

# Urban Health Insurance and Financing in China

by

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Draft: July 27 2004

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## Summary

Urban health insurance and financing in China has been undergoing a decade-long reform since 1994 when the two pilot experiments were initiated in Zhenjiang and Jiujiang cities. This study provides an overall assessment of the changes in the urban health insurance system based on a comprehensive review of the existing literature. The major findings can be summarized as follows. First, compared to the previous Government Insurance Scheme (GIS) and Labour Insurance Scheme (LIS), the newly established community-based employee insurance plan appears to be more efficient in cost savings; more equitable in access to care; and more promising in protecting the insured individuals from catastrophic risk. However, it is uncertain whether the new plan is sustainable in the next phase when expanded to cover the entire urban population, including both the unemployed and their dependents. As a result, it will be a big challenge ahead to insure the currently uninsured and underinsured urban populations.

Second, the existing literature paid little attention to changes in health outcomes when assessing the new insurance mechanisms. Given the ultimate goal of modern medicine in general, and the Chinese health reform policy in particular, population health outcomes should be central in assessing the reform. Thus, it is important that future research focuses on health outcomes research.

Third, the existing literature offered little evidence to adequately assess the alternative model specifications, i.e., compartment versus pathway models, which were implemented in different cities with some disputes concerning the relative efficiency and equity in serving the insured. In order to allow for valid and reliable evaluations, future research should employ a better-designed empirical data, especially panel data that include a comparison group, both at the institution and individual levels.

Fourth, the current policy requires that the government sectors and SOEs must participate in the community-based insurance program. Yet it appears that many other forms of institutions are allowed to participate in the program on a volunteer basis. Such a non-mandatory policy for non-SOEs, especially the self-employed and some privately owned enterprises, is likely to result in potential problems of adverse selection and unequal access among individuals working in different industries and employers. Future policy efforts may seek to mandate a universal insurance policy for all urban employees and dependents.

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**Acknowledgements:** The findings, interpretations and conclusions expressed in this paper are entirely those of the authors, and do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

## I. INTRODUCTION

### 1.1 General situation

The urban population in China is about 524 million people (National Bureau of Statistics of China 2004). Like many other social welfare programs, healthcare financing and delivery have long been segregated between rural and rural populations in China, leading to very different or inequitable access and utilization patterns between the urban and rural areas. In 2002, health expenditures per capita in urban areas was RMB933, approximately 3.5 times that of rural citizens (Ministry of Health 2004). While comprising about 28% of the total population, the urban population accounted for 57% of the nation's total health spending. Per capita government health spending in urban areas was over 5 times that in rural areas. Currently, about 55% of urban residents are insured through the public urban insurance programs (Ministry of Health 2004). Out-of-pocket (OOP) spending on medical care per capita in urban areas amounted to RMB315.8, accounting for 4.6 percent of disposable income per capita.

### 1.2 Pre-reform programs and emerging issues

From 1952, the Chinese government had provided the urban employees with two major health care programs: the Government Insurance Schemes (GIS), and the Labor Insurance Schemes (LIS). The former, financed through the public budget, was for government employees, their dependents, veterans, educators, and college students. The latter covered the employees and retirees of the state-owned enterprises (SOE), and with partial coverage for their dependents. LIS was financed through the enterprise welfare funds retained as a certain portion of the total salary outlays (usually at a rate of 8 percent). Some non-SOE enterprises (such as collectively-owned and private enterprises) also followed the LIS policy in providing full or partial health care benefits to their employees.

From a historical standpoint, GIS and LIS played a vital role in ensuring access to health care, contributing greatly to the improvement of the health status of the urban population in China. For over four decades since the 1950s, most of the employed, nearly half of the total urban population, were covered by GIS and LIS for their basic health care needs, including both outpatient and inpatient services. During this period, population health indicators showed a significant improvement. Back in the first half of the 20th century, for example, infant mortality rates in China were as high as 200 per thousand life births; life expectancy was only 35 years at birth. In 1981, the average infant mortality rate was reduced to 35 per thousand and life expectancy was increased to 68 years, according to the 3rd national census data. Compared to many other developing countries with a similar income level, the World Bank reports (The World Bank 1993; The World Bank 1996) also find China among the best-performed nations in terms of the population health indicators in the early 1980s.

From the middle 1980s there has been much slower improvement. The 4<sup>th</sup> and 5<sup>th</sup> national census data indicate an infant mortality rate down to 28.4 per thousand births in 2000, and life expectancy reached 71 years. Furthermore, the rate of illness within past two weeks

among the general population increased from 14.01 percent in 1993 to 21.34 percent in 1998, according to the National Health Services Surveys (Ministry of Health 1994; Ministry of Health 1999; Ministry of Health 2004).

Changes in insurance coverage, access to health care, and health utilization were even more problematic during the same period. Based on the National Health Services Surveys (Ministry of Health 1994; Ministry of Health 1999), out of pocket payments for health care among the urban population increased more than 60 percent between 1993 and 1998, up from 27 percent to 44 percent. In 1993, 42.4 percent of those being ill failed to seek care; and this figure increased to 49.9 percent. Among those who failed to seek care, 18.7 percent were due to economic reasons in 1993 and 32.3 percent in 1998. Clearly, financial barriers, or lack of adequate insurance coverage in particular, were most likely preventing some people from seeking care when ill.

While population health and access to health care were stagnating or decreasing, health care costs were escalating significantly at the same time. Average cost per visit at the outpatient setting, for example, was 11 RMB in 1990; it went up to 62RMB in 1997. Average cost per hospital admission increased from 473 RMB in 1990 to 2384 RMB in 1997 (Mao 1999). At the aggregate level, the national GIS expenditures increased annually by 23.3 percent between 1986 and 1991, whereas during the same period the annual increase in public finance revenues was about 10 percent (Liu and Hsiao 1995).

To explain the adverse changes in urban health care during the first phase of the economic reform, we point out several problems with GIS and LIS that may serve as the driving forces. First, on the financing side, both the GIS and LIS are financed at the employer level, with the state public finance budget for the former, and welfare funds retained at the firm level for the latter. As China began the transition to a market economy, the employer-based financing of health care reached crisis proportions among many SOEs. This was especially true for enterprises with poor economic conditions and those carrying on a relatively large number of retirees who generally had more costly chronic diseases.

To a large extent, the urban health crisis seemed to be inevitable because LIS and GIS were, in essence, not truly insurance programs, because of the very limited risk pooling capacity against large catastrophic health shocks. Prior to China's economic reform, this limitation was not so critical because most SOEs were operated and managed with the government serving as the payer of last resort. The economic reform, however, largely decentralized both the financial decision-making and responsibilities to the firm level. This led to a significant portion of poorly run SOEs being unable to individually pay for health care services incurred by their employees and retirees. As a result, an increasing number of SOE workers ended up paying large medical bills out of pockets in practice, although in theory they were supposed to be paid through LIS (Henderson, Jin et al. 1995; Hu, Ong et al. 1999). This certainly created considerable financial hardships for the elderly and those with chronic diseases, contributing to the increased likelihood of failure to seek care among those with chronic illness and who worked at the SOEs with insufficient LIS funds (Mao 1999).

Second, on the service supply side, the rapid development of a market economy led to substantial changes in hospital management and operational approaches for generating revenues.

One trend was to compete on hospital beds and facility capacities, leading to widespread adoption of advanced medical technologies in most tertiary hospitals (Hu 1991; Hu and Meng 1991). For example, there were a total number of 170 CT scanners nationwide in 1986; and this number went up to 1300 in 1993 (Li 2000). Hospitals subject patients to high tech procedures, keep them longer in hospital, and provide them with expensive drugs. Mao (Mao 1999) estimated that in urban cities, hospital beds on average were oversupplied by as much as 25 percent; and advanced diagnostic and treatment facilities supplied were 25-33 percent more than quantity demanded. This oversupply, coupled with asymmetric information between patients and doctors, seemed to be a major driver for the health care cost escalation during the post-reform era. Moreover, fee-for-service (FFS) payment, a dominant method with GIS and LIS, coupled with the third-party payment policy, further contributed to the cost crisis.

Third, changes on the demand side also seemed to have played a role in determining the observed outcomes. Along with the economic reform, there has been an increasing demand for more and better health services, driven by factors such as aging, increased income, and the disease transition from infectious to chronic conditions (The World Bank 1993). While many SOEs were not functioning well and thus were unable to finance LISs for their employees, government sectors and those enterprises with sound financial conditions still continued to provide generous health care benefits through GIS and LIS with little or no patient cost-sharing mechanisms. As a result, neither patients nor providers were motivated to care cost or improve efficiency when seeking health services (moral hazard). Consequently, two major problems manifested themselves: overall cost escalation and increased inequality in effective insurance coverage and access.

### **1.3 Reform initiatives and the new insurance programs**

As shown above, stagnating health status, escalating costs, and increasing inequality in insurance coverage, together aroused public concern leading to the government to consider a fundamental reform of its urban health care systems. In 1994, the State Council, in collaboration with the Ministries of Health, Public Finance, and Labor, launched the first pilot experiment to reform the GIS and LIS in two cities: Zhenjiang and Jiujiang. The pilot experiment was then followed by an extension to 57 other cities in 1996. Starting in 2000, a nationwide reform has been pursued. This led to 320 regional and municipal communities that began to develop their reform plans, of which 284 municipal communities implemented the newly designed insurance schemes, covering over 40 million beneficiaries by 2001 (Wu 2001), and this figure quickly reached 109 million by the end of 2003 ([www.mlss.gov.cn](http://www.mlss.gov.cn)).

These urban insurance reform initiatives may be better characterized in four phases (Wang and Huang 2000; Ma, Zhang et al. 2001; Liu, Yuen et al. 2002; Liu 2002). The initial stage could be dated back to 1988 through 1994. In this first phase, some small-scale and preliminary reforms were explored in a few cities, focusing primarily on the application of some demand side cost-sharing mechanisms under the existing GIS and LIS system. These included linking patient responsibilities and medical payment, imposing some patient cost-sharing policies; employing a social pooling account to pay for health care among the retired population; implementing catastrophic insurance programs in some cities; and managing the public GIS funds from a single office to co-ordinate efforts through multiple parties such as medical providers, employers, government agencies.

Phase two was started in 1995 when the central government launched a formal pilot experiment of new community-based insurance models in the cities of Zhenjiang and Jiujiang. This pilot model introduced some fundamental changes in the existing GIS and LIS. Among others, the most significant changes include the socialization of financing, jointly contributed by employers and employees, to form a citywide insurance pool across all work units, regardless of individual conditions or institutional characteristics. The pooled funds are then distributed into the individual Medical Savings Accounts (MSA), and a Social Pooling Account (SPA). Other innovative features include the employment of a three-tier payment system with patient cost sharing; predetermined payment schedules to providers; and rationing policies on drug formulary and coverage lists for the use of other medical technologies. In each city, the local government Bureau of Labor and Social Security serves as a public insurance agency and third-party payer to manage the community-based insurance program. In the end of 1996, the experiment reform was extended to 57 other cities.

Phase three began in December 1998 when a nationwide effort was called for by the State Council to reform the existing GIS and LIS in the remaining cities following the community-based insurance model. While maintaining the key features of the pilot experiment, including the socialization of risk pooling at community level, and the establishment of MSAs and SPA, the localities were given considerable room to design their plans with different model specifications that may best serve their local needs and socioeconomic conditions. By the end of 2003, the vast majority of large cities have implemented the new insurance program, covering over 109 million urban employees. According to the government plan, the insurance coverage is expected to grow at 6% annually ([www.mlss.gov.cn](http://www.mlss.gov.cn)).

Starting in late 2000, the government launched its fourth wave of reform efforts to extend the reform to two other major areas: hospital institutions and pharmacy market. To a large extent, the first three-phase reforms were mainly on health care financing; whereas the most recent one is on health care organization. It has been well understood among researchers and policy makers that China's health care reform cannot succeed without the reform of health care institutions that are dominated by the state-run hospitals. On the pharmaceutical side, as pharmacies are predominantly run by hospitals, drug sales have long been the major source of revenues for hospitals in China. This has been widely believed to be the major driving force for the typically observed health care utilization pattern in China, where pharmaceutical costs account for well over 50 percent of total expenditures in both inpatient and outpatient settings. Such a utilization pattern is in sharp contrast with that of many other countries such as the US where drug expenditures are below 10 percent of the total health care spending (Levit, Smith et al. 2002).

## **II. POLICY ISSUES AND MODEL DESIGNS IN URBAN INSURANCE REFORM**

Under the state reform policies, the new urban employee health insurance is to achieve three stated goals: 1) provision of basic benefits; 2) wide coverage; and 3) balance of efficiency and equity. The first goal is determined largely by the characteristics of the Chinese population and the state economy. According to World Bank statistics (The World Bank 2001), in 1999 the Chinese population was 1.25 billion, accounting for nearly 21 percent of 5.98 billion populations worldwide. Health care expenditures in China, in contrast, were \$44.5 billion, which was only

about 2.6 percent of the total worldwide health care spending, \$1,698 billion in 1999. On this basis, China is facing one of the most challenging problems in the world - meeting the health care needs for one-fifth of the world population with less than 3 percent of the total health care resources. Such a challenge leaves China little alternative but focusing on mobilizing resources to ensure basic care for its people as a fundamental health policy at present (Hu 1999). At the basic service level, the new policy can maximize its capacity to target universal coverage for all urban employees.

While serving the first two goals, the reform also is intended to improve economic efficiency in health care utilization. In the initial stage, the policy was mainly focused on demand-side mechanisms. This led to the establishment of individual savings accounts (MSA). A rationale for using MSAs is that patients would be more cost conscious when health care utilization is directly linked to their own “assets” in their own MSAs. In practice, however, little empirical evidence or experiences are available to predict how patients would really respond to the new policy settings, especially in the long run. Moreover, patient behavior may also depend on some other factors, such as the way MSA funds are used; the size of an MSA; and deductibles and co-insurance rates for using funds from the social account.

Also critical in the new policy is the socialization of insurance funds across all the work units throughout an entire local community, typically by regional cities. This approach leads to a single community-based social pooling account (SPA), providing insurance for all communitywide employees, regardless of their employer status and individual characteristics. The community-based insurance plan is governed and managed by the local government agencies, mostly by the City Social Security Bureau or City Medical Insurance Bureau. Compared to the GIP and LIP, the socialization of insurance clearly constitutes two fundamental improvements: insurance risk pooling capacity and equity of access to basic care.

As for the new insurance financing, it is jointly contributed by both the employers and employees. While varying across work units, employer contributions range from 6 to 10% of total employee salary outlays, average 7.5%, while employees contribute about 2% of annual salary (Shen, Chen et al. 1999; Wang and Huang 2000; Cai 2001; Wu 2004). Retirees are generally exempted from the contribution. The total funds in an MSA are the sum of the individual contribution and the employer’s contribution of 2-6%, depending on age. For the retirees, their MSAs are solely funded with the employer-contributed funds. The remained portion of the employer contribution goes to the community-based SPA (2-6%).

In terms of reimbursement policies, the new insurance plans are implemented with a variety of approaches aiming at containing costs. These include the use of typical managed care cost containment instruments such as drug formulary (essential drug lists), co-payment or co-insurance, deductibles, provider payment schedules, and capping. Since large variations exist in plan specifications across different municipal communities, there appears to be a great variety of plan designs in operation. Among others, it is worth noting the two representative models, i.e., the Zhenjiang-Jiujiang model versus the Hainan model. The key differences between these two models are described below.

## 2.1 The Pathway model

Known as the “Pathway Model”, the insurance plans in Zhenjiang and Jiujiang adopt a three-tier reimbursement system. Under this policy, when any services occurred, payments are first made out of the MSAs funds as the first tier. After all the MSA funds are finished, the patient will pay an out-of-pocket deductible as the second tier, up to a 8-10% of the individual’s annual salary (retired deductibles are half). After meeting one’s deductibles, the third tier payment begins to pay for services by drawing funds from the SPA.

Changes were also made in pricing and payment policies with respect to medical providers for rendered services. Before 1997, medical providers in Zhenjiang were primarily paid retrospectively at patient or service level using various fee schedules varying with the level and type of providers. For instance, at tertiary hospitals, the reimbursement rate was 47 RMB for an outpatient visit and 110 RMB for a hospital day (capped at 19 days per patient on average). At secondary hospitals, the rate was 75 RMB for an outpatient visit and 90 RMB for a hospital day (capped at an average of 16 days per patient). In 1997, the retrospective reimbursement approach was changed to a global budget approach. Prospective payment is used to pay for all medical services out of funds in the social pooling account. As a result, the total health care cost was contained effectively after the adoption of global budgets (Cai, Li et al. 2000).

## 2.2 The Compartmental model

In contrast with the Zhenjiang-Jiujiang model, in Hainan the insurance plan specifies the MSA and SPA to be service-specific, with the former primarily paying for outpatient services and some small uncovered services from the inpatient settings, and the latter mainly for inpatient care and some large bills from the outpatient settings. Clearly, the most critical and challenging task in operating the Hainan model is to develop a set of fair criteria that can help best define the kinds of services eligible for the use of funds from the SPA. In fact, the Hainan Social Security Bureau, a provincial government agency in charge of urban health insurance, developed three comprehensive code books: *Essential Drug List (including 1609 drugs in 1997)*; *Disease List (covering 401 diseases in 1997)*; and *Pricing Schedule*. Only those drugs and diseases that are included in the lists are paid by SPA, coupled with a deductible (400 RMB) and decreasing co-payment schedules, ranging from 15 percent, 9 percent, 5 percent, and 0 percent. Outpatient care services are paid by funds in MSAs on a fee-for-service basis according to a pre-determined pricing schedule (Wang 1998; Wang 1999).

To pay providers for rendered services using SPA funds, global budget has been a primary approach since 1997. A current-year global budget is determined on the basis of the actual total medical expenditures in the previous year, adjusted for changing factors such as price inflation and increased numbers of beneficiaries. The Medical Insurance Bureau generally withholds 10 percent of the total budget upfront in order to monitor and control for the provider behaviors during the year. At the end of the budget year, the Bureau will then determine how much of the withheld amount is returned to the provider according to the performance and quality of services by the providers (Luo 1998; Wang 1999).

Following the frameworks described above, an overview of some major city-based new insurance model settings is provided in Table 1.

**Table 1. Basic health insurance plans in some cities/provinces**

	Starting Time	Financing (employer + employee)	Cap * (RMB)	Supplemental above cap	plan	Model schemes
Beijing	2001.4.1	9%+2%	50,000	Employer: 1%		Compartment
Zhenjiang	1995.1.1 2002.1.1	9%+2%	30,000	Employee: 3/mon Retiree: 4/mon		Pathway
Shanghai	2000.12.1	10%+2%	56,000	Employer: 2%		Compartment
Hangzhou	2003.1.1	8%+2%	40,000	Employee: 36/yr.		Compartment
Nanjing	2001.1.1 2002.2.1	8%+2%	40,000	Employee: 5/mon		Compartment
Qingdao	2000.7.1	8%+2%	n.a.	Employee: 2.5/mon		Compartment
Dalian	2000.5.1	8%+2%	38,000	n.a.		Compartment
Chengdu	2001.1.1	7.5%+2%	n.a.	4 supplemental plans		Compartment
Shenzhen	1996.7.1 2003.7.1	6%+2%	Difference	n.a.		Pathway
Wuhan	2001.10.31	8%+2%	n.a.	n.a.		Compartment
Hainan	2001.7.1	6%+2%	n.a.	n.a.		Compartment

\* Cap for SPA at the starting time of basic health insurance.

### III. EMPIRICAL EVIDENCE ON THE NEW INSURANCE MODELS

#### 3.1 Pre- and post-reform changes in benefit level and coverage

As noted earlier, the two primary goals of the urban insurance reform are to ensure wide insurance coverage for provision of basic services. Accordingly, we first look at data on changes in insurance coverage of the urban population. Before the reform, the LIS and GIS served as entitlement plans in principle for all urban employees, presumably covering about 170 million (nominal figure) in the early 1990s (excluding dependents), or a half of the total urban working population. However, as the economy and health care began to transition from plan to market systems, it was often reported that many of the covered populations were not effectively covered because their employers were unable to pay for their expenses due to poor economic conditions of the enterprises (Huang and Sun 1994). In Zhenjiang, for example, it was estimated that more than half of the SOEs were unable to fully reimburse the medical bills for their employees. This was very serious both for medical providers and individual patients: many hospitals ended up with large uncompensated services; and many individual patients were unable to obtain care when ill although they all were supposed to be paid fully through the entitlement of LIS and GIS. Therefore, it is extremely important to distinguish the “nominal” coverage from “real” coverage in truly understanding the insurance coverage during the GIS and LIS era. While there were no national data indicating the nominal versus real coverage, the difference must be sizable.

In contrast, the covered population under the new insurance schemes is real because of the universal coverage across all insured working units within a community-based plan. As of 2003, the new insurance schemes have reached over 109 million urban beneficiaries. Moreover, this coverage is expected by the Government to growth by 6% annually. While there are no national data, among the cities implementing the new insurance schemes the institutional participation rates in the new insurance programs are mostly well over 90% in large cities, including Zhenjiang, Shanghai, and Shenzhen (Zou 2002; Jin and Ikegami 2004). Therefore, it

appears to be promising that the reform will soon achieve its stated goal of “wide coverage”. However, some significant issues still remain as to what benefits are provided for the insured; who are the uninsured; and whether the benefits coverage became more or less equitable compared to LIS and GIS. We address some of these questions in the next sections.

### **3.2 Pre- and post-reform changes in cost savings and utilization**

Our review found no national data on changes in cost savings and utilization before and after the reform, but some local studies do shed light on the impact of the measures. In particular, several studies consistently showed that the insurance scheme piloted in Zhenjiang were associated with some total cost savings (Yip and Hsiao 1997; Liu, Cai et al. 1999; Zou 2002). However, it is inconclusive as to what really drove the observed cost savings. Some argued that much of the cost savings may be due to the effect of cost containment strategies such as drug formulary and policy constraints on the use of medical technologies, rather than the effect of the reform on changes in health care utilization (Yip and Hsiao 1997). Some suggested it was the capitation payment policy to providers that largely determined the reduced costs. Still others find different explanations. In particular, Liu et al. (1999; 2001) find that the reduced total costs in Zhenjiang were strongly associated with reduced utilization rates of various services, especially of hospital admissions and length of stay (LOS) per admission. Moreover, they also demonstrated a strong substitution effect from inpatient to outpatient care in Zhenjiang. Liu and colleagues contended that the new insurance model design did seem to play a key role in leading to the substitution effect, which in turn should have contributed to the observed cost savings. Moreover, a survey in Zhenjiang reported that the reported rate of failure to be hospitalized by individuals who thought they needed to be decreased from 1.9% in 1994 to 0.4% in 2001. In the meantime, total hospitalizations did not change significantly. Last, but not least, it is worth noting that no data showed whether such cost savings or changed utilization were achieved at the expense of quality reduction.

### **3.3 Pre- and post-reform changes in equity and access**

Equity has been widely considered as a major objective of health care policies internationally (e.g., van Doorslaer, Wagstaff et al. 1992; Aday 1993; Newbold, Eyles et al. 1995; Smaje and Grand 1997; Liu, Hsiao et al. 1999). In China, “equitable care” has been officially declared by the State Council to be a principal aim of the urban health insurance reform (Cai 2000). However, the public has increasingly expressed a growing concern about equity under the new system. For instance, some feel relatively worse off in the new plan that may have reduced their relative advantages in obtaining care (such as government officials or those working in companies with sound economic conditions). Others may benefit more from the reform protecting them from sizable economic loss due to costly diseases.

Equity can be measured at two dimensions: financing and access. A study by Liu and Zhao (2003) analyzed the Zhenjiang experiment data to quantify the re-distribution of out-of-pocket (OOP) expenditures across four representative groups by chronic disease, income, education, and job status. Their major findings suggested an overall increase in OOP expenditures for all groups after the reform. However, no evidence was observed to indicate any changes towards more inequitable redistribution of OOP expenditures against the disadvantaged

groups. This finding remains consistent with alternative models with different outcome variables including total OOP payment, OOP share of total health expenditures, and OOP share of income. This suggests that the new community-based insurance program did not compromise equity in cost sharing after introducing some cost sharing mechanisms on both demand and supply sides. A study of the urban health insurance reform in Weihai showed an improvement in equity of financing using the index of “fairness of financial contribution” employed by the WHO (Wu 2003). A similar result was also found in a study based on the Zhenjiang experiment (Yi, Maynard et al. 2004), although low income people still bear a greater financing burden than high income groups.

With respect to equity in access, presumably it seems indisputable that the new insurance programs are much more equitable than LIS and GIS due to the fact that the new insurance programs are community-based, providing all the beneficiaries with assured access to care through MSAs and SPAs regardless of individual status or institutional conditions. Unfortunately, no empirical data is available to confirm such a presumption at the national level. However, a few local studies do offer some supportive empirical evidence. Using data from Zhenjiang, Liu and colleagues (2002) find the new insurance scheme to be more equitable than GIS and LIS. In particular, their findings indicated horizontal inequity against the lower socioeconomic groups under the GIS and LIS. After the reform, the new insurance plan led to a significant increase in outpatient care utilization by the lower socioeconomic groups, contributing to greater horizontal equity in access to basic care. The new plan also appears to maintain vertical equity in the use of all types of care. Despite the reform, however, people with poor socioeconomic status continue to be disadvantaged in accessing expensive and advanced diagnostic technologies. Xu (2004) also find similar results using the Zhenjiang survey database.

#### **IV. IDENTIFICATION OF MAJOR REMAINING RESEARCH AND POLICY ISSUES**

As we turn to highlighting major outstanding issues for research and policy, it is worth first making a general point about the available information base. Most of the relevant studies that have been carried out to date share a common drawback – the lack of a suitable control group against which to benchmark and in measure changes affecting the experimental group. This prevented their authors from employing more appropriate econometric models, limiting them to a straightforward pre- and post-reform design framework. Addressing this methodological limitation must be a priority for the design and implementation of pilot exercises for the future.

##### **4.1 Health Outcomes**

Unfortunately, we found little data in the literature assessing changes in health outcomes before and after the new insurance programs. Improvement in population health is the ultimate goal of health care. In addition, it also serves as an important means or a form of human capital for achieving economic prosperity and social wellbeing. Therefore, it is critical to understand changes in health status of the beneficiaries when assessing the urban insurance reform in future research.

## 4.2 Coverage Extensions

While many high-income countries have achieved virtually universal coverage of their populations for health care, in most middle-income countries significant proportions of the population remain uncovered. Urban insurance reform in China shares the common challenge of extending coverage beyond those in formal employment. At present, only 23.9% of private enterprises and 50% of employees in state-owned profit-loss enterprises are covered under the new community-based insurance programs (Chen 2004; Wu 2004). The historical evolution of the high-income countries does not offer a blueprint for how best to ensure broader coverage, but it does suggest that the state has a central role to play if it is to be achieved.

In seeking to extend coverage to those who are in formal employment but not currently insured, the different reasons for the current lack of coverage must be fully understood. There is clearly a sharp difference, for example, between profitable private sector enterprises with young workforces which do not wish to join collective insurance arrangements because they see the scale of their contributions outweighing benefits, unprofitable state-owned enterprises with older workers and significant numbers of retirees to be covered which see joining as unaffordable, and enterprises with just a few employees. Just as risk pooling across individuals is undermined if the good risks can opt out and self-insure, pooling is unlikely to be sustainable if employers with a good risk profile can simply opt out. Correspondingly, the situation of loss-making state enterprises is clearly being addressed in a broader context, but they cannot carry the burden of accumulated obligations to current and retired staff.

In addressing the different situations of such different enterprises the approach to extending health insurance coverage should take into account consequences in the labor market. Labor market flexibility is maximized where employees have an insurance entitlement which they carry with them from one job to another, rather than being tied to a specific employer. Indeed, one of the key rationales for the evolution of the social insurance in the high-income countries was the manner in which it would underpin labor market productivity and flexibility and thus economic growth.

This also has relevance to the treatment of dependents for health insurance purposes. It is desirable from a risk-pooling perspective that, in a system where formal sector employees have coverage, their dependents are also covered through the same mechanism. However this must be brought about in a way that does not disadvantage particular enterprises or types of enterprises, and which maximizes worker mobility. Coverage of dependents should also be seen as important in the context of worker flexibility and productivity rather than simply a “burden”.

The unemployed and those outside the workforce will be difficult to incorporate into an insurance mechanism centered on employment, and alternative routes are being pursued in the short term. The historical evolution in the high-income countries was often that initially health care (rather than health insurance) was made available to these groups directly, often provided by charities or local initiatives. This, or defining a package of entitlements for those outside the employer-based system, has the advantage that safety-net provision can concentrate on what policy-makers see as the essential services. However, many high-income countries subsequently saw these groups incorporated into the social insurance system, which has the advantage that

these vulnerable groups are not restricted to a “poor health service for the poor”; China’s longer-term intentions in this respect are also worth thinking about now.

Similar issues arise in relation to the appropriate approach to the unregistered population, in terms of efficiency arguments for flexibility. Broader issues arise in considering the relationship between urban and rural populations, and we focus on these at the end of this section.

### **4.3 Sustainability of financing**

While some high-income countries rely almost entirely on just one or two sources for healthcare financing, such as general taxation or social insurance contributions, middle- and low-income countries generally draw on a range of sources, including in addition payroll taxes, private insurance, and user fees. For the most part, as financing systems evolved over time in the high-income countries the extent of risk-pooling increased with the government playing an increasing role.

As far as contributions from employers are concerned, ideally these should neither constrain the flexibility of employees nor disadvantage certain sets or types of employers. If different employers or enterprises are not treated in a consistent manner, some will be disadvantaged in competing in the market and the result can be that “good” contributing employers get squeezed by “bad” non-contributing one.

In the case of urban China, currently the new community-based insurance programs appear to be in good shape in terms of revenues versus expenses at aggregate level. For example, aggregate statistics has shown a solid trend in positive surplus at the national level. Even at the provincial level, data also indicates total revenues to be more than total expenses for almost all provinces. However, the current urban insurance does not involve pooling at provincial level, therefore the total surplus at provincial level is of little relevance to the varied financial performance of the municipal community-based insurance programs. In fact, crude statistics often show sizable variation in revenues versus expenses across local community-based insurance programs, where many enjoyed large surpluses while others have increasing deficits. From an actuarial standpoint, if aggregate statistics indicates a substantial surplus, it implies that the current premium setting is appropriate and sufficient enough to cover the total expected expenses on average at aggregate level. However, municipal communities vary greatly in conditions including income, disease patterns, and aging, leading to highly unequal distribution of risks and pooling capacities. Therefore, given the current urban insurance programs pooling at community level, the real challenge is whether and how the costs and surpluses can be transferred or adjusted across local communities. Future research should study the level of such transfers and adjustments that can be feasible and efficient, politically and economically.

### **4.4 Benefit cap and supplemental insurance**

The issues of how best to structure and delimit the benefits provided by the insurance mechanism for formal sector employees, and how this relates to supplementary insurance that individuals may then take out, are extremely important. Where healthcare users face fees, these

can be structured to encourage appropriate patterns of use, for example 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. Many high- and middle-income countries have been facing severe cost escalation, leading to an increasing focus on the problem of moral hazard that can arise in relation to services that are free at point of use. This has led to an emphasis on consumer cost-sharing, in terms of out-of-pocket payments and insurance co-payments or deductibles.

From the moral hazard perspective, supplemental insurance through the private market can offset the effects intended by the design of the core insurance mechanism. Of course, government can have an active role in this respect, influencing and regulating the operations of private insurance market (Chen, Ying et al. 2004). Considering the potential selection and risk of supplemental insurance, some questions were raised concerning the necessity of capping the core benefit level at 4 times salary and leaving the remaining portion to the private market. In particular, a recent study by Wu (2004) reports the individuals with medical expenditures exceeding the cap were only about 0.4% of the total beneficiaries. Another study finds the elasticity of demand for supplemental insurance to be 0.59 (Chen, Ying et al. 2002). This is low relative to demand for regular care when price changes. Based on these observations, it seems plausible to test a policy alternative that the supplemental portion be included in the core benefit by removing or increasing the current cap.

#### **4.5 Supply-side reform**

The experience of both high- and middle-income countries demonstrates that the structure of incentives for health service producers, the nature of the reimbursement system and how active insurer are vis-à-vis providers, have a major impact on which services are provided and how cost-effectively. In some circumstances health care providers may be able to “capture” the benefits of expanded insurance coverage or revenue from user fees without improving services. Whether payment is retrospective or prospective, based on fee for service or capitation, and whether incentives bias providers towards costly hospital-based care are key considerations.

Some empirical data reported that changes in supply-side payment policies did seem to result in better cost control outcomes as suggested in theory (Ellis and McGuire 1990; Cai, Wan et al. 1999; Zou 2002). In a study using aggregate data in Zhenjiang, Cai et al. (Cai, Wan et al. 1999) showed that during the last three years prior to the insurance reform, total medical insurance expenses increased at an annual rate of 33.4 percent. This growth rate was contained successfully down to 4.2 percent from 1994 to 1995, a year after the reform, leading to the first yearly balance in medical expenditures and revenues from the perspective of the city Medical Insurance Bureau. The rate of cost escalation, however, emerged again to be over 40 percent from 1995 to 1996. Cai and his colleagues attributed this sharp bounce in insurance costs mainly to the behaviors of providers in attempt to maximize revenues through events such as decomposing prescriptions, duplicating diagnostic procedures, and readmitting patients. These behaviors worked well when provider payment by then was primarily retrospective. While some fee schedules were applied, most of them were implemented on a FFS basis. Furthermore, to the extent that these behaviors were significant in 1996, but not in 1995, it was believed that this was

mainly due to the effect of a time lag that is usually necessary for providers to become familiar with a new policy and then respond more effectively to it.

Starting in 1997, Zhenjiang has changed its retrospective payment method to a global budget to pay for inpatient care at all hospitals with SPA funds. Very importantly, the cost escalation was reduced again and the growth rate has been controlled steadily at the 15 percent annually ever since the change of the payment policy. While some moderate changes were also made on demand side cost-sharing policies such as increase in co-payment rates, deductibles, and caps after 1997, the implementation of a global budget was considered to be fundamental and coincided precisely with the changed pattern of expenditures. These observations suggest a central and significant role of global budget as an effective supply-side cost containment strategy. In the light of international experience, however, such an implication is not surprising as it is consistent with the patterns observed in many developed countries and predictions by researchers in the West (Arrow 1963; Ellis and McGuire 1993; Liu 1998).

The significant effect of supply-side cost control policies is also evidenced in Hainan. Although the MSAs and SPA are intended for paying for different types of services in Hainan, a global budget has been used similarly since 1997 to pay for inpatient services in hospitals on a prospective basis. From the government perspective, this payment policy is aimed at balancing the total cost and revenues, leaving more rooms for providers to assume more responsibilities, and improving incentives for hospital providers to use resources more efficiently. With such a policy, the City Medical Insurance Bureau was able to decrease individual co-payment rates and extend the drug formulary and covered diseases list while still maintaining the total costs and revenues in balance in 1997 and thereafter (Wang 1999).

A recent empirical study by Yip and Eggleston (2001) provided more solid evidence in supporting this argument. Their study employed a difference-in-difference model with a control group to analyze the impact of provider payment policies on various utilization measures between hospitals with and without having a payment intervention. Both groups of hospitals had been paid on a fee-for-service basis (FFS) prior to the policy change in 1997 when the reform hospitals switched to a global budget while the control hospitals stayed with the same FFS. With demand-side insurance policies remained unchanged, their data demonstrated a sharp contrast in hospital cost behaviors in response to the adoption of global budget vs. fee-for-services (FFS) payment. For instance, the total expenditures per admission decreased by 9 percent after the reform in the intervention group, but increased by 44 percent in the same time among the control group. A further study by Yip and Eggleston (2004) finds prepayment to be associated with reduced growth of spending on expensive drugs and high technologies, compared to FFS. This study confirmed that supply-side payment reform would be an effective policy instrument for correcting market failures and help control costs.

Based on the above observations, it can be conclusive that it was the implementation of supply-side cost control mechanisms that played a key role in achieving the long-run cost savings, if any, in both of the Zhenjiang and Hainan models. The demand-side cost control measures such as co-payment and deductibles and the tiered relationship between the MSA and SPA, on the other hand, may be effective in the short run, but did not seem to contribute much to the cost savings in the long run. This is to suggest that whether the MSA and SPA are integrated in the Hainan “compartmental model” or in the Zhenjiang “pathway model”, it is likely that the

long-run difference in total cost containment would be largely determined by the supply-side payment policies, rather than the demand-side control measures.

## **V. INTERNATIONAL EXPERIENCE AND RECOMMENDATIONS**

We have stressed that in considering how best to move China's health insurance and financing system forward, a long-term perspective at this stage would be very helpful. To ensure coverage of the whole population and circumvent adverse selection, health financing in many high-income countries evolved to the point where tax financing and/or government-sponsored social insurance dominate, but private health insurance still plays a significant role in OECD countries, and in the USA is the dominant form of financing. It is important in addressing current concerns to have some sense of which broad direction China is to take in the longer term (and perhaps how quickly it aspires to attain core goals such as universal coverage).

We cannot deal in any detail with the advantages and disadvantages of such competing financing models here, and each country in any case has to evolve towards a system that meets its own particular circumstances and needs. However some general points of relevance may be highlighted. Financing via general taxation clearly provides a way of including the whole population in the risk pool, and the scope to allocate resources according to need, but if taxable capacity is inadequate can result in low quality public services. When combined with lack of incentives on the delivery side, they may also find it difficult to be in touch with and responsive to patients' needs. Social insurance in many high-income countries was originally limited to specific groups and managed autonomously but was successfully extended to cover most or all of the population, including informal and rural sectors. This may make it easier to separate purchase from provision of healthcare, but that depends on the specific structures in place. Adverse selection is critical in the context of private insurance; where individual risk-rating is employed to counteract adverse selection, the extent of risk pooling is limited leaving the State to cover the poor, the elderly etc. 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. This does not offer a panacea; however, since where risk-rating is not permitted some low-risk individuals may go without cover.

If not going the route of British NHS-style public delivery of care to everyone financed from taxation to achieve universal coverage, countries relying on social insurance have moved from voluntary to compulsory insurance, and avoid adverse selection in that way. This is something that will have to be taken very seriously in a Chinese context.

Financing healthcare is inextricably bound up with delivery, and China's priorities have also to be to put in place a system which has an appropriate structure of incentives for service providers. There has been considerable debate in the OECD countries on the advantages of having purchasers separate from providers rather than an integrated financing and delivery system, and some have explored how best to move (further) in that direction. Similarly, the implications of the ways in which private health insurers interact with delivery, whether simply passively by retrospective payment or by seeking actively to manage the care provided, have received a great deal of attention. If it is not only the resources devoted to health care but the way

the supply side is structured that determine the quality and coverage of health care available, the imperative to maximize the benefit from limited resources is clear.

A crucial input into decision-making is improved knowledge about the effectiveness and in particular cost-effectiveness of different interventions. Some high-income countries have developed highly formalized approaches to doing so and producing national guidelines based on the results. While there is clearly a value in learning from these structures and results, the key lesson is probably downstream: how effective are the mechanisms for bringing about compliance with these guidelines?

The centrality of effective public health and preventive programs has to be reiterated. The need to ensure that healthcare resources are not disproportionately focused on high-cost curative services cannot be over-stated, although the challenge of doing so, particularly in a situation where some of the urban population in particular has high expectations about entitlement to high-cost care, is very real.

Finally, although long-range planning requires a sense of where the Chinese healthcare system is aimed, deciding on how best to get there will have to be based on learning from experience. The piloting of particular initiatives has been a feature of recent Chinese experience, but it has not always been possible to fully exploit the potential to learn from these and from variation in structures from one area to another because the data/information required to do so has not been collected in a structured way from the outset.

Another area of importance is the role of MSAs as a demand-side mechanism in containing health costs and utilization. In the case of China, the studies on the Zhenjiang “pathway model” versus Hainan “compartmental model,” offered little insights on this issue. For example, the advocates of Hainan model argue that when MSA and SPA were set in a “pathway model” as in Zhenjiang, failure to control cost would be inevitable because the MSA would fail in containing demand behavior because individuals would have a strong incentive to draw funds out of MSA as the first tier in order to pass through the “pathway” sooner to use the SPA funds. In contrast, a counterargument in support of the Zhenjiang model contends that defining the use of MSA and SPA funds for different services as practiced in compartmental model, may face some technical challenges. First, while the separation may be sound in theory, in practice it can be very difficult to operate. This is because a standardized comprehensive schedule of diagnostic and treatment guidelines must be well specified in order to operate this policy effectively in making appropriate payments for services rendered. In the West, a wide range of variations has been well documented in medical treatment patterns (Wennberg, Freeman et al. 1987; Phelps 1992; Welch, Miller et al. 1994). Considering the complexity of medical care and its asymmetric information between providers and patients (Arrow 1963), it seems very unlikely that it is feasible to define such a schedule in China at this point. In fact, there has been no such schedule or formal guidelines used by the cities practicing the Hainan model. Without such a schedule, however, the allocation of SPL funds and thus health care utilization would be sub-optimal and inequitable. Due to the lack of head-to-head comparison data, the relative merits of the two models in practice are as yet unclear..

MSAs have also been implemented in a few other nations including Singapore, South Africa, and US. However, applications in these nations are quite distinctive and thus experiences

are limited. For example, the MSAs in Singapore are for inpatient care only, which accounts for only a small portion of the total health care financed by other sources. In South Africa, the MSAs are used primarily by the high income population. In the US, it is being piloted only in small businesses with no more than 50 employees.

## **VI. CONCLUDING REMARKS**

Based on the literature review, our understanding of the current urban health insurance and financing may be summarized as follows. First, compared to the previous GIS and LIS system, the socialization of MSAs and SPA appears to be more efficient in achieving cost savings; more equitable in access to care; and more promising in protecting the insured individuals from health shocks and catastrophic risk. However, it is uncertain whether sustainable and sufficient financing will be available to insure the entire urban population (including unemployed and dependents) through the new insurance program, particularly in those remote and economically poor regions. As a result, there may be still a large portion of uninsured and underinsured urban populations.

Second, the existing literature has paid little attention to changes in health outcomes when assessing the new insurance mechanisms. Given the ultimate goal of modern medicine in general, and the Chinese health reform policy in particular, population health outcomes should be central in assessing the reform. Thus, it is important that future research focuses on health outcomes assessment in relation to the new insurance models in urban China.

Third, the available evidence for the comparison of the alternative reform models is inadequate. In order to allow for valid and reliable evaluations, future research must be conducted using empirical data structured on a scientific basis. This requires a collection of original data, especially panel data and including a comparison group, both at the institution and individual levels.

Forth, the current policy requires that the government sectors and SOEs must participate in the community-based insurance program. Yet it appears that many other forms of institutions are allowed to participate in the program on a volunteer basis. Such a non-mandatory policy for non SOEs, especially the self-employed and some privately owned enterprises, is likely to result in some potential problems related to adverse selection and unequal access among individuals working in different industries and employers. Future policy efforts may require a mandatory policy to provide a universal insurance coverage for all urban employees and dependents (Chen, Gong et al. 2000; Ma, Zhang et al. 2001).

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