection does not necessarily involve protecting everyone from all economic losses due to illness. Rather, it aims at protecting those who are at major risk of “medical impoverishment” due to significant healthcare costs. To illustrate this, a well-paid skilled worker has some loss of welfare in the event of healthcare expenses incurred by him, as compared to the impoverishment faced by a poor farmer who loses his farm or livestock to pay for his medical expenses. Medical expenditure always has a skewed distribution – a small proportion of the population has a disproportionately large share of the total spending. That is why we need risk pooling, which transfers payment from the sick to the healthy, and, depending on the configuration of the system, from the wealthy to the poor. It is worth noting that risk pooling not only reduces the uncertainty of affordability of services for the users, the prepayment nature of the risk pool also reduces uncertainty of the demand faced by the providers. Thus, by increasing and stabilizing the demand for services as well as flow of funds, a health financing may prompt increased provider investments and better quality of services in anticipation of the increasing new demand.

For the purposes of this paper we adopt a broader definition of financing, which includes the whole process of resource mobilization and payment. The structure of a health financing system is defined by its “modalities”, the most important of which include funding (sources and fund collection), benefit packages (financing of what), and fund management (contracting and payment).

2.2.3. The framework for analyzing China’s rural health insurance and financing

Based on the discussions above, our analytical work basically includes the following tasks:

- (1) Provide a succinct description of the modalities of China's current systems and planned reforms;
- (2) Assess the impact of the modalities on the final and intermediate goals;
- (3) Analyze the structural strengths and weaknesses, and identify major issues.

III. CRITICAL REVIEW OF THE NEW CMS SCHEMES

3.1. Critical review of the funding mechanisms

3.1.1 Impact assessment

Although 30 yuan per capita prepayment into the new CMS fund is equivalent to only about 13% of per capita annual medical expenditure in rural China, this “additional” funding is expected to have a positive impact on health and health care for two reasons. First, because of the elasticity of demand for healthcare, CMS coverage will cause the overall utilization rate to go up. Second, the additional resources thus poured into the health system, if efficiently used, can be translated into quality improvement. In many rural counties, the government annual health budget is less than 30 yuan per capita. The relatively new subsidies provided by the government (in the form of matching-fund) will also have a positive impact on people's satisfaction with the new system, and with the government.

3.1.2 Structural analysis

The new CMS is financed through a “matching-fund” mechanism. The 10 yuan contribution by the central government is conditional on the contribution (at least 10 yuan) of the local government (among the provincial, district, and county government), which in turn is conditional on the household contribution (at least 10 yuan). This arrangement has the advantage of institutionalizing the financial obligations of the 3 parties. This arrangement is both necessary and ingenious. For the world's largest developing country, it would be extremely difficult, if not impossible, for the central government to take the total responsibility for financing health care for the 800 million rural population. In the context of a decentralized fiscal system, China's record in the past 25 years has shown that the local governments' support for health has been lukewarm and varied, to say the least. The policy of encouraging voluntary community financing schemes has also failed, given the fact that the percentage of rural populations covered under CMS has remained low ever since the economic system reforms in the 1980s. In light of the failures of single-source financing schemes, it is only logical to think of multi-channel financing schemes, central to the creation of the new CMS.

Sources of funding

One of the major questions that can arise pertains to the sustainability of the new CMS. In turn, funding sustainability depends on viability of the three different funding sources. For the central government, whose revenue has been on the continuous rise, allocating 10 yuan per capita does not represent a huge financial commitment, because even when the 800 million rural Chinese are all covered, it would amount to only 8 billion yuan a year. The central government's

revenue situation has been steadily improving. Given the new policy emphasis placed on strengthening healthcare for the rural population, the sustainability of the financing source from the central government is the least problematic.

Regarding the household contribution, there is the issue of the inability to pay the premium by poor households. It is unclear to what extent these households will be covered by the new separate MA schemes and to what extent they will be exempted from the premium contributions. The average per capita income of rural farmers in 2003 is 2,175 yuan and expenditure 1,781. The required premium contribution only represents 0.4% of this average income and 0.5% of average annual expenditure, and thus should be affordable for majority of the rural households, albeit regressive (the same absolute amount represents higher percentage of income for lower income groups). However, ability to pay is a necessary but not sufficient condition for people to join the CMS. We will address the willingness to pay issue in the next section.

Relatively speaking, the most challenging source of funding is the local governments. First, the financial conditions vary greatly among local governments, and thus the degree of difficulties faced by them in allocating 10 yuan premium subsidies also varies across counties, districts, and provinces. Meanwhile, the central government gives a flat rate to all the localities, regardless of their conditions. This may not be the best use of the central government money, as the “equalizing” function of the subsidies is absent. Second, there are no clear guidelines with regard to how the 10 yuan costs are going to be shared among different levels of the “local governments”. Therefore, there might be constant tension/negotiation among different levels of government, and the resulting cost-sharing arrangement may reflect different parties’ political power, rather than their ability to pay.

Fund collection

Under the new CMS, the most important financing pillar is the household contribution, without which contributions from the local and central governments will simply not be forthcoming. Past studies indicated that the major factors affecting the collection rate include people’s perceived health care need, ability to pay, trust in the organizers, and collection methods (Liu and et al. 2000). Drawing on past CMS and current pilot experiences, social marketing and transparent operation are critically important to enhance people’s willingness to participate in the new CMS. Another important issue is how to collect contributions from households. The traditional method of collecting cash contributions from households is proven to be administratively expensive and inefficient. A better collection method is integrating CMS premium collection into the routine tax collection process. This would require modification of the “voluntary” rule, which results in “adverse selection” anyway. To a certain extent, adverse selection can be remedied by reforming collection methods (e.g. requiring household or community membership, instead of individual membership).

Once household contributions are collected, local governments need to chip in their contribution and require disbursement of the matching-fund from the central government. This process may be subject to fraud and abuse. The central government needs to develop effective mechanisms for verification of local governments’ honored commitments. Without a checking and balance system, local governments have strong incentives to secure funding from the central government without putting up their own money.

3.2. Critical review of the benefit structure

Benefit structure pertains to the question of covering what services for whom? It has a direct impact on the extent to which the health system goal of financial risk protection can be achieved. Furthermore, people's satisfaction with the health system is also directly related to the extent to which the benefit structure meets their needs and suits their preferences. Furthermore, the benefit structure directs resource allocation, helping increase quantity and improve quality of those services that are covered. Benefit design must deal with the trade-off between the number of people covered and the comprehensiveness of the coverage. For a given level of funding, one can either provide catastrophic insurance (covering small-probability and large-loss events), thus benefiting a few people with extensive coverage, or one can decide to mainly cover primary care services (high-probability and small-loss events), thus benefiting many people with less comprehensive coverage.

According to the national guidelines, covering catastrophic medical expenditures should be the top priority of new CMS schemes. Two questions may arise:

- A. what is the extent, to which given level of funding can achieve the pronounced goal of reducing medically induced poverty with new CMS schemes?
- B. What other consequences will be caused by this insurance-centered benefit structure?

Using the latest national health services survey data, we simulated the poverty-reduction effect of the new CMS with its given level of funding. The 2003 China National Health Services Survey sampled 25,764 rural households living in western and mid-western regions. Their average per capita income is 2,062 yuan and average per capita medical expenditures per annum is 225 yuan. There are 14% of households with per capita income below the national rural poverty line (865 yuan). Medical expenditures pushed the post-expense poverty head count to increase to 21%, a 7 percentage points increase. Total CMS funding based on the 30 yuan per capita collection would amount to 27% of the poverty gap caused by medical expenditures. Total CMS funding based on the 20 yuan per capita collection amounts to 18% of the poverty gap caused by medical expenditures. This implies that the current level of funding will not be able to significantly reduce the extent of impoverishment arising from medical expenses. A total of 54 yuan would be needed to reduce the extent of medical impoverishment (in terms of the poverty gap) by half. Of course depending on the exact benefit structure, the changes in the poverty head count brought about by the CMS would be different.

Given the insignificant effect on poverty reduction as analyzed above, letting CMS schemes provide catastrophic insurance may run the danger of disappointing those members who benefit little or nothing at all from the CMS, thus gradually eroding the support base among rural households. Fortunately, the national guidelines regarding the benefit structure are not binding. Disbursement of the central government fund is not conditional on local CMS having certain design features. Most of the pilot CMS schemes cover both outpatient and inpatient services.

Should public health services such as immunization be part of the CMS benefit package? Proponents argue that including public health services, which tend to be under-funded, in the CMS benefit package can help strengthen their provision. On the other hand, inclusion of public

health services would lead to additional competing demand for the CMS funding, which is very limited to begin with. Public health services such as disease surveillance and immunization may better be financed by separate mechanisms, possibly through another matching-fund mechanism.

Another issue relates to service providers. Frequently, inadequate attention is paid to the implications of benefit package design for access to healthcare. For example, if the new CMS schemes are to mainly cover county hospital services, access to township and village health services will not improve. Likewise, despite their being the first choice of medical encounter among the rural residents, private providers are often excluded from the CMS contract. More studies are needed in the area of costing out different benefit packages and evaluating their impact on access to health care.

3.3. Critical review of fund management

Beside the accounting aspects, the most important tasks in fund management are contracting, payment, reporting and information dissemination. Compared to the traditional CMS schemes, which were operated at the village or township level with a very small risk-pooling base, the new CMS has a much larger risk pool and often is operated by the county health bureau.

Conceivably, each county can set up three organizations: the county CMS leadership group responsible for coordinating CMS operations in the county and supervising township schemes, the township CMS management committee, and the township CMS monitoring committee. The CMS management function is often taken up by the county health bureau and township health center. A special CMS account is opened by the committee at the local bank. Unlike rural pension funds, which can be invested to generate high financial yield, the CMS fund just sits in the bank, bearing a modest interest. The CMS management office under the CMS management committee handles all the financial transactions. Due to lack of resources, the CMS management office is often located within the health center building at the township health center or within the county health bureau. In most cases, the health center director is also the CMS office director, and the health center accountant is the same person who handles CMS reimbursement. This traditional practice seems to have continued under the new CMS. If the management of CMS operations is centralized by the county health bureau, it is not clear how people's access to township and village health services will be affected.

The health authority dominated CMS management structure has received mixed reviews in the past (Liu, Rao et al. 2003). Supporters view this as a way to reduce administrative costs. Opponents suspected that the township health center might have a conflict of interests. In any event, there has been no strong "purchasing" role played by the CMS fund managers. The most critical problems revealed by the past CMS operations are lack of transparency and accountability (Hu and al. 2000; Liu, Rao et al. 2003).

One of the vastly under-explored areas of CMS modality design is developing innovative payment methods to create financial incentives for the providers to be more effective and efficient. Most of the past and current CMS schemes operate like an indemnity insurance company, with the main business being passively reimbursing policy-holders' medical bills. Meanwhile, serious inefficiencies exist in the rural health system, not least of which is caused by

the tendency to over-prescribe medicines to generate revenue. International experiences have shown that changing the payment system (e.g. the fund-holding system in UK and DRG payment system in the US) can help significantly change provider behavior. This is especially important for new CMS, because of the limited funding as well as because of the leveraging power CMS now can use as a group purchaser.

In developing new payment methods, policy makers in China may want to link compensation to performance and quality, and link the process of provider contracting to the provider qualification and input market regulation (particularly medicines market regulation).

IV. LEARNING FROM EXPERIENCES TO DATE

Ever since the collapse of the rural CMS in the early 1980s, numerous community-based schemes have been tried out. They include schemes organized by the local governments or supported by international agencies. In chronological order, the following major community financing schemes with international assistance are worth mentioning: the RAND Sichuan CMS experiment in mid-1990s (Cretin, Duan et al. 1990), the WHO 14 county study in the early 1990s (Carrin, Ron et al. 1999), the UNICEF 10- county study in 1997-2000 (Liu, Rao et al. 2003), the World Bank Health Loan 8 project in the late 1990s (Liu 2003), and the Harvard 2-county study in 2003 (Hsiao and et al. 2004). These schemes helped improve access to primary health care services but with limited insurance coverage. We will discuss the following major lessons that can be drawn from past experiences in rural health financing and insurance.

4.1. Political legitimacy and government support are necessary

China's own experiences clearly indicate that strong government support is necessary for establishing and sustaining wide coverage of rural health protection systems. Some policy makers, especially those in support of a "voluntary" community-based rural health protection system, hoped that with economic growth people's demand for health protection would increase, and this increasing demand would automatically lead to community initiatives to address the health protection issue. This has not happened. Despite of steady economic growth since 1980s and the announced policy directions on rural health protection in 1996, the majority of the rural population remain uninsured today (see Table 2). Discussions above indicate that all the successful CMS schemes that exist today did it with strong government backing. We have yet to find one single example in China, whereby government support is not needed and the scheme is totally initiated and operated on a sustainable basis by a non-government organization (NGO). For example, the major reason for the significantly wider CMS coverage than previous schemes under the Health Loan 8 project is the strong government support, particularly the heavy premium subsidies.

There are several reasons for the need of government support. First, increasing inter-regional inequalities in economic and social development, brought about by the economic system reforms, imply that some communities will certainly be left behind, if developing rural health protection system is totally subject to the discretion of the local communities. There always are communities where the stock of financial and social capital is too low for any meaningful health

protection system to shape up. Governments have a responsibility to help the helpless. Second, establishing rural health protection system in China, where the market for health insurance is yet to be developed, requires that people trust the institutions in charge of the system and that the institutions have sufficient authority and skills for fund collection and risk-transfer. Except for coastal regions or those regions with well-developed township and village enterprises (TVEs), many rural communities lack alternatives to government organizations for handling the complicated process of problem identification, benefit design, social marketing, fund collection, contracting and management etc. This is especially true in poor rural areas.

By virtue of their high poverty rate, China's poor rural areas do not have abundant supply of financial and human capital. Many people need health insurance protection, but with a meager income they cannot afford to pay the premium. Government simply must provide financial assistance to the poor for them to be able to join the CMS. Meanwhile, local governments (township and county governments) often have faced problems of budget shortfall. Sometimes government officials working in the poverty regions cannot even receive their salaries on time. It is obvious that local resources alone cannot finance a comprehensive package of CMS benefits. Moreover, many young and educated people went out to find jobs in the cities or work in the government. There are very few social organizations existing in the poverty regions. In light of the lack of alternative organizations that can take on the role of CMS organizers, CMS schemes have to be initiated by the local governments in many cases. Ever since the fiscal decentralization reform in the mid-1980s, local governments have been given increasing responsibilities for developing local economic and social infrastructure. Therefore, local governments have the discretionary power to decide whether a CMS scheme is to be established, continued or disbanded. A common experience noted by students of China's CMS is that whether or not the party chief of a county or township government is really committed to the course of CMS matters a great deal. The interruption of CMS operations in several townships was often found to be a result of changing township government heads in the 10 County Study. Due to lack of control by the local people in CMS's operations and the vertical political structure that still governs China's political system, county government can intervene in the township level schemes on behalf of the people. In sum, for the foreseeable future government has an important role to play in developing rural health protection systems both as an enabler and as a supervisor.

4.2 Willingness to prepay depends on trust and perceived tangible benefits

Under a voluntary scheme it is not surprising that those with greater need tend to have a higher probability of enrolling in local community financing schemes, other things being equal. This phenomenon of "adverse selection" is found in almost all the organized community financing schemes we reviewed. Furthermore, whether people trust the organizers of the scheme has proven to be an important determining factor for enrollment.

The UNICEF 10-county study examined the role of "social capital" in explaining people's participation in community financing schemes. The term "social capital" has been applied to a variety of ideas that generally concern economic returns from networks of social relationships. Social capital first gained popularity from James Coleman's work. Coleman sees social capital as the "social relationships which come into existence when individuals attempt to make best use of their individual resources" (1988). While Coleman stresses social capital as resources that accrue to individuals, Putnam (1993) popularized a definition of social capital as

resources that can characterize societies: “Social capital here refers to features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions”. Putnam argued that the quantity and intensity of individual membership in social and professional associations is a good indicator of social capital. This indicator has been used by many researchers to test the benefits of social capital (Kawachi, Kennedy et al. 1997; Warren, Thompson et al. 2001)

The role of social capital in the demand for community prepayment schemes has not been subjected to much vigorous analysis. Using survey data obtained from the UNICEF 10-county study, Liu et al (2003) examined the importance of social capital measures (i.e. social trust and participation in collective activities) in people’s demand for community prepayment schemes. Furthermore, they compared the role of social capital in explaining demand behavior of community prepayment schemes to that of more traditional explanatory variables such as income, education, price (premium) and benefit of the policy, health care need, distance to the nearest health facility, perceived medical cost, demand for other insurance schemes.

The baseline data analysis of the 10-county study clearly indicated that whether or not people trust the organizer of the CMS scheme significantly influences their willingness to participate in CMS (Liu and et al. 2000). Based on the evaluation survey conducted in 2000, it was found that other variables measuring social capital at the household level are significant: the number of social organizations the household head took part in, frequency of attending village meetings, and good relationship with neighbors are found to have a positive correlation with the probability of CMS participation (Liu, Rao et al. 2003). Lack of trust is related to historical experiences of CMS in particular and changing social values in general. One of the major reasons for the downfall of CMS after economic system reforms is patronage and corruption. Today's CMS schemes are still heavily operated by the governments or government-run township health centers with a lack of operational transparency and organizational accountability.

4.3 Poor management and corruption lead to failed CMS schemes

How a rural health financing system is organized and managed certainly influence the scheme's initial operation as well as sustainability. To begin with, initiating a system in rural areas is a very complicated and difficult process, involving political mobilization, social marketing, fund collection, benefit design, fund management, and provider payment. Many things can go wrong. Given people's limited ability and willingness to pay, fund collection could run into great difficulties. Due to lack of organizational and managerial capabilities, collected funds may be mismanaged. Many failed CMS schemes can be traced to poor management and corruption (Wang 2001; Liu, Rao et al. 2003).

Since 2003, a research team from Harvard University led by William Hsiao has been experimenting on the “Rural Mutual Medical Care”, a special model of community financing schemes, in Kaiyang county (Guizhou) and Zhenan county (Shanxi). The study is experimenting on two promising models of management: democratic control and separating prescription from dispensing (Hsiao and et al. 2004).

Most of China's past CMS schemes are managed by government organizations such as township health centers with no involvement of the beneficiaries. This is one of the reasons for people's lack of trust in the schemes. To change the locus of control, the Harvard study tried to establish a management structure, where representatives from the villages serve on the board of directors which is responsible for supervising the operation of the scheme. While the impact of this new arrangement is yet to be evaluated, this certainly represents a serious effort to address the sustainability issue of community financing schemes from the management point of view.

In light of the strong financial incentive for rural doctors to over-prescribe medicines under the current fee-for-service payment system, where a handsome mark-up of 15-20% over wholesale price is allowed, one would be naturally concerned about the financial sustainability of new CMS schemes. Some local managers already began paying attention to payment reforms such as introducing "packages payment" methods to change the incentive structure of the providers. What the Harvard team did in the social experiment is two-fold: First, by introducing a bulk purchasing system through the county government, which consolidated the drug procurement process at the township level, the price and quality of drugs can be controlled. All rural doctors get the drug supplies from the same source. Second, rural doctors will not get any profit from selling drugs. Except for service fees, rural doctors are not allowed to keep any drug revenues. They have to turn all the proceeds from the drug sales over to the township health center. Township health centers use the money to link the compensation for the rural doctors to their performance including public health services such as immunization. Early results indicated that this new payment system helped significantly reduce the average costs of outpatient visits.

V. LINKAGES WITH OTHER THEMES

5.1 Linkage with urban health insurance

Increasingly, one of the major sources of income for rural households is the wages earned by migrant workers. This source of income enables families of migrant workers to pay for the CMS premiums. Therefore, migrant workers contribute to the financial sustainability of rural CMS schemes indirectly. However, the question of how migrant workers should be insured remains unanswered. If they are to be covered by the local CMS schemes, as is the case with some CMS schemes, the migrant workers either have to come back to their home town to receive medical care or submit their medical bills incurred in the cities for reimbursement. Either way would be inconvenient for those workers. Alternatively, migrant workers can be covered under the urban medical schemes such as Basic Medical Insurance (BMI) or Urban Medical Assistance, which will be implemented soon. Right now, both urban schemes only cover "urban residents", leaving out most of the migrant workers.

5.2 Linkage with public health

Without appropriate transfer payment and equalizing mechanisms, decentralization naturally leads to increasing variations in investments by provinces, cities, towns and other entities in public health capacities, as well as variations in the performance of health systems across China. What this trend implies is that while some regions may be able to detect and

control major epidemics in their localities (e.g. Guangzhou and Beijing), others may be simply unprepared for major public health challenges. Particularly disquieting is the lack of a well-functioning public health system in China's vast rural areas. Even though each county has an Epidemic Prevention Station (EPS), public health work at the township and village level has been very weak due to under-funding and lack of supervision and coordination among the rural health care providers. The SARS and many other deadly viruses are either found or speculated to have animal hosts. In the rural regions of China, agriculture and thus close human-animal contact are still critical parts of the local economy. Since many infectious diseases such as bird flu have animal hosts as a source of transmission to humans, strengthening rural public health system is essential to detecting and controlling epidemic outbreaks. This also calls for closer collaboration between the health and agricultural sectors in public health surveillance and control.

How should a package of public health services be financed and delivered in rural China? Financing public health services through rural CMS has the advantage of integrating prevention with treatment, because at the township and village levels providers for medical care and preventive care are the same. On the other hand, if the financing responsibility of public health services falls on the CMS schemes, it might have some "displacement effects" in terms of weakening government support for rural public health, whereas a vertical program would not compete for the limited funds with CMS.

5.3 Linkage with public spending and resource allocation

China's "new scientific development" model calls for balanced policies for supporting urbanization and rural development. From an equity point of view, access to health care in rural areas, particularly in poor rural areas, should be a priority of the government. Currently, government subsidies in the health sector are heavily tilted towards the urban sector. Much scope exist for increasing government support in rural health care.

5.4 Linkage with service delivery

Without improvement in the quality and efficiency of health care services, rural health financing reforms such as establishing new CMS schemes alone would not bring about the health benefits intended by the reforms to begin with. The major challenge is how to use financing reforms as a powerful lever to bring about reforms in provider incentive structure and quality improvement, addressing the issues discussed earlier in this review.

5.5 Linkage with Medical Assistance and other safety net schemes

The rural Medical Assistance (MA) program operated by the Civil Affairs Administration system is being implemented in China to target the rural poor (about 5% of the rural population). According to the national policy guidelines, MA would pay the premium contributions to the new CMS on behalf of the poor, so that the poor can be covered under the new CMS. In those areas where no new CMS schemes operate, MA will provide subsidies to the poor in their purchase of healthcare services. The detailed benefit and management structures are to be defined by the local governments. Several issues regarding the coordination of the new CMS and

MA schemes need to be sorted out. These include harmonizing the eligibility criteria of MA and new CMS schemes, sources for covering administrative costs for running CMS and MA schemes, and coordination of the CMS benefits and supplemental MA benefits for the MA beneficiaries under the new CMS schemes.

VI. PARTNERSHIP IN RURAL HEALTH FINANCING: INTERNATIONAL EXPERIENCES

6.1 The importance of feasible, equitable, efficient, and sustainable financing for rural healthcare

The capacity of low- and middle-income countries to achieve substantial reductions in morbidity and infant mortality and improvements in life expectancy is intimately connected to the functioning of their health care systems. In particular, the extent to which these systems effectively deliver basic care to the rural population is a critical determinant of the pace of progress. International experience amply illustrates the many challenges faced in financing basic health care in a manner that is viable, equitable and efficient. Among these challenges are how to ensure that overall financing of the health care sector is adequate, that enough of that spending goes on basic health care, that spending on curative hospital services is cost-effective, and that the poor are not excluded. The rural poor in particular may be precisely the group where the potential for health gain is high but the likelihood of adequate basic health care is low.

Health financing is central to achieving the core goal of health care systems of improving population health in an equitable and efficient manner. What makes financing health care distinctive is first of all the imperative for risks to be spread over time and pooled across individuals and households, due to the nature of healthcare itself. What makes health care different from other goods and services is that it is needed occasionally and unpredictably, it can be extremely expensive, those least able to afford it may need it most, and inability to access it may undermine one's ability to function and work. Financing health care must allow for the pooling of risks across individuals, families and groups, which is the essence of insurance, and this needs to include the poor if they are to be able to meet their basic needs and be productive. As well as being a fundamental right, access to basic healthcare, along with improvements in nutrition and sanitation, are key ingredients in workforce health and productivity and thus sustainable economic growth.

Different ways of achieving such pooling of risks have been developed in the high and middle-income countries, with major components being government-sponsored social insurance, employer-sponsored plans, and private health insurance. Via such mechanisms most high-income countries have achieved virtually universal coverage (though the USA is a notable exception). In middle-income countries significant proportions of the population remain uncovered, with coverage generally being highest in the urban sector and for those in formal employment. Consistent with the historical evolution of health insurance seen in the high-income countries, the informal and rural sectors lag behind.

Even where they are nominally insured, the way healthcare resources are actually directed is also often biased against the rural population and the rural poor in particular (The World Bank 1993). Where resources are spent mainly on infrastructure (such as hospitals and health centres) and on professional services, access will be much easier for those close to these facilities. The pressures to meet the needs of growing urban populations may well be more direct, and linked with an emphasis on high-cost hospital care and drugs. Although spending on curative hospital services is much less cost-effective in terms of lives saved than basic interventions such as immunizations and prenatal care, it usually accounts for most current health spending. Experience across a very wide range of countries amply demonstrates how difficult it is to redirect significant resources away from curative services.

The way revenues for health care are generated also affects how efficiently and equitably services are delivered. The experience of both high- and middle-income countries over the last quarter-century has shown that particular forms of health financing can fuel cost escalation, because of the structure of incentives for health service producers and consumers with which they are associated. The nature of the reimbursement system for providers and the extent and structure of cost-sharing by consumers are key determinants of efficiency and equity; the mix of financing in place obviously directly affects the latter but in practice also has implications for the incentives facing providers. So both the behaviour of providers and consumers in rural areas, and also the likelihood that more and more resources will be absorbed by urban healthcare, will be crucially dependant on the structure of the financing system.

Financing for healthcare can be generated through a variety of channels. These include most importantly general taxation, payroll taxes, social insurance contributions, private insurance, voluntary community insurance, user fees, and in the case of developing countries donor funding. Some high-income countries rely almost entirely on just one or two sources, such as general taxation or social insurance contributions, but middle- and low-income countries generally draw on a range (The World Bank 1987). In a rural context in particular Government, communities and households often have distinct contributions to make and these are now reviewed briefly in turn.

6.2. The role of the government in health financing

Market failures in the provision of health insurance means that the state has to play a major role in promoting a sustainable system of risk pooling for financing healthcare, with equity and the promotion of population health as related goals. These failures relate to adverse selection (of those who will be more likely to want care) into insurance and moral hazard (to consume more than they would otherwise) for those with insurance. Their implications have been extensively analysed both from a theoretical perspective and in terms of their real-world impact. Many high-income countries have seen their systems evolve over time to rely primarily on tax financing and/or government-sponsored social insurance, to ensure coverage of the whole population and circumvent adverse selection, but private health insurance still plays a significant role in OECD countries, and in the USA is the dominant form of financing. Across countries with differing financing structures a central preoccupation in recent years has been developing ways of dealing with moral hazard and the related problem of cost escalation (OECD 2002).

Financing via general taxation provides a way of including the whole population in the risk pool, and the scope to allocate resources according to need. However, in many middle- and low-income countries this has been declining as a proportion of overall spending, opening up a financing gap to be filled from other sources. Combined with lack of incentives on the delivery side, this can result in inefficient, low quality public services and those who can afford to do so going elsewhere. More generally, tax-financed systems may find it difficult to be in touch with and responsive to patients' needs. Social insurance provides a mechanism for risk pooling, originally limited to specific groups and managed autonomously but in many high-income countries now covering much of the population in effect on behalf of the government. Broadly speaking, social insurance coverage rates are correlated with per capita income levels, as industrialisation, urbanisation and higher population density are associated with higher coverage, but the informal and rural sectors are almost invariably the last to be integrated into such systems. Social insurance systems in low- and middle-income countries run the risk of providing services only for the better-off, and can become increasingly reliant on government subsidy if unable to avoid cost escalation or collect all the contributions that should be due. None the less, from a structural perspective they can provide more autonomy and make it easier to separate purchase from provision of healthcare, and be more transparent and responsive.

Private insurance is most often a supplementary source of healthcare financing, and rates of coverage are very low in low-income countries, but in some middle- and high-income countries it plays a significant part in health financing. Rates of coverage are generally higher in Latin America than middle-income Asian countries (though Korea has mandatory private insurance). Governments play a major role in determining the role which private health insurance plays in overall health financing, in setting the regulatory framework within which it operates, and in deciding whether to encourage it via direct and indirect subsidies. Private insurance generally employs individual risk-rating in order to counteract adverse selection, which limits the extent of risk pooling, and in middle-income countries is generally confined to urban formal-sector employees and the wealthy and so is less relevant to the rural context on which this review is focused.

6.3. The role of communities in rural health financing

Given the concentration of social and private insurance on the urban population in middle- and low-income countries, community insurance and related financing initiatives are common in an attempt to fill the gap in rural areas. Unlike social insurance, community insurance is usually voluntary, and is most often on a much smaller scale. Very many different ways of organising and structuring such schemes have developed in different countries and areas within them, making it very difficult to make general statements or draw general conclusions about them. Some grow up spontaneously with little external intervention and operate in a distinctive manner in a very specific locality, others are part of a national programme with scope for more or less local variation. It must also be said that many such initiatives do not prove to be sustainable (Carrin and Vereecke 1992).

Thailand and Vietnam provide examples of countries implementing national community financing programmes, with more local variation in design in the former (Ensor 1999; Supakankunti 2000; Yip, Supakankunti et al. 2001). Many countries in Sub-Saharan Africa have seen community financing initiatives at local level, notably *mutuelles* in countries such as

Senegal (Huber, Hohmann et al. 2003). Some schemes focus on pooling the risk of high-cost, low-frequency care involving hospitalisation, which can have a catastrophic impact if a household has to pay the full cost. Others focus on low-cost, high-frequency events such as visits to the local health centre, and aim to improve the quality of primary care and public health services. Still others, notably in the UNICEF/WHO Bamako Initiative, seek to cover the cost of a stock of essential drugs (Knippenberg and al. 1997). One mechanism employed in such schemes is a pre-paid health card, which households purchase and entitle them to a specified set of services over a period – a number of consultations per year, or an “essential package” including hospital care if referred.

The extent and nature of coverage of such schemes is critical from both a viability and equity perspective. Voluntary coverage may undermine sustainability via adverse selection, and also means the poorest may not be covered. Charging the same “premium” to everyone is administratively simple and attractive in promoting group cohesion, but is particularly likely to attract high-risk members. Reduced contributions or exemptions for the poorest or those living further from the facilities can be used but pose serious administrative challenges and more commonly are not. Policy-makers might wish to prioritise interventions with a major public good element such as immunisations, or low-cost but effective basic care, whereas it may be easier to attract contributions to cover drugs or hospital care. Small-scale schemes operating at local level may find it easier to maintain the trust that is crucial to keeping members, but allow for only very limited pooling of risks and fail to take advantage of economies of scale in administration. In addition, there is an inherent tension between retaining funds at local level – which has been seen to be important in generating and maintaining membership – and the desirability of transferring resources from richer to poorer localities and regions. Finally, community insurance most often only covers part of the cost of the services provided, relying on local or central government or donor financing to make up the difference (Dror and Jacquier 1999).

6.4 The role of individuals/households in health financing

Even where health care is provided free of charge at point of use, they are of course ultimately financed by individuals and households. However, in the high- and middle-income countries facing cost escalation there has been an increasing focus on the problem of moral hazard when services are free. This, and in low-income countries the need to generate resources, have led to an increasing emphasis on consumer cost-sharing, in terms of out-of-pocket payments and insurance copayments or deductibles. The problem is of course that this may reduce the impact of moral hazard but may also discourage utilisation with a high value in terms of population health. Equity is also a core concern, with exemption of the poor(est), even where it is tried, often being administratively difficult to implement effectively.

Experience shows that the structure and level of fees is critical to the impact in terms of both efficiency and equity. A low flat-rate fee, irrespective of income or the type of service involved, is easy to collect and has less negative impact on the poor but will raise only a modest amount. Fees can also be structured to encourage appropriate patterns of use, notably by levying higher fees on those who seek hospital care without being referred from lower levels. Fees can save healthcare resources by limiting unnecessary use of services but also lead to people delaying treatment until more resource-intensive care is needed and to costly self-prescription. In addition, in some circumstances providers may be able to “capture” most of the extra revenue

generated, without improving services. Fees can also be regressive and expensive to collect. Experience suggests that they are likely to represent a supplementary form of financing for healthcare.

6.5. Developing health insurance for the informal sector: provider perspectives

In seeking to develop mechanisms to adequately resource healthcare and pool risks for the informal sector and the rural population, the key issues are not simply how resources are generated and who is covered, but also what they are covered for and how. The nature of the reimbursement system, the services covered by insurance, and the role of the insurer vis-à-vis providers and service use will be critical in determining whether services are actually provided and in a cost-effective manner. In examining the reimbursement system, for example, the distinctions between retrospective versus prospective payment, and fee for service versus capitation, will be crucial. As far as services covered are concerned, whether these are biased towards hospital-based care and whether preventive as well as curative services are covered will be important. Whether the role of the insurer is passive versus active with respect to providers and the services they deliver is also important.

6.6 Implementing health insurance for the informal sector: managerial perspectives

The design of an ideal health insurance system for a particular setting is of little value if administrative and organisational realities and capabilities are ignored. Indeed, administrative capacity is a key ingredient in understanding why systems operate in the way they do rather than the way they were intended to, and thus in framing policies to bring about achievable improvements. In a rural context, this has particular resonance. Community financing schemes, for example, often founder due to lack of organisational and financial management skills, or on occasion lack of transparency in the way funds are spent. State-financed healthcare on the other hand may suffer from bureaucratic inefficiencies and absence of incentives.

This is highly relevant not just to efficiency but to equity concerns about how healthcare is financed. An administrative reality that community financing schemes in rural areas have to face is the difficulty of distinguishing, in an administratively feasible and sustainable way, those who could contribute fully to a health insurance pool from those whom the state or community might need to or wish to subsidise. While schemes can be designed relating contributions to income or exempting the poor, implementation has often proven to be extremely difficult and the outcome may be effectively no exemption or even a bias towards exempting the better-off.

6.7 Implications for China

One cannot of course derive a “one-size-fits-all” health financing or insurance system that will work irrespective of context, history and local conditions, but experience elsewhere does highlight some key issues in relation to China’s rural healthcare financing plans. It brings out for example that broad coverage of the rural population requires either a low level of contribution that even the poorest can pay, or an exemption/subsidisation system that is administratively feasible and not open to widespread abuse. Clarity about the aims of the system

in terms of services to be covered and prioritised is also essential – is basic care or protection against catastrophic healthcare costs the core aim? If the insurance system is aimed at the latter, are there delivery systems in place (funded from other sources) delivering to the rural population the basic primary and preventive care that are so important for population health? The reimbursement system for providers associated with the financing mechanism is crucial: this can distort incentives and lead to delivery of high-cost and ineffective services at the expense of low-cost effective ones. Consumer cost-sharing may help in addressing moral hazard but has limited scope for raising significant resources without adverse effects on equity and health. Administrative incapacity and failure to adequately and appropriately reward those organizing the financing and delivery systems undermines community cost-sharing and delivery of services. Community financing schemes can make a significant contribution to pooling risk and healthcare financing, but significant additional funding from other sources will also be required. Taxation also has a key role in striking the balance between linking localized funding and spending and redistribution across areas. Finally, many current high-income countries have seen an evolution through group-based health insurance for the urban formal sector to tax and social-insurance financed healthcare also covering informal and rural populations: voluntary community financing may be a critically important staging-post for rural health financing, but where is it ultimately leading?

VII. DISCUSSIONS AND RECOMMENDATIONS

This review has taken stock of China's rural health financing and insurance reforms following a comprehensive analytical framework, and set China's current reforms against the background and in the context of previous experiences in China and internationally. Rural healthcare is critically important for China's rural population and an important investment in China's sustainable economic development. Rural health financing and insurance is not only critically important for assuring access to healthcare services, but also important for protecting rural residents from financial hardship and poverty reduction. Therefore, the new CMS financed by a matching fund from different levels of governments and households is a real achievement in China's own and international perspectives.

However, the new CMS faces serious challenges given its voluntary nature and the variation in local governments' resources. The contribution by individuals represent about 0.5% of average income of the rural population. Therefore, affordability for most of the rural residents is not a major issue. The contribution by the central government represents a very small proportion of health spending and is much lower than for the urban population. Given the fact that the overall 30 yuan per capita still only represents less than 20% of average annual health spending per capita in rural areas, the new CMS schemes will have limited impact on poverty reduction, but potentially a significant impact on primary care. As indicated by this review, there has been a body of knowledge based on China's own and international experiences regarding how to overcome some of these challenges. But critical gaps in knowledge still exist. The following section examines some critical knowledge gaps and key constraints in China's rural health financing and insurance reforms, and recommends further studies to fill these knowledge gaps to assist implementation of the new CMS schemes as well as developing new policies.

7.1 Key knowledge gaps

As the new CMS schemes are being piloted in more and more counties, it is important to know who participates and who does not participate in the schemes. Are those people who do not participate disproportionately poor? Do “bad” risks have a higher probability of participation (thus evidence of “adverse selection”)? Answers to these questions have important implications for equity and sustainability of the new CMS schemes. It is also unclear what kind of impact different scheme designs and take-up have on poverty reduction, utilization of health services, equity, and health outcomes. As China’s rural regions vary a great deal in socioeconomic development and cultural background, we do not know how the new CMS schemes should vary in their benefit package and management structure to best suit the local conditions. Operationally, we do not know how the interaction of CMS, BMI, MA, and other safety net institutions should be initiated and coordinated drawing on existing resources. Furthermore, the impact of provider payment alternatives on quality, cost, and the feed-back to sustainability needs to be evaluated.

7.2 Key constraints

The most critical constraint for carrying out the rural health financing and insurance reforms in China is lack of administrative and managerial capacity. Under the Basic Medical Insurance, which generally covers about 10,000 members at the county level, there are often more than 15 fulltime staff responsible for managing the scheme. However, the new CMS is expected to cover an average of 250,000 members per county, and these members are much more heterogeneous in terms of their health conditions and geographical locations. Furthermore, the new CMS involves much more complex fund collection processes than the BMI (which is based on payroll tax) and has to deal with a much more diverse set of providers. Currently, the management office for CMS is understaffed and under-equipped to handle those difficult issues.

Given the limited financial and organization capacity at the local level, it seems that the central government should play a more active role in providing technical assistance to the local new CMS schemes such as helping them establish an effective CMS Management Information System (MIS), and to provide managerial training. In the process of updating the administrative and management capacity, information on “Best Practices” across counties and systems should be studied and shared. Moreover, existing administrative resources (e.g. BMI, tax bureau, mass organizations etc) should be pooled to help solve the capacity problems faced by the new CMS system.

7.3 Research to assist policy

To help with the implementation process of the new CMS schemes as well as form new evidence-based policies, China needs in particular two kinds of studies:

First, evaluative studies. The pilot CMS schemes need to be carefully monitored and vigorously evaluated. For example, the evaluative studies can help address the following important empirical questions: how effective is the new CMS scheme in reducing medically induced poverty? What impact do different methods for fund collection, fund management, and

provider payment have on efficiency and sustainability? Central government has a vital role to play in organizing technical assistance in the areas of developing and implementing scientifically sound methods for data collection (including baseline data), performance indicators, data analysis and research interpretation.

Second, interventions studies. Currently, most of the pilot CMS schemes are developed ad hoc by the local government, not benefiting from a careful and rigorous process of design. In order for the pilot schemes to better target the major operational issues and for their results to be rigorously evaluated, it is recommended that new intervention studies be developed, where pilots vary by design in specific ways to assess in a systematic way, for example, how best to control costs, improve access and quality, and integrate CMS, urban BMI, and MA.

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