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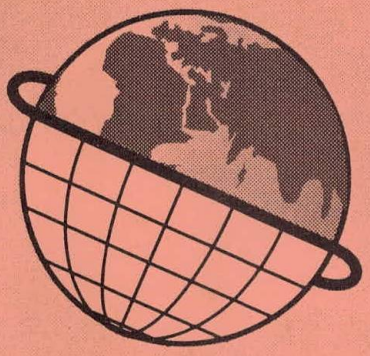

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The reform of the rural cooperative medical system in the People's Republic of China

Initial design and interim experience

P.R. China

Technical paper

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The reform of the rural cooperative medical system in the People's Republic of China

Initial design and interim experience

by

Guy Carrin and Aviva Ron
Division of Intensified Cooperation with Countries,
World Health Organization,
Geneva

Wang SC, Li Xuesheng and Yu Jun
Department of Medical Administration,
Ministry of Health, P.R. China

Yang Hui, Zhang Tuo Hong, Zhang Li Cheng, Zhang Shuo
Training Centre for Health Management,
Beijing Medical University

Ye Yide
Training Centre for Health Personnel,
Anhui Medical University

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INTRODUCTION

At the end of the seventies, China boasted a cooperative medical system that was in place in about 95% of villages. This system involved community participation and cost-sharing, and enabled access to basic health care to farmers. However, a break in this system occurred as the result of widespread market economic reforms. These reforms basically involved a shift from a communal to a household production system. As a result the collective way of financing rural health care was more or less abandoned and, by 1993, only 10% of villages remained covered by a cooperative medical system.

However, the Government of the P.R. of China remained aware of the need to arrange for some form of social protection against health care expenses, so that access to care could be secured. In March 1994, it initiated a RCMS Project to reestablish the rural cooperative medical system (RCMS). This Project is implemented on a pilot basis in 14 counties of 7 provinces. The present paper gives an overview of this Project, its results and its experience obtained from March 1994 until September 1995.

In section 1, we give an overview of the economy and the health sector in China. An emphasis is put on the need for a new RCMS policy, especially in view of the urban-rural disparity. The RCMS project, and especially its workplan, is summarized in section 2. The initial stage of this workplan comprised the organization of household surveys in the 14 pilot counties. Selected results are presented in section 3, especially concerning average income and health care expenses, and causes of non-use of publicly provided health care.

In section 4, we provide information on the implementation of the RCMS. There is substantial variation among the counties, and significant scope for adjustments in the design of RCMS. To illustrate possible adjustments, we analyze and simulate changes in the RCMS of Qidong County in section 5. A summary of the development of RCMS and future perspectives is given in section 6, whereas we conclude in section 7.

1. THE ECONOMY AND THE HEALTH CARE SYSTEM IN CHINA: A BRIEF OVERVIEW

1.1 Some salient features of the economy

1.1.1 Labour force

In 1994, China had a population of 1,198.5 million, and the average annual population growth rate in the period 1985-1994 was 1.4 %[1]. The population is distributed over 30 provinces, 2,116 counties, 55,800 townships and 134,331 villages. The urban population has grown substantially since the 1960s. In 1960, the share of the urban population in the total population was 19%. This share reached 28% by 1992, and is expected to increase further to 35% by the year 2000. The growth rate of the urban population is also supposed to exceed the overall population growth rate, namely 2.7% between 1992 and 2000.

In 1992, the labour force accounted for 50.2% of the total population. Its growth rate has been 1.7% in the period 1985-1993[2]. The labour force is predominantly active in the agricultural sector, with 58.6% of the total labour force in this sector. The women's share in the adult labour force is 43 % in 1994 [3].

1.1.2 Level, growth and distribution of the Gross Domestic Product

Gross Domestic Product (GDP) per capita in 1992 was 2,767 Yuan or US$ 470[4]. Note that the latter US$ figure is computed using an average of official and market exchange rates, however[5]. As the latter figure does not adequately reflect the real purchasing power of the population, it is worthwhile to state the GDP per capita figure in purchasing-power-parity (PPP) terms, namely 1,950 US$ in 1992[6].

Through economic reforms, the Chinese economy is one of the most vibrant economies in the Asian region. These reforms started in the early eighties and comprised mainly the establishment of a household responsibility system[7], liberalization of agricultural prices, and liberal policies towards enterprises, trade and foreign direct investment. The reform speeded up growth. For instance, in agriculture, grain production increased by 5 %

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[1] Ministry of Public Health (1994,p.142) and UN (1995, p.299).

[2] World Bank (1994b, p.197).

[3] UNDP (1995, Table 11, p.176).

[4] World Bank (1994a, p.ix).

[5] Note that before January 1, 1994 China had a "double-track" exchange system.

[6] UNDP (1995, Table 12, p.178).

[7] This system gave more production autonomy to farmer, and better access to markets and enhanced opportunities for local and regional trade; see Rozelle and Boisvert (1995,p.234).

from 1979 through 1984. And the annual growth rate of real GDP per capita was 8.3 % between 1985 and 1994. The forecasted rate of growth of real GDP for 1995 is 10 %[8].

The economic growth of the past decade has contributed to a significant reduction of poverty. Before the economic reforms, absolute poverty[9] was prevalent among 270 million Chinese. The economic changes are estimated to have raised 170 million people above the absolute poverty level. Despite these improvements, it is important to notice that there are still significant differences in terms of consumption and income between urban and rural areas. The average rural consumption per capita in China is less than one third of the average of all urban areas[10]. In terms of GDP per capita, differences are notable, on the one hand, between China's South coast[11] and East Coast[12] and, on the other hand, China's East Interior[13] and West Interior[14]. In the South coast and East Coast, GDP per capita is US$ 810 and US$ 780, respectively. However in the East Interior and West Interior, GDP per capita is US$ 310 and US$ 290, respectively [15]. Important socio-economic differences in China currently contribute to the phenomenon of a rural migrant population to China's cities between 40 and 80 million.

It is estimated that the percentage of poor amounts to 10.9 % of the population[16]. Other indicators reflect the extent of poverty; for instance the lowest 40% of the households can only command 17.4% of total income. Inequality is illustrated by the fact that the ratio of the highest 20% income earners to the lowest 20% income earners is 6.5[17]. In such an economic environment, it would be important to ensure that the rural population does not stay behind in terms of health improvement. Mechanisms are needed to guarantee access to basic health services to the population, irrespective of the economic status of regions and provinces. Without such mechanisms, a welfare gap between the poor and the better-off population will persist.

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[8] UN (1995, p.301).

[9] UNDP (1994, p.223) defines the absolute poverty line as that income or expenditure below which a minimum nutritionally adequate diet plus essential non-food requirements are not affordable.

[10] World Bank (1994a, p.38).

[11] Guandong province.

[12] Shanghai, and the provinces of Jiangsu and Zhejiang.

[13] Henan Province, Anhui Province and Jiangxi Province.

[14] Sichuan Province and Guizhou Province.

[15] World Bank (1994a, p.39).

[16] World Bank (1994b, p.107).

[17] UNDP (1995, Table 12, p. 178).

1.1.3 Government finance

Public finance has undergone major changes since the economic reform. First, accounts of state-owned enterprises and government have been gradually separated. This has resulted in a decline of the shares of government revenues and expenditures in GDP. In 1989, the shares of government revenues and expenditures in GDP amounted to 20.4% and 22.7%, respectively. However, by 1993 these shares had declined to 15.4% and 17.5%, respectively. Especially the decline in the revenue share reflects the difficulty of government in mobilizing revenues. Fiscal decentralization is one of the major causes of this problem. In fact, local governments gained a substantial control of China's taxation policy. This process of decentralization has stimulated local governments' interest in economic development[18]. However, quite a number of local governments seem to have been overzealous by granting illegal exemptions on taxes that should in principle have been shared with central government[19]. In doing so, local governments wanted to stimulate economic activity in their region. It is estimated that the loss due to such tax exemptions was the equivalent of 1.5 to 2% of GDP in 1993[20].

Being aware of the public finance problems, the Third Plenum of the 14th Congress of the Communist Party of China, held in 1993, stressed among others the need for fiscal reform. The latter encompasses three areas: (i) the broadening of the tax base and the simplification of the value-added tax structure; (ii) restructuring of the enterprise and personal income tax; (iii) a new structure for intergovernmental fiscal relations and the establishment of a National Tax Service (NTS). Especially the NTS should give the central government renewed power related to budgetary revenues.

In general, an increase in tax revenues is warranted to make sure that Government can properly finance its tasks related to socio-economic development. There is certainly the question of a proper mix between public finance and private sector expenditure for social goods such as health. It is reported that for 1993, the total health expenditure in China was 3.61% of GDP. The latter corresponds to health expenditure per capita of 96 Yuan. The major part of health expenditure comes from non-government sources: 34% and 35% from total health expenditure were financed by enterprises and by private households, respectively. Government financing only accounted for 22% of total expenditures[21]. The latter percentage is also cited for China's poor areas[22]. It follows that Government spends about 21 Yuan or

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[18] Yusuf (1994, p.75).

[19] Many provincial governments have also been increasingly using revenue from extra-budgetary sources, in order to avoid sharing of taxes with the central government. See Yusuf (1994, p.84).

[20] World Bank (1994c, pp.ix-x).

[21] Du Lexun et al. (1995) and World Bank (1995, p.61).

[22] Han Leiya et al. (1995).

US$ 3.6 for health care [23] on a per capita basis. The latter amount is quite modest, certainly in view of the continuing demand for basic health services. There is also an increasing demand for health services of better quality and greater sophistication among a better-off population. A major question is to what extent Government should respond to and co-finance these demands. In view of an emerging private sector, it should investigate which new legislation is required concerning health services provision and financing. Some of the answers to these questions will obviously depend on Government's desire to continue to play a role in advancing health for the population in general and, specifically, in the safeguarding of access to care among the most needy.

1.1.4 Declining state ownership

An important feature of the economic change in China is the decline of the dominance of state-owned production, in favour of the growth of collective and private ownership. State enterprises are the property of the whole country. In contrast, collective enterprises are controlled by local governments. There are urban as well as rural collectives. Quite a number are managed by township and village governments, whence the term "township and village enterprises" (TVE)[24]. Note that in 1978, 78% and 22% of industrial production was owned by the state and collectives, respectively. However, in 1992, these percentages were 48% and 38%[25] for state and collective enterprises, respectively. New ownership also developed: private and foreign enterprises came to occupy a share of 12% in the total of enterprises.

One of the main differences between the collective enterprises and the state-owned enterprises is that the former can no longer rely on a banking system that readily provides credits or prints money in order to cover losses. Collective enterprises have to be run like private enterprise in any market economy: they are responsible for losses, but they can also keep the profits if they arise[26].

The TVE have become a crucial factor in the development of the local economies. In fact, the profits of TVE can be retained and spent on further investments[27]. The TVE's activities create additional employment. A part of the revenues of TVE can also be spent on social services such as health care and education. Islam and Hehui (1995) report that in 1992 about 33% of TVE profits were used to finance social expenditure. TVE tend to be quite prevalent in the more advanced and peri-urban regions. For instance, in 1988, half of all township and village-level output was produced in three provinces (Jiangsu, Zhejiang and

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[23] The average official exchange rate (FEC) in 1993 was 5.762 Yuan per US$.

[24] Naughton (1994, p.266).

[25] This percentage is divided in turn into 11% ownership by urban collectives and 27% by rural collectives; see Naughton (1994,p.267).

[26] Perkins (1994, p.37).

[27] Rozelle and Boisvert (1995, p.236).

Shandong) that have only 17 % of China's population. Expansion of the TVE as an institution in rural areas would certainly be welcome, of course as a means to generate income, but also as a way to muster more resources for health.

1.1.5 The inflation problem

China is currently turning a centrally planned economy into a market-based economy. This transition has been accompanied by important problems of inflation. For people with relatively fixed incomes, inflation can result in major cuts of purchasing power and, hence, jeopardizes their current well-being.

In the late eighties, inflation reached double-digit levels; it was 16.3 and 20.8 % in 1989 and 1990, respectively. This was due to a large extent to a credit policy, whereby bank loans are granted abundantly. There was indeed a fear that restrictive credit policies would exacerbate unemployment, especially among the population still active in loss-making state enterprises.

Efforts, however, are undertaken by the Chinese government to rein in inflation. Interest rates were raised, credit ceilings were established and the financing of certain non-productive investments was banned. Despite these adjustments in credit policies, a high level of inflation was observed in 1994, namely 24 %. Tighter credit policies imposed at the start of 1994 led to problems with availability of working capital, especially in state-owned enterprises, and to rising unemployment and/or non-payment of salaries. As a result, the Government relaxed its credit policy as of March 1994.

In 1994, several other factors contributed to the high inflation rate: increases in wages of civil servants, bad weather entailing drought, and therefore resulting higher food prices. There was also the unification of the exchange rate mechanism in January 1, 1994[28] which implied a 33 % devaluation of the official exchange rate; the latter devaluation is likely to have fueled inflation. However, it is observed that a number of the causes of the inflation problem are structural as well. There is a steady demand of investment that is hampered by the availability of capital goods. In addition, the increasing integration of China into the world economy is accompanied by inflow of foreign exchange that makes a strict control of the domestic money supply difficult[29]. In 1995, inflation is expected to have been reduced to 15%, however.

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[28] Before that time, there was a double-track system. There was one official exchange rate (FEC) at which foreign investors and tourists, and Chinese foreign trade enterprises needed to convert their currencies. The other track comprised a "market" exchange rate, used for the selling of retained foreign exchange by enterprises and individuals and for imports that were not covered by the official foreign exchange allocations. See UN (1995, p.92).

[29] UN (1995, p.92).

1.2 The health care system

1.2.1 The health care delivery system

In the 40 years following the establishment of the People's Republic of China, significant improvements in health status were achieved. By 1990, life expectancy had doubled, from 35 to 69 years. During this period, overall mortality dropped from 25 to 6.6 per 1,000 population, while infant mortality declined from 200 to 35 per 1,000 live births[30].

These achievements were in no small part the result of improvements in social conditions and health services. Through a 5-year cycle planning process directed by the State Council (China's executive branch), the development of health services at every level of government was accelerated. As a first step, the "barefoot doctor" concept was heavily promoted through paramedical training, and urban doctors were sent to rural areas. The county health bureaus were given responsibility for the implementation of national policy in their constituencies. The major thrust of China's active health policy in rural areas after 1949 was a community-oriented primary health care approach.

A three-tiered approach was followed, defining the provision of services and referrals at village, township and county level. Average county size is now one million population. Each county has around 25 townships, each with 14 villages with 1,000 population on average. At village level, a clinic or village health clinic staffed by village doctors (formerly barefoot doctors), provides basic preventive services, maternal and child health care and curative primary care to village residents.

At township level, a health centre with in-patient beds provides basic diagnostic, medical and surgical services. The health centre is staffed by assistant doctors, with two years of medical education after high school. A separate township facility provides family planning services.

The county hospital serves as the highest rural referral service, and provides a fairly full range of medical and surgical services. The diagnostic services in many county hospitals now include high technology imaging equipment, such as computerized tomography. County hospitals are staffed by college graduate physicians and provide training for township and village health workers. In addition, each county usually has a traditional medicine hospital, with training facilities. By 1990, every county had at least one hospital, 88 % of the townships had a health centre and 87% of villages had a clinic.

In recent years, however, there appears to be some stagnation in the improvement of health status, and gaps between urban and rural, and higher and lower income groups are becoming wider; see further section 1.2.4. Economic reforms indirectly led to the dismantling of the rural cooperative medical system. Many workers were disenfranchised from public service and labour insurance systems with the shift towards privatization and increasing unemployment. Where underemployment was prevalent previously, market economy now transforms this into formal unemployment. The aging of the population constitutes an

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[30] Leiyu Shi (1993).

increasing problem, particularly as many of the aged are unprotected by the former financing mechanisms. With the collapse of the RCMS, the traditional approach of relying on family and savings for medical expenses was challenged by the rising costs of health care, inflation, migration of children to urban areas as well as the real decrease in the number of children to support aged parents.

1.2.2 The health care financing system

The financing mechanisms for health care in China differ significantly among population groups. The major sub-systems are[31]:

(i) *The public service medical care*[32] , which meant free of charge health care for government workers at all levels of government (central, provincial, county, township and village), officials of labour unions, youth and women's leagues, the staff of cultural, educational, health and research institutes and students at approved colleges and universities. The government is solely responsible for the financing of this system. In all cases, workers and retired members are covered but family members are not included. This arrangement is based on the State Council regulations of 1952, termed "Implementing Rules of Free Medical Service for State Personnel". Around 30 million individuals were estimated to be covered by this system in 1995.

Recently the State Council has implemented a reform, on a pilot basis, in two cities: Zhenjiang City of Jiangsu Province and Jinjiang City of Jiangxi Province. These pilot systems constitute a fund with contributions from government as well as individual government workers. The fund comprises "individual accounts", a "cooperative account" and a "high risk fund". In case of illness, the worker's individual account would be used first, to finance the medical care expenses. Should the individual account become empty, the cooperative account will be used, but subject this time to co-payments from the patient. Finally, for high-risk illnesses entailing important expenses, the high risk account would be used. In the meantime, this system appears to be introduced in other cities and districts as well.

(ii) *The labour insurance medical care*[33], set up as part of the labour insurance system as a social security measure enacted by the State Council in 1951, termed "Rules of Labour Insurance in the People's Republic of China". The system established to protect workers' health in industrial and mining enterprises, railways, post and telecommunications authorities. The

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[31] For an overview, see also Gu and Tang (1995).

[32] Sometimes this is called the "free medical care" system (Yu,1991,p.15) or "government insurance system".

[33] Also called the "labour protection medical care" system (Yu,1991,p.15) or "labour insurance" system.

contributions to a merged "enterprise staff welfare fund" come from enterprise income, and has been set at 5.5 percent of this net income in 1957. In 1969 the Ministry of Finance stipulated that half of the fund would be allotted to health care. In 1995, it was estimated that 140 million workers and 60 million family members were covered by this mechanism. Family members are entitled to half the reimbursement allowed for workers. The system has been extended to workers of private enterprises, within the social security framework under the responsibility of the Ministry of Labour. However, TVE are generally not covered by this system.

Note that the system of the three types of accounts introduced in the pilot schemes for government workers, has also recently been incorporated in new pilot schemes for labour insurance.

(iii) *The rural cooperative medical system (RCMS)*, in areas designated as "rural" described in detail below.

(iv) *The health insurance system for students*, essentially covering the inpatient care of students in primary and secondary schools and institutions of higher education. This system is more prevalent in urban areas.

(v) *The systematic health insurance system*, which is an annual prepayment for a package of mandatory services including immunization for children, family planning and post-natal care. In some provinces, the parents pay an amount for each child, which covers a full course of immunization, and reimbursement of treatment costs for any of the target diseases, up to the age of seven years.

There are serious gaps in population coverage resulting from the current classifications. For example, workers in enterprises in rural areas are not covered by the social security framework. As an increasing number of "farmers" are now finding full-time or part-time work in local village and township enterprises, the number of individuals in this category is increasing. The present policy is to include this salaried population in the target population for the rural cooperative medical systems.

Another gap results from the individual rather than family membership approach in the first three sub-systems. The spouse may be covered in his or her own right by one of first three sub-systems (as government worker, salaried enterprise worker or farmer) but coverage is not extended or may be very limited for dependent children. In some areas, children in school may be covered by the system for students, but this coverage is far from uniform across the country. A similar lack of coverage may be found among the elderly, who are not government pensioners and are not economically active.

1.2.3 RCMS Policy 1950-1993

The cooperative organization of rural health financing began in the early 1950's, through the initiatives of communes and brigades in rural areas[34]. During the 1960's and 1970's this method, which came to be termed "cooperative medical systems" (CMS) was encouraged by the Government and the Communist Party. By the mid-1970's, it was estimated that 95% of China's villages had a CMS, administered by the brigade and with the village health clinic as the basic health care provider.

The growth of the village[35] collective economy provided the basis for the development of the CMS. CMS funds consisted of yearly contributions paid by participants, and subsidies from collective welfare funds. Participants' contributions amounted from 0.5% to 2% of annual income. The management of welfare funds was supervised by village and township[36]. The share of subsidies from welfare funds in total CMS revenues varied from 30% to 90%, with an average of 50%[37]. Note that these welfare funds were made up of contributions from villages that were in turn based on income from agriculture and enterprise activities. The other contributors to the CMS were higher levels of Government. These especially supported the financing of health workers' income and the medical equipment[38]. Concerning the use of CMS revenue, some variation in reimbursement procedure could be observed: some exempted members from payment for services at village health stations and township health centres, while others only reimbursed a proportion of costs incurred by the members.

The CMS was voluntary and not mandated by government legislation or regulations. In fact, in the years of rapid growth of the CMS no clear guidelines for the establishment and operation were produced by central or provincial government, and problems of inadequate funding and weak administration were common. Despite the voluntary nature and lack of regulations, very few farmers refused to join. Most of those who were not members were considered "class enemies", that is, people who had been landlords or rich peasants prior to liberalization, or members of counter-revolutionary parties.

By the end of the 1970's, it was clear that the CMS were effective in health care development in rural areas. They led to consolidation of rural health services, and enabled access to basic care for peasants, regardless of their economic situation. Despite the administrative and financial management weaknesses, the CMS provided a financial basis for the operation of the health care facilities, in an atmosphere of community participation and cost sharing for basic health care. As the system had become so widespread, in 1979, "Rural

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[34] See Tang Shen-Lan et al. (1994, p.10)

[35] The term "brigade" was used before the 1980's.

[36] The term "commune" was used before the 1980's.

[37] Cheng and Liu (1995, p.2).

[38] Liu et al. (1995, p.1086).

Cooperative Medical System Regulations" were drafted (by the Ministries of Public Health, Finance and Agriculture) and the term "Rural" was added systematically; one now commonly uses the term RCMS.

A major break in the development of the rural cooperative health systems occurred in the early 1980's, however. Several reasons can be highlighted. First, economic reform virtually stopped all further advance of the CMS. The resulting shift from the collective (village) to a household production system meant a significant drop in the original source of revenue for the system. Government also reduced its financing of recurrent health care costs, especially at the village and township level, expecting that user fees for health services would increase[39]. The introduction of the market mechanism also contributed to a freeing of prices in the medical sector. Prices of health services soared, and in many places RCMS revenues could no longer cover costs. Secondly, in some cases, bankruptcy of RCMS schemes was due to a significant degree of adverse selection[40]. Thirdly, the State Council did not promulgate the drafted regulations just mentioned. Hence, a lack of regulations and weaknesses in administrations was one of the roots of the breakdown. Fourthly, it also appears that the political support to the RCMS schemes had declined[41]. In fact, many schemes had been established during the Cultural Revolution period. As soon as the Communist Party dropped its support for the revolution, many communities rejected CMS because of its association with this political upheaval[42]. Generally, the collapse of the RCMS led to a decreased access to preventive and curative care. The incidence of some infectious diseases was also reported to increase[43]. In this respect, we cite that the incidence of typhoid and paratyphoid rose from 8.8 per 100,000 in 1974 to 14 per 100,000 in 1988. And the incidence of hepatitis A and B increased from 74.2 per 100,000 in 1974 to 132 per 100,000 in 1988[44].

Remarkably, in some areas however, the adaptation of RCMS to recognize the household as the major contributing unit (as opposed to the village or township welfare fund) enabled continuation. In some other areas, particularly those with higher incomes, new forms of RCMS were introduced, but the trend was hampered by regulations barring the introduction of new levies by local government. By 1993, it was estimated that the RCMS covered only 10 percent of the rural population, or 100 million individuals, in only 4.8% of the villages[45].

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[39] Liu et al. (1995,p. 1087).

[40] Cheng and Liu (1995, p.5).

[41] Gu and Tang (1995,p.186).

[42] Xueshan et al. (1995, p.1111).

[43] Cheng and Liu (1995).

[44] Liu et al. (1995, p.1090).

[45] State Council (1994).

1.2.4 The urban-rural disparity

The achievements in health status reached over the past decades in China were significant. By 1982 life expectancy and infant mortality per 1000 live births was 67.9 years and 34.7, respectively. What is noteworthy, however, are the discrepancies between urban and rural areas. For example, in 1987 life expectancy was 71.5 years in urban areas and 66.6 in rural areas. By that year, infant mortality had dropped to 20 in urban areas but could be as high as 96.2 per 1,000 in the poorest rural areas[46]. The reasons for such disparity between urban and rural areas are considered to be linked in part to the economic reforms and the collapse of many RCMS schemes.

The health care financing mechanisms for government workers and state enterprises covered only a small percentage of the rural population. The health insurance coverage for enterprise workers within the social security framework was developed for urban areas, but not applied in rural areas, despite the rapid growth of village and township enterprises in the rural areas of many provinces.

Health facilities, particularly at village, township and county level, received a decreasing share of funding from government (central and provincial) and from other collective bodies. The upgrading and expansion of the health care facilities was not accompanied by higher budgets from central or provincial government. On the contrary, public expenditure on health care has been reduced since the economic reforms of the 1980's. The township and county hospitals were authorized to apply user charges and over time, the revenue-generating potential of these facilities was increasingly recognized. With average occupancy rates of around 44% in the early 1980s[47], township health centres obviously had room to generate demand.

The disintegration of RCMS meant that the barefoot doctors, who were the major health care providers in the village health clinic (VHC) operated by the RCMS, were no longer guaranteed an income through a regular salary. To generate their income, these doctors were encouraged to apply user charges and many bought the VHCs to be operated as private practices. It is presumed that after the breakdown of RCMS, more than 85 % of the rural population came to rely on private practitioners[48]. By 1990, more than half of VHC had been sold to individuals or were rented to private practitioners [49].

In all but isolated cases, villagers were billed on a fee-for-service basis. Charges and profits from the sale of drugs by the village doctor also became important sources of income.

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[46] Yu (1991, p.57).

[47] Leiyu Shi (1993, p.726).

[48] Yu (1992, p.34).

[49] Xueshan et al. (1995,p.1113).

Note that presently, 93% of rural residents pay out-of-pocket for medical care; these payments amounted to 21.3 Yuan per person in 1990[50].

In parallel to this process, health care facilities were given high priority by local government, particularly at the village, township and county levels. Rather than consolidation of resources within a township, facilities were not only retained but enlarged and added at each level. In this way, each village retained its VHC, and there was no merging of village health clinics to serve the population of a cluster of villages. As the township and country enterprises developed, new and larger hospitals with sophisticated medical equipment became prime ways of using enterprise profits.

Rural populations were therefore faced not only with charges for primary health care at the village level, but with substantial charges for hospital-based services. By the beginning of the 1990's, household out-of-pocket payment for health care was considered a major contributing factor in rural poverty. For instance, a national household survey in 1988 showed that of patients in poor counties, 50% of the patients who were not treated were not because of excessive health care costs. Furthermore, 25% of the rural population that needed referral to a hospital was not admitted largely because of financial problems. Similar evidence is from a 1987 study of rural health services in 20 counties in different regions of the country. It was found that 23 % of ill people did not seek care in moderately poor countries, compared to 16.5% in rich ones. The cost of care was cited as a common reason for this behaviour. Hospital utilisation was also influenced by cost of care. Indeed, 45% of people referred by a doctor in moderately poor counties did not receive hospital care, as compared to 9% in rich counties; of those who were not admitted, 63% claimed this was due to cost[51]. And, in a study among 60 poor families in Yuhan county of Zhejiang province, 47% declared that expensive medical care had been the most important cause of falling into poverty[52].

While on the one hand, the central government understood the impact of all these trends, it was recognized that government had less influence on the planning and management of health services at all levels, and even less influence on provider behaviour.

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[50] Gu and Tang (1995, p.188).

[51] Gu and Tang (1995,p.188), Xueshan et al. (1995,p.1113) and Gu, Bloom, Tang & Lucas (1995).

[52] Zhang (1991) cited in Gu and Tang (1995).

2. THE RCMS PROJECT 1994-1997

2.1 Political process to reestablish the RCMS

In recognition of the problems noted above, in 1993 the Government of the P.R. China initiated a series of steps to improve access to health care in rural areas. The RCMS Project was launched by the MOPH and the Research Centre of the State Council, to carry out applied research, taking account of work carried out by the World Bank-sponsored "China Network for Training and Research on Health Economics and Financing" and the results of research supported by the International Health Policy Programme (IHPP). From the beginning, the immediate objective of the RCMS Project was to design, implement and test a number of health insurance schemes in several poor counties. An additional objective was the enhancement of national capacity for the implementation of rural health insurance.

From the outset, the tendency in terms of policy was to reestablish the rural cooperative medical systems, with the appropriate modifications to suit changes in economic reforms, and this objective was designated as one of 10 priority projects of the State Council. This approach was based on the positive historical experience of the RCMS in the past, but also recognized the need to develop different RCMS models, rather than the "one model, one standard" approach of the past.

An important first step was taken by the State Council in 1992 with a general study of the feasibility of the reintroduction of RCMS. The latter was presented to the top Leaders who agreed to pursue the reestablishment of RCMS. In an important paper, henceforth called "State Council Report", the State Council outlined the objectives and overall process of reestablishment of the RCMS in China[53]. This report was presented at a Workshop in Beijing, in March 1994. The Workshop was attended by the State Council, Ministry of Public Health, State Planning Commission, Ministry of Finance and Ministry of Agriculture. Researchers from Beijing and Shanghai Medical Universities also attended the Workshop. The World Health Organization (WHO) was invited to attend the Workshop to participate in the discussions, give technical presentations on rural health insurance and to investigate its role in technical assistance to the Project.

The following statements are quoted from the State Council Report as the critical issues in adopting the policy to re-establish the RCMS:

(i) The development of rural areas and improvement of farmers' lives are correlated with the farmers' health situation. Without the RCMS, it will be difficult to develop the rural economy and to improve farmers' lives on a sustained basis.

(ii) The access to primary medical care for farmers in backward economic areas needs to be improved urgently. The purpose is to drastically reduce the problems of poverty caused by disease and of disease caused by poverty.

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[53] State Council (1994).

(iii) The development of RCMS is part of the promotion of social security. Farmers should not loose significant amounts of money or assets (food, animals, etc.) just to pay for medical expenses. A RCMS, supported by government, is a practical initiative to tackle this issue.

The State Council Report suggested a goal of achieving reestablishment of the RCMS in 40% of all villages by the end of the Eight five-year plan in 1995. The goal for the year 2000 was set at RCMS reestablishment in 70% of all villages.

While recognizing the need for variation in the new RCMS models, the State Council Report included proposals for several basic principles, as quoted below:

(i) The RCMS is based on voluntary participation
(ii) The RCMS is a non-profit organization.
(iii) The RCMS should save resources; resources for health should be used properly so as to reduce the burden of health care costs on farmers.
(iv) The RCMS should be adapted to the local economic situation. The financing should be adapted to the local farmers' incomes. Expenditure by the RCMS should depend on its revenues.
(v) The RCMS should improve the quality of services, and the scope of services should be extended.

Again based on historical experience, the State Council Report noted that RCMS based on legislation would be the optimal way to develop the rural health care system. However, it was recognized that the drafting of legislation should follow a series of research components, from basic household income and expenditure surveys, through planning and implementation of RCMS models in a representative number of rural populations across the country, to monitoring and evaluation of the role, financing, management and impact of the various models. These statements in the State Council Report strengthened the concept of the RCMS Project. Following the March 1994 Workshop, the scope of WHO technical and financial support to the process was determined.

The State Council Report was then submitted to the Peoples' Congress and the detailed RCMS Project, taking into account the principles and guidelines of the State Council Report, was then finalized within the context of government policy, to be carried out from 1994 to 1997. In July 1994, an official launching seminar was held in Shanghai, attended by the Ministry of Public Health, State Council Research Centre, officials from the pilot provinces and counties, and with technical support from WHO. The Project received high profile coverage in the national press, reported in the China Daily on 21 July 1994 as "Rural Health Programmes to Benefit all Farmers" by Zhu Baoxi.

2.2 Responsibility for the RCMS Project

The RCMS Project is managed by the Department of Medical Administration of the Ministry of Health (MOH) of the P.R. of China and the State Council, supported by WHO. A National Project Team has been designated, managed by the Director of the Division of Primary Health Care, Department of Medical Administration, Dr Wang Shucheng. The National Project Team is responsible for coordination with other departments in the MOH

regarding research and policy developments in related areas. In this way, coordination with developments in the various World Bank projects is maintained.

While the MOH is responsible for the initial Project design and necessary amendments over time, specific research functions have been assigned to academic institutions. The Beijing Medical University and the Anhui Medical University are responsible for the training, surveys and analysis in two groups of pilot counties. In that capacity, representatives of the two Universities serve as full members of the National Project Team and attend all seminars and workshops.

The Ministry of Finance, Ministry of Agriculture and the State Planning Commission have agreed to participate in the evaluation stages. These authorities have also agreed to provide funding for large-scale implementation of RCMS, following the demonstration of satisfactory models through the Project.

Financing of the RCMS Project is shared between the Ministry of Public Health and WHO, the latter being co-funded by the WHO Western Pacific Regional Office (WPRO) and the Division of Intensified Cooperation with Countries (ICO) at WHO Headquarters. WHO/ICO in turn received financial support for this project from the International Development Research Centre in Ottawa, Canada.

WHO technical support includes assistance in the preparation of guidelines for the surveys, participation in the workshops related to the design, implementation and monitoring of the RCMS in the pilot counties, assistance in the development of evaluation tools and training in aspects of health insurance and health economics. As the workshops are scheduled to be held in different provinces, the WHO advisors have the opportunity to visit most of the pilot counties over the Project period. The WHO advisors visit China for periods of 1 - 3 weeks 3 - 4 times a year for these purposes.

2.3 RCMS Project workplan

The RCMS Project follows a practical-implementation oriented strategy research for the reestablishment of RCMS. It therefore has a series of stages, each with specific activities, under the following headings:

Stage 1. Selection of Pilot Counties

1.1 Selection of counties at provincial level

Stage 2. Health Sector Review

2.1 Collection of data at county level
2.2 Drafting of health sector reviews

Stage 3. Surveys at County Level

3.1 Workshop on health insurance
3.2 Household surveys
3.3 Data analysis

Stage 4. Design of Pilot Systems

4.1 Workshop on system design
4.2 Workshops on system design at county level

Stage 5. Implementation of Pilot Systems

5.1 Management support at county level
5.2 Monitoring
5.3 Study Tours

Stage 6. Evaluation

6.1 Mid-term evaluation
6.2 Final evaluation
6.3 Preparation of evaluation report

Stage 7. Legislation

7.1 Workshop on health insurance legislation
7.2 Study tour
7.3 Drafting of legislation

Stage 8. Dissemination

8.1 National seminar

2.4 Workplan implementation to date

Since the official launching of the RCMS Project in July 1994, the planned activities have been carried out, with only minor delays. The progress is summarized under the Workplan heading.

Stage 1. Selection of Pilot Counties

1.1 Selection of counties at provincial level

We refer to Table 1 for an overview of the 14 pilot counties in 7 designated provinces.

Following selection of the provinces and Counties, three townships were selected for the pilot RCMS in each county. While the same or a similar RCMS may be operating in

other townships in the pilot county, only the three townships are designated as part of the pilot implementation and monitoring activities.

As information about the RCMS Project spreads, several counties in other provinces with new or modified RCMS have expressed interest in participating in the Project activities. Each request has been considered, and three counties now participate as "observers" following the same guidelines for monitoring. These counties are Kaifung in Henan Province, Nenping in Quangdong Province, and Jiading District near Shanghai. The RCMS in Jiading District is supported by the WHO Primary Health Care Collaborating Centre in Jiading.

Table 1

SELECTION OF PILOT COUNTIES

Province	Counties
Beijing	Fangshan, Pinggu
Jiangxu	Qidong, Xinghua
Zhejiang	Xiaoshan, Haining
Henan	Wuzhi, Xinmi
Hubei	Changyang, Wuxue
Ningxia	Yongning, Lingwu
Jiangxi	Yongxiu, Yihuang

Stage 2. Health Sector Review

2.1 Collection of data at county level
2.2 Drafting of health sector reviews

By mid-1994, each county prepared a report on county demographic and economic factors and a basic health sector review. The reports did not follow a standard pattern, but following presentation at the July 1994 Workshop, a good appraisal of the previous and current extent of RCMS in each county was available, and the decisions on pilot townships could be made. There appeared to be a mix of counties with townships with fairly stable RCMS to townships in which the system had completely collapsed.

Stage 3. Surveys at County Level

3.1 Workshop on health insurance

The Workshop on the Principles of Health Insurance held in Shanghai in July 1994, was attended by close to 70 participants. The 3 - 4 representatives from each of the 14 counties included the County Governor, at least one Township Mayor and the County or Township Medical Officer. As this meeting coincided with the official launching of the Project, the mix of participants reflected the high political importance of the RCMS Project.

The meeting was attended by representatives of the State Council and several members of the above mentioned China Network, in addition to all members of the National Project Team and WHO officials staff.

Technical inputs in the Workshop were first provided by WHO through a two-day seminar on the principles of health insurance. This was followed by reports from studies on the RCMS, given by senior professors from four medical universities involved in research on rural health care financing: Beijing, Shanghai, Anhui and Su Zhou Medical Universities. The most relevant research, the resuits of which were presented by Professor Gu Xing-Yuan, is the collaborative programme of Shanghai Medical University and IHPP, and studies the implementation of a RCMS model in very poor 3 counties in the mid-west of China.

All the Workshop participants visited several townships in nearby Jiading District, in which RCMS have been modified to deal with the economic changes. In these RCMS, the generally higher income townships contribute at a higher level and have better benefits, in terms of type of health service and level of reimbursement. The visits were facilitated by the WHO Primary Health Care Collaborating Centre in Jiading District, which has since taken a role in enabling the Jiading experience to be added to the RCMS Project monitoring as an "observer" county.

The last part of the Workshop was used to explain the Project Workplan to all the county representatives, and to train the county and township medical officers in the household survey methodology.

3.2 Household surveys

The household surveys were carried out in the second half of 1994, after training at the Workshop in Shanghai and according to the guidelines provided through a visit by groups of the National Project Team, with the assistance of Beijing and Anhui Medical University staff, which took responsibility for data collation and analysis in ten and four counties respectively. The counties used medical students and sometimes health centre staff to carry out the interviews.

By September 1994, the completed questionnaires were sent to the two universities, and after preliminary analysis, the reports were sent back to the counties for use in RCMS design by October. A workshop on data analysis was held early in November with the support of two WHO consultants from the Korea Institute of Health Management (KIHM).

The results, following data collection and analysis by the teams from Beijing and Anhui Medical Universities, were presented at a Workshop in Beijing in December 1994, in which the WHO advisory team participated. Selected major findings from these surveys are given in section 3 of this paper.

Stage 4. Design of Pilot Systems

4.1 Workshop on system design
4.2 Workshops on system design at county level

In November 1994, members of the National Project Team visited each county to run a model design workshop, using the information collected in the health sector review and the household survey as appropriate. This was followed by a Workshop on Model System Design in Beijing in December 1994, for the representatives of all the counties, and in which the WHO advisory team participated. Representatives of the State Council participated in the opening session of this Workshop.

Stage 5. Implementation of Pilot Systems

By October 1995, 13 counties had established the model RCMS in 3 townships each, with the exception of one country, which has 7 townships in its study. In 7 counties, the same RCMS model design is applied in the 3 townships. In 2 counties, 2 of the 3 townships have the same design, while one is different. In 5 counties, each of the three townships has its own design.

Tongxian County left the RCMS Project and was replaced by Fangshan County in Beijing Province. In Fangshan County and Pinggu County, a county government decision on implementation is pending. Among the reasons given for the delay is the fact that many residents have other forms of health insurance. As the county is close to Beijing Municipality, a significant number of workers are covered through the labour social security system or as public servants. The health insurance scheme for school children is also well developed in that county.

5.1 Management support at county level

Several technical visits have been paid by the National Project Team to each of the pilot counties. Contacts are then established with the responsible staff for RCMS at both county and township level. Especially, training in computer applications for management is provided at county level.

5.2 Monitoring

Each pilot county has an annual plan for implementation of RCMS. The National Project Team and the WHO advisors then pay a technical visit to each county in order to discuss any problems in implementing the plan, and to examine proposals for solving these.

6. Evaluation

6.1 Mid-term evaluation

A mid-term evaluation seminar was organized in Yinchuan (Ningxia Province) for responsible staff from the 14 participating counties. The purpose was to discuss any problems related to RCMS implementation and to prepare an adjustment of original plans; for instance, issues were discussed regarding the setting of contribution levels, collection of contributions, definition of benefits, financial management, membership of different population categories etc. As a background to these discussions, lectures were delivered by the National Project Team and the WHO advisors on the principles of health insurance and RCMS, the linkage between basic medical care and RCMS, international experiences in rural health insurance, the financial aspects of rural health insurance, and health information systems.

Special forms for evaluating progress were also used, so as to check in a systematic way whether counties follow the timing and the components of their plan. This information was used by the National Project Team to, in turn, make a comparative analyis of the performance of RCMS in the 14 counties.

2.5 Activities regarding RCMS legislation

From mid-1994 on, the main responsibility for advice on RCMS legislation was given to the Department of Medical Administration of the MOH. Together with domestic experts, this Department worked on a draft plan for the contents of the legislation. This draft plan also took account of earlier inputs from the Department of Health Policy and Law of the MOH.

In February 1995 the Department of Medical Administration organized a workshop in Beijing about RCMS legislation. In this workshop two other MOH departments (Department of Health Policy and Law, the Department of Health Finance and Planning), the National Project Team, academic experts, and directors of county and provincial health bureaus participated as well. During the workshop the draft plan was discussed. From February to March 1995, the Department of Medical Administration supported by domestic experts modified the draft plan based on the discussion of that workshop. In April 1995, in the Annual National Meeting of Medical Administration, the Department of Medical Administration presented the new version of the RCMS draft plan to the meeting. Based on the discussion during that Meeting, the Department of Medical Administration again modified the draft plan.

In the meantime, the Department of Medical Administration sent a document with the plan for the contents of the legislation to the Minister of Health. At the end of 1995, this plan was transmitted by the Minister of Health to the Legislation Bureau of the State Council.

3. RESULTS OF PREPARATORY HOUSEHOLD SURVEYS

3.1 Introduction

In September 1994, the 14 counties that are part of the RCMS project were involved in a household survey about incomes and health expenditures[54].

From each province, two counties were selected. And from each selected county, 3 townships were chosen. The provinces were designated in such a way that they represented the most developed, the less well developed and the least developed parts[55] of China. The counties were chosen for their previous work in rural primary health care work, for the presence of public health bureau staff interested in RCMS. In each county then, townships were chosen so as to represent the different economic levels within the county. From each townships, three villages were further selected. Finally, in each village 60 families were randomly selected; we have therefore 540 interviewed families per county.

3.2 Average income in 1993

Income has to be understood here as cash income. In other words, the value of self-production of food or other income in kind is not included; neither is the value of the housing services if the interviewed family is the owner of a house.

Figure A1[56] reveals important income differences between counties in our sample. This is illustrated, for instance, by the fact that the most well-off county, Xiaoshan of Zhejiang Province, has an average income that is about 8 times as much as that of Yihuang county of Jiangxi province. The relevant data are also presented in Table A1. Note, in addition, that in their study on income inequality in China, Hussain et.al (1994) report on widening inequalities between counties since the economic reform. They cite a number of factors such as land quality, proximity to a city, and the possibility to engage in non-agricultural activities such as those in TVE.

Income inequality is also prevalent within counties. As an example, we study income distribution in Qidong County. In Figure A2, the distribution of income is portrayed; on the vertical axis one finds the cumulative percentages of the population ranked from the poorest to the richest are on the horizontal axis, whereas the cumulative percentages of income received by these population percentages are on the vertical axis. The straight line in the

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[54] The main results are published, in Chinese, in Ministry of Health (1995).

[55] The provinces of Zhejiang, Jiansu and Beijing, the provinces of Hunan and Hubei, and the provinces of Jiangxi and Ningxia represent the most developed, less well developed and least developed parts of China.

[56] Henceforth, the prefix "A" indicates that the figure or table can be found in the Annex.

middle of the figure is relevant in the case of complete equality[57]. The curve[58] below this straight line reflects an unequal income distribution. For instance, it can be verified that the first 50% of the population in Qidong County, reveive less than 27% of total income. The extent of employment in TVE among households is cited by Hussain et.al (1994) as one of the contributing factors to income inequality in Jiangsu Province to which Qidong County belongs.

An inequality indicator, the Gini-coefficient, was computed using the household income data for Qidong. Its value is 0.3245 and therefore reveals some inequality [59]. This inequality may be underestimated, however, due to the fact that several consumption items (self-consumption of food and housing) are not included in the income measure. Moreover, the Gini-coefficient does not reveal adequately the gap between the poorest and the other population groups. It is estimated, for Qidong, that the population group with the average income in Qidong have a cash income that is about seven times as much as the poorest group. And the richest population group has an income that is about 14 times as much as the poorest category. It is this income disparity that provides one of the arguments for the development of a health care system that ensures access to the low-income population.

3.3 Average health care expenses

In Table A2, we present the average health care expenses per family and per county. The variation is large: from a minimum of 188.08 Yuan in Yongxiu to a maximum of 729.10 in Xiaoshan. For the two poorest counties (with an average income per capita of less than 100$), average health care expense per household is 261 Yuan. The latter finding is confirmed by a study by Song (1995). This author found that, for 30 poor counties, average personal health care expense per household was 269 Yuan [60] [61].

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[57] In the case of complete equality, every percentage of the population earns an identical percentage share of county income. The straight line in Figure 2 exactly portrays this situation.

[58] Also denoted as the "Lorenz curve".

[59] Referring to Figure A2, it can be understood that the area between the curve and the straight line is an indicator of inequality: the greater this area, the greater the inequality. The Gini-coefficient measures the deviation from complete equality, by dividing this particular area by the lower triangle's area. The Gini-coefficient varies from 0 (complete equality) to 1 (complete inequality); see Sen (1973, ch.2).

[60] These are 30 counties distributed among the 14 provinces in Northwest, Southwest and Central China. The study is part of a wider project undertaken by the Chinese Network of Health Economics, supported by UNICEF and the IHPP.

[61] Gu Xing-Yuan and Yu Hao (1995) mention health care expenditures per capita for 3 poor counties: 13 Yuan in Shibing County, 25.7 Yuan in Donglan County and 60.2 Yuan in Xunyi County. Assuming that family size is about 4 per family, the health care expenditures per family would be 52 Yuan, 102.8 Yuan and 241 Yuan in the above mentioned counties,

Many factors are likely to intervene in the production of this variation. One determinant which we are able to study further is the effect of the county's income level on health care expenditure. The simple hypothesis is that, as a county's economic capacity grows, its demand for health care grows as well. A higher income at county level also better sustains a greater use of medical technology, especially so at the level of county or provincial hospitals. In Figure A3, we present health care expenses of counties that are ranked according to income (from low to high income). One clearly sees a pattern of positive correlation between expenses and income[62].

We can also study the share of health care expenditures in income. Figure A4 presents this share for the 10 counties ranked according to income level. The shares vary between a minimum of 5.73% for Wuxue (ranked 8th according to income level) to a maximum of 14.63% for Xinmi (ranked 4th according to income level). One can observe a clear tendency towards an inverse relationship between the level of income and the share of health care. In other words, the poorer[63] the county, the higher the share of income that families allocate to health. The latter illustrates that RCMS schemes have an important role to play in the protection of families from the burden of high health care costs.

3.4 The structure of health care expenses

Four categories of health care are distinguished: outpatient services, medical services for chronic disease patients, inpatient services and emergency services. Tables A3 to A6 present the average health care expenses related to these four categories, respectively. These expenses are to be understood in the "gross" sense, before any form of reimbursement. In most counties, some form of health insurance [64] already exists. Part of the interviewed families may thus be insured, and receive some reimbursement. However, in general effective reimbursement percentages are quite low and do not exceed 20%. Patient's "net" expenses do not deviate much from the gross expenses, and are therefore not discussed.

One notices that a distinction is made between different types of providers. There are basically five possible types of providers: the private doctor, the village clinic, the township health centre, the county hospital and the hospital at provincial level. Several remarks are in order. First, the private doctor has become a part of the health care system. However, as yet, the private doctor does not provide hospital services. Secondly, outpatient health care expenses are larger when that type of care is given in township health centres and hospitals. In turn, outpatient care in township hospitals is less costly than in county hospitals. Thirdly,

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respectively.

[62] The simple correlation between health care expense and income was found to be 0.679. A cross-section least squares regression also reveals that the "income elasticity" of health expense is 0.45. The latter means, for instance, that a 10% increase in income will tend to increase demand for health care by 4.5% (=0.45 x 10%).

[63] In terms of cash income.

[64] See section 1.2.2 for an overview of health insurance mechanisms.

inpatient care is more expensive at provincial level than at township and county level. Fourthly, regression analysis confirms that the level of cost of care is higher in the better-off counties than in the poorer ones. The latter reflects a tendency for providers to enhance inputs into medical care when the economic capacity of the county rises.

3.5 Non-use of publicly-provided health services

3.5.1 The level of non-use

The current discussion about the non-use of health services pertains to 12 of the 14 counties. Data were collected concerning the need for outpatient and inpatient health services, and the subsequent use of these services. In Figure A5, we present the percentage of non-users of both health services combined in each of the 12 counties ranked according to income. One can observe a tendency for the percentage of non-users to decrease with the level of income. In the first four counties, the percentage of non-use varies between 15% and 30%. In three of the five counties ranked with the higher incomes, this percentage is below 15%; in the counties of Haining and Xiaoshan, this percentage is even lower than 10%[65].

Note that the counties of Xinghua, Haining and Xiaoshan had some RCMS scheme operating at the time of the study. The establishment of RCMS in these counties could have contributed to a lower percentage of non-users as well[66].

3.5.2 The causes of non-use

We distinguish 5 types of causes: (i) no money to pay for health services; (ii) other sources for health care (including self-treatment and traditional medicine); (iii) the patient thinks the disease is not serious and/or will recover spontaneously; (iv) no time to seek health services; (v) other reasons.

Figure A6 depicts the results; detailed data are available in Table A7. One immediately observes that in every county, there is a variety of causes of non-use. It is interesting to note that in the 6 counties with the lowest incomes between 20% and 40% of non-users cited lack of money was the main cause of non-use[67]. This cause is less important

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[65] For a subsample of 12 counties, the hypothesis of independence between income levels and the extent of non-use could be rejected via a Chi-square test, at the 10% significance level. Two categories of income (Y) were distinguished, namely $Y \leq \$150$ and $Y > \$150$. For non-use (NU), two categories were selected as well, namely $NU \leq 20\%$ and $NU > 20\%$.

[66] For a subsample of 8 counties, the hypothesis of independence between the percentage of non-use and the existence of RCMS in a county could be rejected via a Chi-square test at the 5% significance level.

[67] For a subsample of 11 counties, the hypothesis of independence between lack of money and the level of income was rejected as well via a Chi-square test at the 5% significance level. For a subsample of 8 counties, the hypothesis of independence between lack of money and the existence of RCMS in a county could be accepted, however, at the 5% significance

in the other counties. Other causes merit equal attention, however. Consulting with "other" providers of health care (including self-treatment), is a quite significant source for non-use as well. Moreover, several ill people are deliberately non-users, because they think the disease is not important or that they will recover without special care. Quite a number of ill also invoke "no time" as a cause of non-use. This is especially the case of both the poorest (Yihuang) and richest county (Xiaoshan).

3.5.3 Attitudes about the RCMS

In all counties, a form of RCMS was established before the onset of the economic reform. In some counties, it was more or less disestablished during this reform. Other counties continued to operate the RCMS, however. In any case, many people have a memory about rural health insurance as an institution. This enabled them to voice opinions about disadvantages and advantages of RCMS. In Tables A8 and A9, we present for each county, the main advantages and disadvantages, respectively, that were cited most by the interviewees.

The advantage of RCMS cited by most counties is the convenience of having medical services near people's homes (column 1 in Table A8). The advantage of RCMS to provide a mechanism for interfamily solidarity was also mentioned (column 3). Finally, the reduction of the financial burden on the family or individual was cited as another major advantage of the RCMS.

Among the disadvantages, one of the most frequently cited (column 1 of Table A9) was the low reimbursement of RCMS systems. Of course, the mirror image of the latter problem is the low revenue from contributions. The level of contributions may be so low that it is difficult to insure against health care expense adequately. In three counties, the problem of an inadequately endowed RCMS-fund (due to low contributions) is recognized (column 2). The use of village leaders' power to claim better services was also seen as a major disadvantage (column 3). Overuse of medical care by patients[68] was also cited in three counties as a disadvantage. Five counties also mention the problem that the RCMS accounts are not published regularly so that members remain ignorant about financial management (column 5).

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level.

[68] Also called "moral hazard" in the health insurance literature.

4. INFORMATION FROM IMPLEMENTATION OF THE RCMS

4.1 Variation in county design

The variations in the RCMS design between counties is overshadowed by variations within counties, by townships. Of the seven provinces, none have the same RCMS model in all pilot townships of the two selected counties. Seven counties have designed the same model for each of the three pilot townships. In the remaining counties, variations are found by township, from minor variations in contribution amount to major variations in benefits, population coverage and management. The major elements in the design and their variation are described below.

4.2 Population coverage

By October 1995, the RCMS design within the framework of the Project had been implemented in 13 of the 14 pilot Counties; see Table 2. The population coverage data presented at the October 1995 Workshop on Implementation should be considered in the light of two factors: first, the RCMS may have existed before the Project in a particular township, and second, if new, the date of implementation may differ by several months across Counties. The insured population includes farmers and enterprise workers registered in the specific rural areas.

4.3 Management level

The level of RCMS Management shows less variation: 12 Counties have township level management, while one has county level and one has village level management.

In most townships, the contribution collection function is carried out by village leaders on a once a year basis. The funds are then transferred to the township level management. The village leaders collect from farmers' homes, according to a list of registered households, at a time decided by the RCMS management and village leader. This essentially means that those who did not choose or were unable to register at the time of collection may not have an opportunity to do so until the collection time for the following year. This is a serious drawback and reflects some incompatibility of the current RCMS operation to a voluntary process. Registration tends to be based on the village list of farmers, and is therefore not adapted to a household or family registration including all family members.

TVE and private enterprises transfer the contribution for workers directly to the RCMS management. In some cases this is done on a monthly basis, but the payment from enterprises may also be made on a semi-annual or annual basis. It appears, however, that registration functions such as the issuing of registration cards is planned on a yearly basis, at the same time each year.

In the initial design, the RCMS managements planned to spend from 1 - 6 % of their revenue on administration, with 3 % given as the most common figure. In addition, 1.5 to 12% was budgeted as a reserve fund and 3 - 10% as a risk fund; the risk fund serves to finance high cost illnesses. These allocations tended to be the same for the three townships in each county, but not for the two counties in the same province. The three components -

administration, reserve and risk - totalled 12 - 15%, leaving 85 - 87% for health care services (curative as well as preventive).

Table 2

RCMS POPULATION COVERAGE BY TOWNSHIP

Province	County	Percentage of population covered
Beijing	Fangshan	not implemented
	Pinggu	not implemented
Jiangxu	Qidong	68-85
	Xinghua	38-61
Zhejiang	Haining	32-54
	Xiaoshan	67-91
Henan	Xinmi	31-64
	Wuzhi	100
Hubei	Wuxue	100
	Changyang	94
Ningxia	Yongning	76-100
	Lingwu	80
Jiangxi	Yongxiu	83-90
	Yihuang	not reported

4.4 Contributions to the RCMS

The sources of RCMS revenues are the contributions from farmers, those from village, township or county government, and workers' contributions. All schemes have individual farmer contributions. The lowest contribution is 5 Yuan per farmer per year, whereas the highest is 20 Yuan. There is some tendency for individual contributions to be higher, the higher the income level in the county. Government contributions, at all levels, vary between 1 and 4 Yuan. Low individual farmer contributions are not necessarily compensated by high government contributions however. In ten counties, the RCMS schemes receive subsidies from township and village government. Three schemes receive grants from county government. Only two schemes receive subsidies from all levels of government.

In eleven counties, TVE are present. Employers and/or workers from these enterprises contribute to the RCMS, either via a percentage contribution on workers' income or via a flat contribution. In about half of these counties, contributions derive from applying a percentage on workers' income; this percentage varies from 3 to 5 % of income. In several counties, employers and workers share half of the total contributions. In some other, only the enterprise may be responsible for paying the contribution. Again, there seems to be no link between the level of these contributions and the level of economic development.

A remark is in order about the extent to which contributions are pooled into one RCMS fund. In most townships contributions are grouped into one RCMS account. However, in eight townships, separate accounts for farmers and workers have been established. One of the possible explanations for this behaviour might be that the limits of financial solidarity between workers and farmers have been trespassed. The latter can happen when the average worker's contribution far exceeds the average farmer's contribution. The absence of willingness to pool funds is exacerbated when workers judge that farmers' declared income is far below their real income and that, therefore, their capacity to pay RCMS contributions is underestimated.

4.5 Benefits and reimbursement structure

In all counties, the health insurance benefits are stated as reimbursement levels for the various types of services. In most counties, enterprise worker reimbursement levels are higher than for farmers, reflecting the higher contribution rates.

Most (12 of the 14) counties have some village level benefits, covering consultations and/or drugs, at a low reimbursement level of 20% of the charge or as a fixed amount (such as exemption from charges up to 1 or 2 Yuan). Effectively, it would appear that a patient would still have to pay about 80% of the village health clinic charge for a single event or contact.

Variation in benefits for township and county level out-patient and in-patient care is very wide. In some townships, only consultations and operations are covered, in other drugs and diagnostic services for out-patients and in-patients are also partially reimbursed. Most RCMS have fixed different levels of reimbursement for the various types of services, and for different levels of charge, from a low 20% to a high 70%. For example, 20% may be reimbursed for in-patient care , but excluding drugs, up to a ceiling of 1,000 Yuan, and then

30% may be reimbursed above that amount to the next ceiling, usually with a specific maximum total reimbursement per admission or per person per year. Drugs may have a different rate, and even specific types of X-rays may have different reimbursement rates. This reimbursement as a benefit is complicated and probably not easily understood by the insured person.

To make a general appraisal of reimbursement level, it would appear that effective reimbursement for services provided in township, county and higher level facilities is around 30% of the total charge. Some RCMS models use the risk fund for very high charges for the very seriously ill patients. In most cases, the patient has to pay the full charge and then seek reimbursement from the RCMS office, usually located in the township health centre. The reimbursement is made once a month, and only once every quarter in one county.

4.6 Provider payment arrangements

At village level, there seem to be basically two types of service contracts for village health doctors. One arrangement is whereby all of the earnings of the village health doctor is based on consultation fees as well as a percentage of the drug fees. The second contract is a combination of a fixed salary plus a percentage of drug fees. In some counties, pharmaceutical companies pay a commission to the village health doctor based upon the value of total prescriptions.

At higher levels of health services provision, doctors' earnings seem to be mostly based upon a contract stipulating a fixed salary, and an allocation based on a fraction of hospital fee revenues. It is likely that in many instances doctors also benefit from a special allowance paid to them (or paid indirectly via the health centre or the hospital) by pharmaceutical companies.

4.7 Information system

A personal computer (8 MB internal memory, 190 MB hard disk, 33 Mhz) with printer has been set-up in the health bureau of every pilot county. Training in the database program FOXPRO has been provided to selected persons of the health bureaus. These have been assigned to responsibility to put in data concerning the development of RCMS in their county.

Generally the database has two main components. First, a basic information component, and secondly, the diagnosis and expenditure component. The basic information component contains at least the following items: township and village number, registration number, name, sex and age of the patients, the name of the head of the family, and the contribution. The latter is entered both for farmers and workers.

Input of data concerning diagnosis of illnesses of members, and the resulting total cost, depends on the information returned by the RCMS management committees to the county health bureaus. Generally, counties still have to start this component, as they only acquired the computers recently and started by entering the basic information data. This second component will be particularly valuable for the monitoring of quality of health care at all levels, as well as about any differences in diagnostic and prescription behaviour between providers.

5. SIMULATION OF ADJUSTMENTS IN THE RCMS: THE CASE OF QIDONG COUNTY

5.1 The purpose of simulation

From the previous section, it is clear that the RCMS schemes in the 14 pilot counties are in an initial stage of development. In view of the objective of improving access to health care among the population, several characteristics are likely to be modified in the future. First, the structure of reimbursement rates as well as of contributions from the various partners (government, enterprises, individuals or families themselves) may have to be adjusted. For instance, overall contributions may have to be increased in order to insure a higher reimbursement and thus a better protection. In doing so, a greater participation from government may be warranted. Secondly, targets may have to be set concerning the level of health care costs at the various echelons of the health system, in order to contain costs. This cost-containment may have a favourable (downward) effect on the required contribution levels. Thirdly, the public health bureaus who are responsible for the RCMS may want to set targets regarding the structure of health service utilization. For instance, utilisation of hospital care may have to be lowered in favour of an increase in outpatient and preventive care.

Many policy changes may thus be have to be considered. A simulation model that represents well the structure of RCMS and is able to study adequately the above mentioned aspects, will prove to be quite useful to RCMS management. Various alternative combinations of measures and policy changes can be simulated, and results can be obtained very rapidly. In this chapter, we demonstrate how the WHO/ICO Health Insurance Simulation Model can be used to study alternative policies; we apply it to the situation of Qidong County, only[69].

5.2 Qidong County: the initial RCMS design

At the occasion of the mid-term evaluation Seminar of the RCMS project in October 1995, Qidong County announced that the current coverage rate, for the three pilot townships combined, of farmers as well as the self-employed and industrial workers was 73.7% and 95.8%, respectively. The yearly contribution for industrial workers is 3 to 4% of their income, whereas the other population groups (farmers and children) pay a flat premium of 18 to 20 Yuan per person per year. Village government contributes 2 Yuan per farmer and child to the RCMS revenue fund. Management of RCMS is at township level. In all but one township, the contributions from workers and farmers are pooled. Membership in RCMS is also arranged on an individual rather than on a family basis. Data for 1995 on health care utilization and health care costs, as well as on reimbursement rates, were also provided by the RCMS management of Qidong County.

The simulation model will be used to analyze the financial implications of the RCMS structure proposed in October 1995 and to produce forecasts for the period 1996-2000. In Table 3, we present the parameters and data that served as input into this "baseline"

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[69] For a detailed overview of the structure of this simulation model, see Carrin, Murray and Sergent (1993).

simulation. One observes that the basic features of the RCMS implemented in September 1995 are maintained. Note that, as far as contributions for farmers and children is concerned, an average of 19 Yuan has been retained. Likewise, the percentage contribution for workers has been set at 3.5%. Some additional characteristics are added for this baseline simulation, however. First, health care costs as well as health insurance contributions are adjusted fully for inflation throughout the simulation period. And, secondly, we assume that all contributions, whether from workers, farmers or government, are pooled into one RCMS fund.

The simulated structure of health insurance contributions is depicted in Figure 1, whereas revenue and expenditure of the RCMS scheme are depicted in Figure 2; the corresponding data are also presented in Tables A10 and A11.

We observe from Figure 2 that the RCMS in this baseline simulation is in financial equilibrium[70]. The latter does certainly not mean, however, that the RCMS is an adequate protection device against health care costs. In this initial design, the level of co-payments is considerable, thus leaving sizeable charges to patients.

[70] One may remark that there is some discrepancy between total expenditure and revenue in Table A10. We tolerate a discrepancy of up to 0.4% of total revenue, however; it is assumed that any loss is financed via reserves whereas any surplus is deposited into a reserve fund.

Table 3

INPUTS FOR THE SIMULATION ANALYSIS OF THE INITIAL RCMS DESIGN

Variables	Inputs
1. Demography[1]	
-total estimated population in 1996	87,914
-population growth rate	1.4%
-percentage of dependents in the total population	22.1%
2. Economic environment[1]	
- domestic inflation	14%
3. Labour force and income[1]	
- share in total adult population of the population of	
. farmers	82.16%
. industrial workers	14.12%
. government workers	na[2]
- average annual income in 1995 (Yuan)	
. industrial workers	4,150
. government workers	na
- nominal income growth per population category	
. industrial workers	14%
. government workers	na

4. RCMS design [1]	
- government subsidy per farmer and child (Yuan)[3]	2
- health insurance contributions (as a % of income)	
. industrial workers	3.5%
. government workers	na
- health insurance contribution for children (Yuan)[3]	19
- health insurance contribution per farmer (Yuan) [3]	19
- percentage of insured in the population of	
. children	73.7%
. farmers	73.7%
. industrial workers	95.8%
. government workers	na
5. Health care costs (in Yuan) and co-payments (as a % of health care costs) [1,4]	
- outpatient care (acute); village health centre	9 (65%)
- outpatient care (acute); township health centre	20 (65%)
- outpatient care (acute); county hospital	20 (65%)
- outpatient care (chronic); village health centre	13 (65%)
- outpatient care (chronic); township health centre	89 (65%)
- outpatient care (chronic); county hospital	96 (65%)
- emergency care (village health centre)	15 (50%)
- emergency care (township health centre)	489 (50%)
- emergency care (county hospital)	600 (50%)
- inpatient care (township health centre)	417 (50%)
- inpatient care (county hospital)	1100 (50%)
6. Health service utilization (per person) [1]	
- outpatient care (acute); village health centre	0.7122
- outpatient care (acute); township health centre	0.3561
- outpatient care (acute); county hospital	0.3561
- outpatient care (chronic); village health centre	0.0878
- outpatient care (chronic); township health centre	0.0439
- outpatient care (chronic); county hospital	0.0439
- emergency care (village health centre)	0.0084
- emergency care (township health centre)	0.0042
- emergency care (county hospital)	0.0042
- inpatient care (township health centre)	0.0439
- inpatient care (county hospital)	0.0439

7. Targets for health care costs	unit costs per health service, in constant prices of 1996, remain stable throughout 1996-2000[5]
8. Targets for health services	health service utilization rates remain constant throughout 1996-2000
9. Other expenditure - Administration - Reserves	The share of both administrative costs and reserves in total health insurance expenditure is between 5% and 7% during the period 1996-2000

Notes:

[1] Unless otherwise indicated, these input data are valid for the period 1966-2000.
[2] na= not applicable
[3] These flat contribution amounts are adjusted for inflation on a yearly basis.
[4] The first and second figures in the adjacent columns refer to the health care cost and the co-payment rates (in brackets) respectively.
[5] These are adjusted for inflation in order to obtain unit costs in current prices.

FIGURE 1

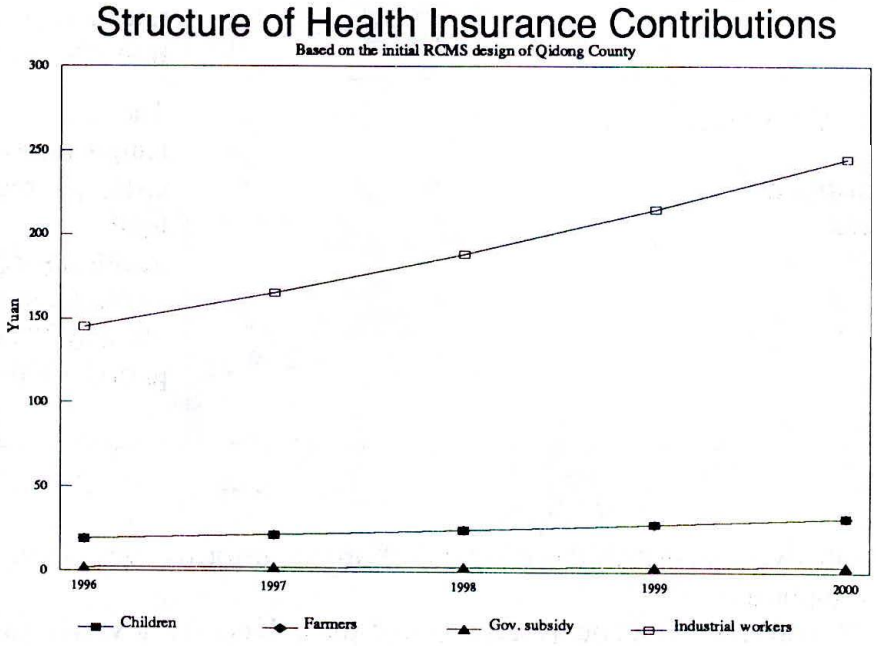
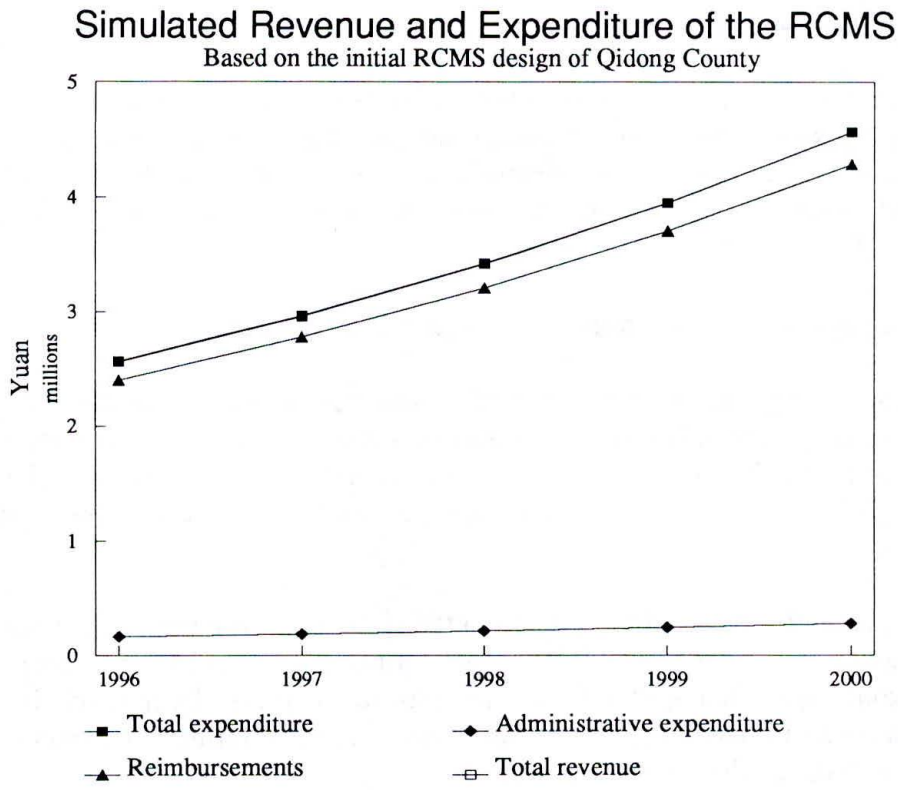

Structure of Health Insurance Contributions
Based on the initial RCMS design of Qidong County
300
250
200
150
100
50
0
Yuan
1996
1997
1998
1999
2000
Children
Farmers
Gov. subsidy
Industrial workers

FIGURE 2


Simulated Revenue and Expenditure of the RCMS
Based on the initial RCMS design of Qidong County
Yuan
millions
5
4
3
2
1
0
1996
1997
1998
1999
2000
Total expenditure
Administrative expenditure
Reimbursements
Total revenue

5.3 Simulation of adjustments in the RCMS of Qidong County

Below we discuss selected and important ways to adjust the management of the RCMS in Qidong County. Two scenarios are discussed, whereby the second scenario incorporates the hypotheses made in the first one. Only the results of the second scenario are presented in greater detail.

5.3.1 Lowering the co-payment rates

In the present simulation, we concentrate on lowering the co-payment rates for health services. We suppose that the co-payments for all outpatient care and emergency care will be 50 %, whereas co-payment rates for inpatient care will reduce to 40%. It is hypothesized that these would be effective as of 1996. The result is that important financial shortfalls arise, namely around 24% of total RCMS revenue.

5.3.2 Increasing government contributions and farmer contributions

The greater degree of financial protection assumed in the previous scenario is only feasible through the upward adjustment of health insurance contributions. Again, we assume that the percentage contributions on the income of industrial and government workers can not be increased. This means we can only turn to farmers and government for higher contributions.

Let us assume that henceforth, apart from the village government, the township as well as the county government contribute 2 Yuan per farmer and child in 1996; note that these contributions would again be adjusted for inflation for future years. Despite this increase, the RCMS would remain in financial disequilibrium. An increase of farmer contributions is again used as a way to balance the RCMS budget.

The adjusted structure of health insurance contributions and of the total revenue and expenditure of the RCMS scheme is depicted in Figures 3 and 4, respectively. The data are also presented in Tables A12 and A13. One notices that the farmers' contributions are certainly higher than in the original baseline scenario. However, it is important to point out that these contributions are still below the average expected health care cost incurred by patients and reimbursed by the RCMS. In other words, a financial solidarity between government, industrial and government workers, on the one hand, and farmers, on the other, still exists.

5.4 Caveats

Above we have studied two adjustments to the initial design of the RCMS scheme. These adjustments basically concerned a greater degree of risk-sharing. Of course, RCMS policy does not have to be restricted to these particular adjustments. We stress that there is no intrinsic truth in the alternative simulation analysis that we performed. Much more discussion will be necessary about various aspects of the development of the RCMS. The simulation tool used here can surely be of assistance in this task. However, the actual use of this tool needs to be preceded by a thorough deliberation by RCMS management on the future course of rural health insurance.

We do suggest some points for further discussion and analysis, however. First, is it not essential to exempt the poorest families from paying contributions ? To what extent will the levels of the contributions of the contributing members have to be adjusted, in order to finance these exemptions ? Or is it feasible that county, provincial or central government would increase their contributions so as to secure membership of the poor ?

Secondly, how will the administration of the RCMS be planned in the future ? Is management at county level feasible ? If yes, is it possible to realize economies of scale, thereby decreasing the share of administrative costs in RCMS expenditure ?

Thirdly, it will be worthwhile to examine the structure of health service costs. Do these reflect an adequate delivery of services, or is it possible that they are the result of overconsumption and/or supplier-induced demand ? The latter question needs certainly to be examined in view of other authors' findings on health care cost levels. For instance, Hsiao (1995) and Gu and Hao (1995) report fees for outpatient services in poor rural areas that are much lower, namely between 50% and 60% of those recorded in Qidong County.

Fourthly, it would be useful to study the morbidity structure per population group. Can major differences be observed between groups ? As long as RCMS is voluntary, it would indeed be useful to examine major differences across population groups. Such a study could possibly alert policy makers to adverse selection.

Finally, integration of preventive services into the RCMS and the subsequent impact on the structure of health insurance contributions as well as on total revenue and expenditure of the RCMS could be studied.

FIGURE 3

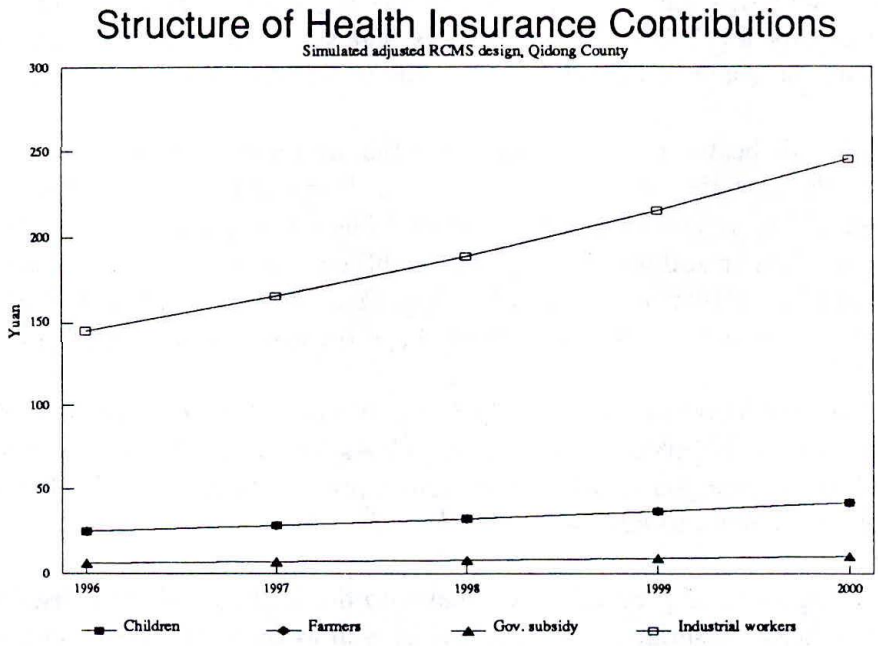
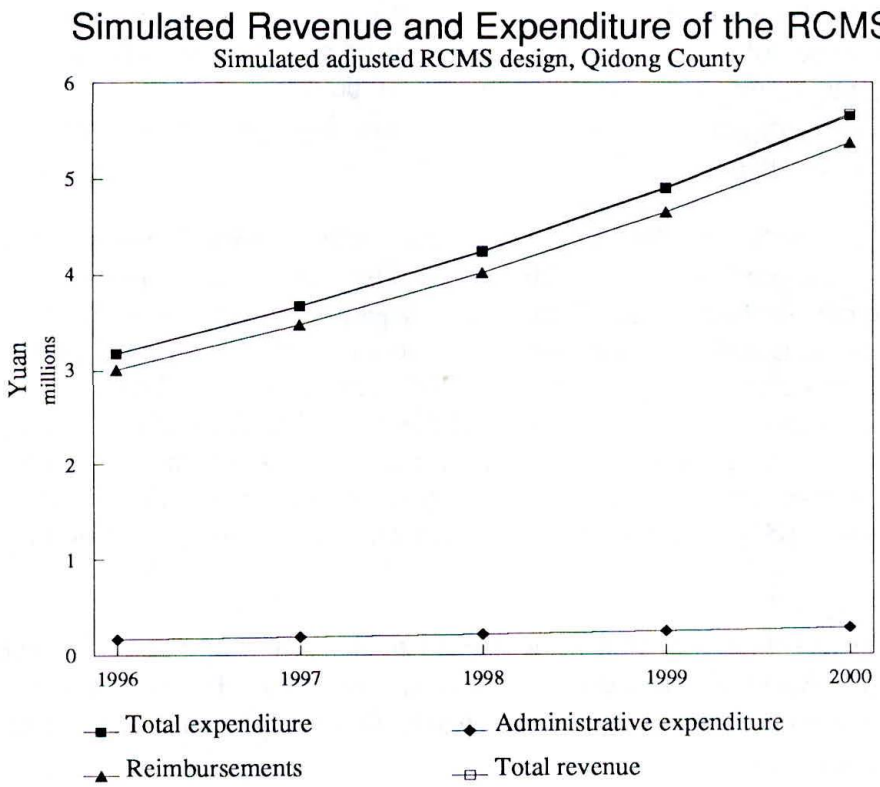

Structure of Health Insurance Contributions
Simulated adjusted RCMS design, Qidong County
Yuan
300
250
200
150
100
50
0
1996
1997
1998
1999
2000
Children
Farmers
Gov. subsidy
Industrial workers

FIGURE 4


Simulated Revenue and Expenditure of the RCMS
Simulated adjusted RCMS design, Qidong County
Yuan
millions
6
5
4
3
2
1
0
1996
1997
1998
1999
2000
Total expenditure
Administrative expenditure
Reimbursements
Total revenue

6. PERSPECTIVES FOR CONTINUED DEVELOPMENT

6.1 Reflections for adjustment in RCMS implementation

6.1.1 Definition of beneficiaries

The economic development in rural areas is of such a nature that new professions have arisen, such as that of worker in a TVE, that of a self-employed small businessman, possibly with a modest number of worker-employees, or that of a self-employed craftsman. These may all be residents in rural areas, yet they can hardly be qualified as a farmer. In addition, in several townships, migrant workers are present that either perform odd jobs or are hired as full-time workmen such as construction workers.

It would be beneficial to RCMS development if a terminology could be developed that better reflects the real professional activities undertaken. The latter is important because the RCMS management needs to establish the benefits and contributions for each professional category. Generally, contributions by workers tend to exceed those of farmers; one often invokes that the worker's earnings exceed those of farmers and that therefore their capacity to pay for RCMS is larger. It would be logical therefore that, for instance, an employee in a small business is indeed registered as a worker and not as a farmer. Likewise, a self-employed businessman is in principle not to be registered as a farmer. Contributions for those self-employed could be set such that they reflect the purchasing power of this particular population group.

Increasing attention will also have to paid to the group of migrant workers. Their contributions will have to be tailored to their standard of living. It should also be studied to which extent the length of their presence in a particular county should play a role in benefit and contribution setting.

6.1.2 Level of contributions and pooling

(i) Generally one could envisage to increase contribution levels for both workers, farmers and others in several counties. From the household surveys, one learned that a main cause for negative attitudes towards RCMS was the low benefit level. Higher benefits are thus warranted to attract more members, but these in turn would require higher contributions. It is granted that it would be easier to increase contributions in counties with a relatively high income level. A special effort will also be needed to assess the income levels of the farmers and other self-employed. For instance, in several counties, it is said that farmers earn more than presently assumed. An increased contribution for farmers could therefore be examined.

In most pilot counties, village, township and county governments contribute to the financing of RCMS. Again the question arises to which extent these contributions could increase. Perhaps a reexamination of local public finance with respect to this issue could be encouraged. Such an increase could contribute to financing an increase in benefits for the population as a whole. But it could also be used to provide funding for the care of the uninsured poor: one possibility, for instance, is that additional government funds are used to purchase RCMS membership for the poorest. Finally, the possibilities for provincial and central government to co-finance the development of RCMS could also be explored.

(ii) Pooling of risks and contributions is an essential ingredient of social health insurance[71]. Presently, in several counties, the RCMS keep separate accounts for farmers and workers. The latter limits risk-sharing, of course. It is said that enterprises and their workers are reluctant to have funds pooled. Perhaps one of the reasons is that workers speculate that farmers have higher incomes and, hence, that they should contribute more.

If immediate and total pooling proves to be unacceptable, a special contract between RCMS management and the various professional groups can be established: this contract (valid for, say, 2 to 3 years) would stipulate how the degree of pooling could be gradually increased, and how the various contribution and benefit levels would be adjusted over the given time period.

6.1.3 Benefits

It would further the link between the RCMS and health development on the whole, if one were to define first the types of benefits, and, subsequently the reimbursement (or co-payment) structure[72]. In general, one would recommend a total or large reimbursement (zero or small co-payment) for preventive services, in view of their benefits at the individual and society level. Primary curative services also merit the highest reimbursement (lowest co-payment) rate possible. Not only would it stimulate access to basic care. But good primary care services can also reduce the need for more costly hospitalization.

It can be examined how one could include all necessary components of treatment of illness, whether at the outpatient or inpatient level. In this sense, there is no important justification to exclude coverage of drug costs from the benefits. Fear of abuse from the patient's and provider's side may explain several exclusions from benefits. In this case, however, incentives to change patient and provider behaviour may be need to be established. The RCMS management could organize or co-finance health education about the correct use of drugs or certain types of unwarranted treatment. RCMS management can also help in adjusting provider behaviour. For instance, it can inquire into contracts whereby income is no longer linked to the volume of drug prescription.

In general the reimbursement (co-payment) levels need to be increased (decreased) in the RCMS pilot schemes, in order to raise the attractiveness of health insurance. Moreover, the reimbursement (co-payment) structure can be simplified, towards a limitation of the number of different reimbursement (co-payment) percentages and of the different types of health care services to which they apply. The latter will simplify RCMS administration and lower administrative costs. It will also increase the understanding of the RCMS members and patients.

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[71] For a thorough overview of the principles of social health insurance, see Normand and Weber (1994).

[72] Alternatively the co-payment structure could be defined.

6.1.4 Management: registration and information system

The RCMS management committees are advised to reflect upon a more open registration policy. Currently, several RCMS schemes limit their registration to one or two specific times during the year. Of course, potential members that are keen to join outside these registration periods need to wait to get registered. In order to improve the attractiveness of RCMS, one may think of a policy where registration is possible in any week of the year, possibly several times during the week. Registration can also be encouraged by the use of a marketing approach. Promotion in various ways, for instance via newspapers, leaflets, television or radio-announcements could be considered. In other words RCMS could be seen more by its managers as a business, but one with not-for-profit objectives. One of its prime objectives is to improve access to care among all population groups. Therefore, it is all the better when modern marketing techniques are used, if they help to achieve this objective.

RCMS management can also strive to become an effective user of the RCMS data information system. The latter should be conceived as an active tool to improve the membership, the monitoring of health services utilisation and provider behaviour, and the financial analysis of revenues and expenditures. Regarding membership, the information system can serve to indicate occurrence of adverse selection, as it can produce the age distribution of RCMS members. The data on health services allow one to study the relative importance of outpatient vs. inpatient services, or that of services provided at the village level versus those provided at higher health service levels. They also make it possible to monitor provider behaviour, as soon as diagnosis, treatment and resulting health care expense are entered on a patient-by-patient basis.

6.1.5 Provider payment

Above it was indicated that most provider contracts provide powerful incentives to prescribe, as earnings of health personnel at all levels are linked to drug consumption. This permanently establishes the risk of overprescription. Whereas the latter may have a negative impact on health, it also unnecessarily increases the payments of patients. It is understandable that an attempt to reduce these negative effects by strongly reducing the link between provider contracts and drug prescription is likely to be met with some resistance from providers. At township and county level, incomes are also related to fees for other services, such as laboratory services, X-rays and surgery. Again certain excessive treatment or surgery may be found. Hence, from a health standpoint, it is advised to monitor such services and examine their rationale.

The question is which types of contracts could be compatible with a greater rationality in medical treatment, while at the same time be acceptable to providers. RCMS management could explore various types of contracts in the future, whereby health personnel is assured of acquiring an adequate income level. One is to make a contract containing a fixed but improved salary. Alternatively, a contract could determine that income is linked uniquely to the provision of a package of health services to members; in other words providers could be paid on a capitation basis. A third contract could contain a fixed salary component plus a capitation amount. Finally, it could also be stipulated that the savings from a more rational approach to prescription, diagnostic treatment, medical treatment and surgery will be partially shared with health personnel.

6.2 Linkage with RCMS Project objectives: development of legislation

The RCMS Project has been able to considerably influence the activities that prepare final legislation:

(i) Health insurance management methods are proposed for inclusion in the legislation. The following issues are addressed: general organisation and coverage, the information system (including monitoring and evaluation), contribution collection, pooling funds and cost-sharing, benefit package and reimbursement matters, cost-containment and patient referral between village, township and county.

(ii) Considerable attention has been paid to the voluntary vs. compulsory character of the RCMS. At the same time, this has led to the issue of the degree of pooling of contributions within the RCMS. The National Project Team has consistently advocated the need for pooling of resources, at least in the long run. In addition, the appeal of a system covering all of the population has been highlighted.

(iii) In the previous period of RCMS, the level of management has been the village. The RCMS Project has argued instead that a minimum of population coverage is necessary for the spreading of risks to succeed. Hence, a management at township level, and preferably at county level, has been advocated.

(iv) Currently, preventive services are financed via channels other than RCMS; they may involve the payment of contributions by households. The integration of curative and preventive services has been promoted as a further goal for the RCMS, however.

(v) It has been made clear that RCMS is not independent from the Government's plan to establish social security in rural areas.

As said above in section 2.5, the Legislation Bureau of the State Council received a draft plan for legislation from the MOH. The MOH plans to organize a further meeting, however, during the first half of 1996. The participants in this meeting will be the State Council and Ministry of Agriculture, Ministry of Finance and the National Planning Committee. The purpose is prepare a new draft plan. The MOH intends to produce a final draft before the end of this year to the State Council. After approval, the State Council then publishes the Legislation.

7. CONCLUSIONS

The nature of the RCMS Project needs to be well understood. It involves research, through various methodologies such as household surveys, collection and analysis of health care expenditure across 14 counties in 7 provinces. The process studied is the implementation of the RCMS, which has taken on different levels of importance across the counties and in the selected pilot townships in these counties. Although all rural counties, the population structure by occupation and income varies. The strength of this Project is in its intervention input and continuity in following progress.

There is now more systematic thinking about the management of RCMS, through workshops and discussions where ideas can be exchanged. A concrete interim ouput is that each county has had to define its model, write the details of the scheme and in fact develop a programme at county and particularly township level. It should be recalled that the lack of written plans and regulation was given as one of the factors which facilitated the collapse of the RCMS.

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ANNEX

Table A1

Members of interviewed families, and average income per capita in 1993

County	Members of interviewed families	Average income per capita in 1993	
		in Yuan	in US$[1]
Tongxian	1327	1913.28	239
Pinggu	1922	1625.60	203
Xinghua	1895	1710.58	214
Qidong	1369	2025.27	253
Xiaoshan	1994	4868.49	609
Haining	2112	2650.87	331
Yongxiu	2136	917.23	115
Yihuang	2204	607.46	76
Yongning	2361	827.23	103
Lingwu	2517	964.46	121
Xinmi	2204	887.80	111
Wuzhi	2278	767.94	96
Changyang	1983	984.21	123
Wuxue	2280	1249.19	156

[1] The exchange rate used was 8 Yuan = 1 USD (World Bank, 1994b)

Table A2

Average household income, average health care expenses and the share of health care expenses in family income, 1993

County	Average household income	Average health care expenses	Share of health care expenses in household income (in %)
Tongxian	6134.94	342.09	7.64
Pinggu	5785.93	444.74	10.86
Xinghua	6036.41	333.99	9.89
Qidong	5134.44	280.19	10.19
Xiaoshan	17878.10	729.10	7.81
Haining	10387.09	411.59	5.80
Yongxiu	3634.88	188.08	6.37
Yihuang	2479.35	211.94	11.76
Yongning	3657.49	412.73	13.66
Lingwu	4495.46	561.37	12.12
Xinmi	3622.24	529.98	14.63
Wuzhi	3240.69	309.90	9.56
Changyang	3612.06	280.00	7.75
Wuxue	5271.57	302.05	5.73

Table A3

Average health care expenses for outpatient services (per case)

County	Provider			
	Private doctor	**Village clinic**	**Township health centre**	**County hospital**
Tongxian	16.50	10.65	80.15	167.50
Pinggu	39.00	7.12	33.92	72.50
Xinghua	22.96	15.49	67.43	85.42
Qidong	15.22	9.06	108.02	20.00
Xiaoshan	16.44	24.49	65.39	ns
Haining	ns	17.82	36.35	57.14
Yongxiu	10.68	12.93	30.20	58.87
Yihuang	13.93	10.47	13.04	120.91
Yongning	18.56	11.97	26.12	33.83
Lingwu	32.84	14.58	22.11	92.04
Xinmi	13.23	11.58	41.31	171.06
Wuzhi	34.94	11.55	44.02	57.32
Changyang	28.71	24.59	44.70	na
Lingwu	22.15	26.13	61.83	167.11

Note: ns = no services administered

Table A4

Average health care expenses for chronic diseases (per case)

County	Provider			
	Private doctor	Village clinic	Township health centre	County hospital
Tongxian	43.33	59.52	142.70	296.52
Pinggu	18.00	27.33	85.62	279.15
Xinghua	89.00	17.82	131.20	90.06
Qidong	24.84	12.68	88.82	95.51
Xiaoshan	32.07	46.56	92.97	450.93
Haining	168.75	35.92	87.08	82.54
Yongxiu	24.90	55.26	137.06	57.94
Yihuang	25.83	20.64	41.98	49.06
Yongning	49.50	62.84	56.29	279.32
Lingwu	43.75	28.32	47.42	149.36
Xinmi	173.90	115.62	335.41	599.00
Wuzhi	138.57	106.84	145.65	172.56
Changyang	28.75	101.46	165.13	234.78
Wuxue	800.00	88.12	144.18	380.00

Table A5

Average health care expenses related to emergency services (per case)

County	Provider			
	Private doctor	**Village clinic**	**Township health centre**	**County hospital**
Tongxian	ns	10.80	54.94	70.00
Pinggu	ns	25.00	250.00	412.45
Xinghua	ns	19.91	73.19	140.00
Qidong	ns	15.48	489.31	600.00
Xiaoshan	ns	500.00	638.75	3240.19
Haining	ns	8.33	157.57	220.25
Yongxiu	15.35	48.15	82.23	116.11
Yihuang	20.55	10.96	21.56	62.94
Yongning	ns	269.00	216.67	701.67
Lingwu	ns	ns	ns	308.70
Xinmi	20.40	15.27	362.09	62.50
Wuzhi	146.67	100.00	941.67	2257.14
Changyang	800.00	15.00	572.96	1900.00
Wuxue	ns	187.31	393.98	977.62

Note: ns means "no services" administered

Table A6

Average health care expenses related to inpatient services (per admission)

County	Provider		
	Township health centre	**County hospital**	**Provincial hospital**
Tongxian	200.09	893.75	1685.71
Pinggu	819.57	713.59	4357.14
Xinghua	574.41	988.89	2395.85
Qidong	417.13	1100.00	479.00
Xiaoshan	811.23	4920.85	2000.00
Haining	440.11	981.02	4728.62
Yongxiu	157.43	800.00	114.58
Yihuang	91.43	339.33	395.37
Yongning	215.00	399.00	2033.63
Lingwu	540.00	592.50	1150.56
Xinmi	556.52	1350.80	990.00
Wuzhi	ns	1750.00	1500.00
Changyang	381.64	280.00	566.67
Wuxue	122.86	446.67	ns

Note: ns means "no services" administered

Table A7

Non-use of publicly provided health services and causes

County	Percentage of non-use	Causes of non-use				
		No money	Other sources	Not serious	No time	Other reasons
Yihuang	19	23	21	27	30	0
Wuzhi	21	9	41	43	1	6
Yongning	na			na		
Xinmi	23	34	42	18	1	5
Yongxiu	28	37	21	18	10	15
Lingwu	na			na		
Changyang	22	36	5	42	5	12
Wuxue	14	35	21	23	2	20
Pinggu	19	10	33	28	5	23
Xinghua	13	20	20	35	9	17
Tongxian	27	5	64	18	13	0
Qidong	22	16	51	19	7	7
Haining	8			na		
Xiaoshan	5	14	28	34	18	7

Note: na= not available yet

Table A8

The four most important advantages of RCMS, cited by interviewees

County	Advantages			
	Convenience to use medical services near to where people live (1)	**Ensures every farmer access to basic medical service** (2)	**Provides the opportunity to help each other (to spread the financial risk among the population)** (3)	**To lighten the financial burden of the family or the individual** (4)
Yihuang	70.7	42.0	20.0	
Wuzhi	13.2			37.1
Yongning		na		
Xinmi		26.3	25.6	41.4
Yongxiu	40.1		28.6	25.4
Lingwu		na		
Changyang	40.8	22.1		
Wuxue		32.8	55.2	
Pinggu	48.9		19.3	60.7
Xinghua			41.7	32.4
Tongxian	33.3		25.7	40.0
Qidong	30.4	20.6	52.6	
Haining	57.2	28.7	42.8	
Xiaoshan	68.0		17.6	38.8

Table A9

The five most important disadvantages of RCMS, cited by interviewees

County	Disadvantages			
	The reimbursement is too low to solve the financial burden problem (1)	The RCMS fund is not well endowed, so RCMS may "run at spring and break down in the fall" (2)	The leaders of the village used their power to get more chance to get better services and better medicine (3)	RCMS members tend to overuse medical services, and waste medicine because services and medicines are cheaper (4)
Yihuang	42.8	31.5	25.4	
Wuzhi	8		22.0	10.6
Yongning		na		
Xinmi		5	19.6	
Yongxiu	34.3	21.9	30.6	
Lingwu		na		
Changyang	29.1		14.3	
Wuxue	66.9		30.2	
Pinggu	10.6		23.7	37.2
Xinghua	17.1		11.5	
Tongxian	45.2		25.6	35.7
Qidong	63.1		8.0	
Haining	76.3			
Xiaoshan	47.6		10.7	

Table A9 (continued)

County	Disadvantages
	The RCMS accounts are not published regularly, so farmer do not know the RCMS financial management status and do not have a chance to monitor
	(5)
Yihuang	
Wuzhi	
Yongning	
Xinmi	
Yongxiu	
Lingwu	
Changyang	16.1
Wuxue	19.1
Pinggu	
Xinghua	16.9
Tongxian	
Qidong	5.4
Haining	
Xiaoshan	10.3

Table A10

Structure of health insurance contributions
(Based on the initial RCMS design of Qidong County)

in Yuan

Health insurance contributions per year per person	**Years**				
	1996	**1997**	**1998**	**1999**	**2000**
Industrial workers[1]	145	166	189	215	245
Farmers	19	22	25	28	32
Children	19	22	25	28	32
Government subsidy[2] (village level)	2	2.3	2.6	3	3.4

Notes:

[1] These amounts correspond to 3.5% of projected yearly income.
[2] Government subsidy per farmer and per child

Table A11

Revenue and expenditure of the RCMS
(Based on the initial RCMS design of Qidong County)

in million Yuan

Expenditure and Revenue	**Years**				
	1996	**1997**	**1998**	**1999**	**2000**
Total expenditure					
of which...	2.565	2.962	3.421	3.951	4.563
- administrative expenditure	0.165	0.188	0.214	0.244	0.279
- reimbursements	2.400	2.774	3.206	3.707	4.285
Total revenue	2.557	2.956	3.417	3.950	4.566
of which...					
- premiums	2.406	2.781	3.214	3.716	4.295
- government subsidies	0.151	0.175	0.202	0.234	0.270
Memorandum item: Reimbursement amount per insured (Yuan)	37	42	48	55	62

Table A12

Structure of health insurance contributions
(Simulated adjusted RCMS design, Qidong County)

in Yuan

Health insurance contributions per year per person	**Years**				
	1996	**1997**	**1998**	**1999**	**2000**
Industrial workers[1]	145	166	189	215	245
Farmers	25	29	32	37	42
Children	25	29	32	37	42
Government subsidy[2] (village, township and county)	6	6.8	7.8	8.9	10.1

Notes:
[1] These amounts correspond to 3.5% of projected yearly income.
[2] Government subsidy per farmer and per child

Table A13

Revenue and expenditure of the RCMS
(Simulated adjusted RCMS design, Qidong County)

in million Yuan

Expenditure and Revenue	**Years**				
	1996	**1997**	**1998**	**1999**	**2000**
Total expenditure	3.174	3.667	4.236	4.893	5.652
of which...					
- administrative expenditure	0.165	0.188	0.214	0.244	0.279
- reimbursements	3.009	3.479	4.021	4.649	5.373
Total revenue	3.194	3.693	4.269	4.934	5.704
of which...					
- premiums	2.740	3.168	3.662	4.233	4.893
- government subsidies	0.454	0.525	0.607	0.702	0.811
Memorandum item: Reimbursement amount per insured (Yuan)	46	53	60	69	78

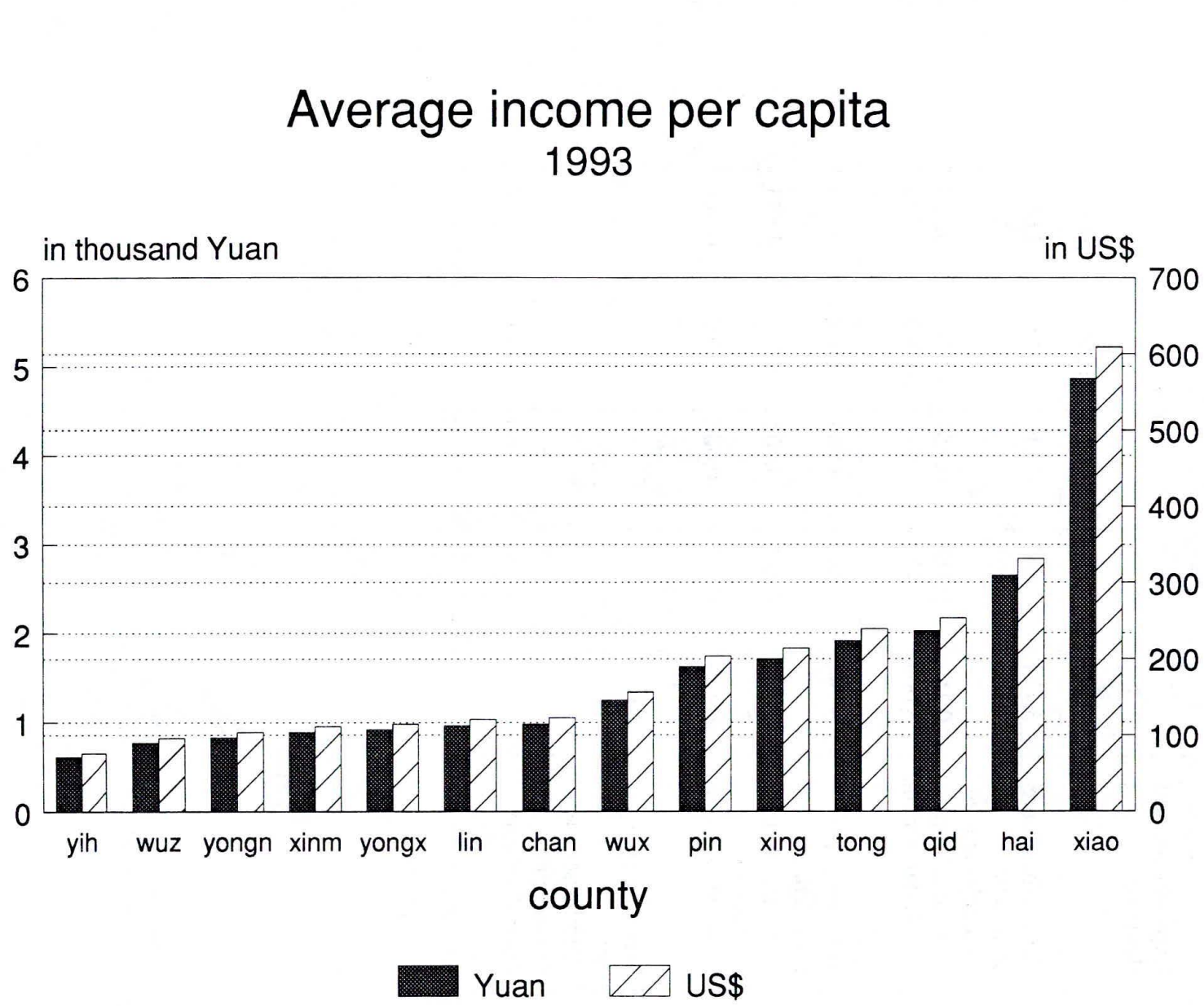
Average income per capita
1993
in thousand Yuan
in US$
6
5
4
3
2
1
0
700
600
500
400
300
200
100
0
yih
wuz
yongn
xinm
yongx
lin
chan
wux
pin
xing
tong
qid
hai
xiao
county
Yuan
US$

Figure A1

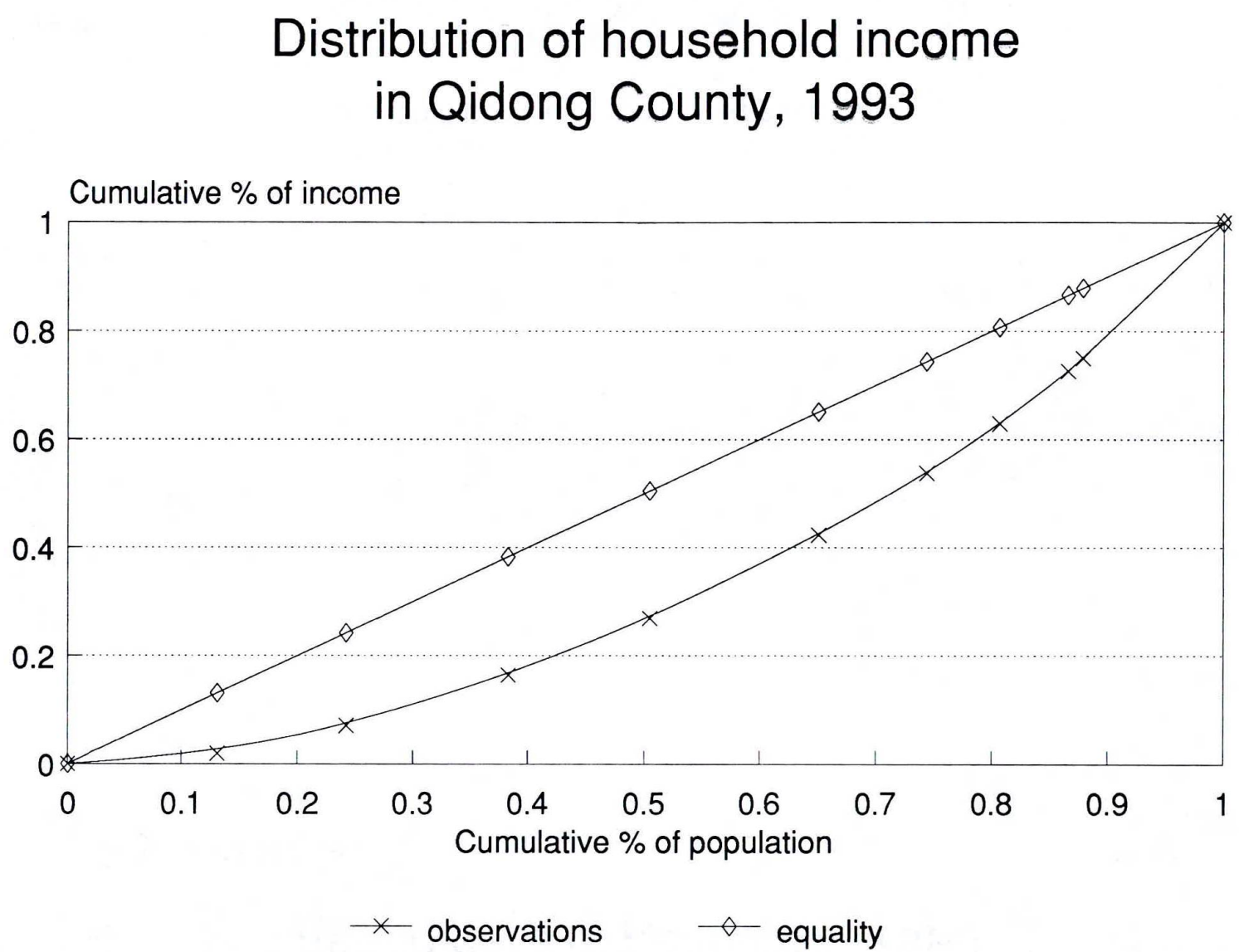
Distribution of household income
in Qidong County, 1993
Cumulative % of income
1
0.8
0.6
0.4
0.2
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Cumulative % of population
observations
equality

Figure A2

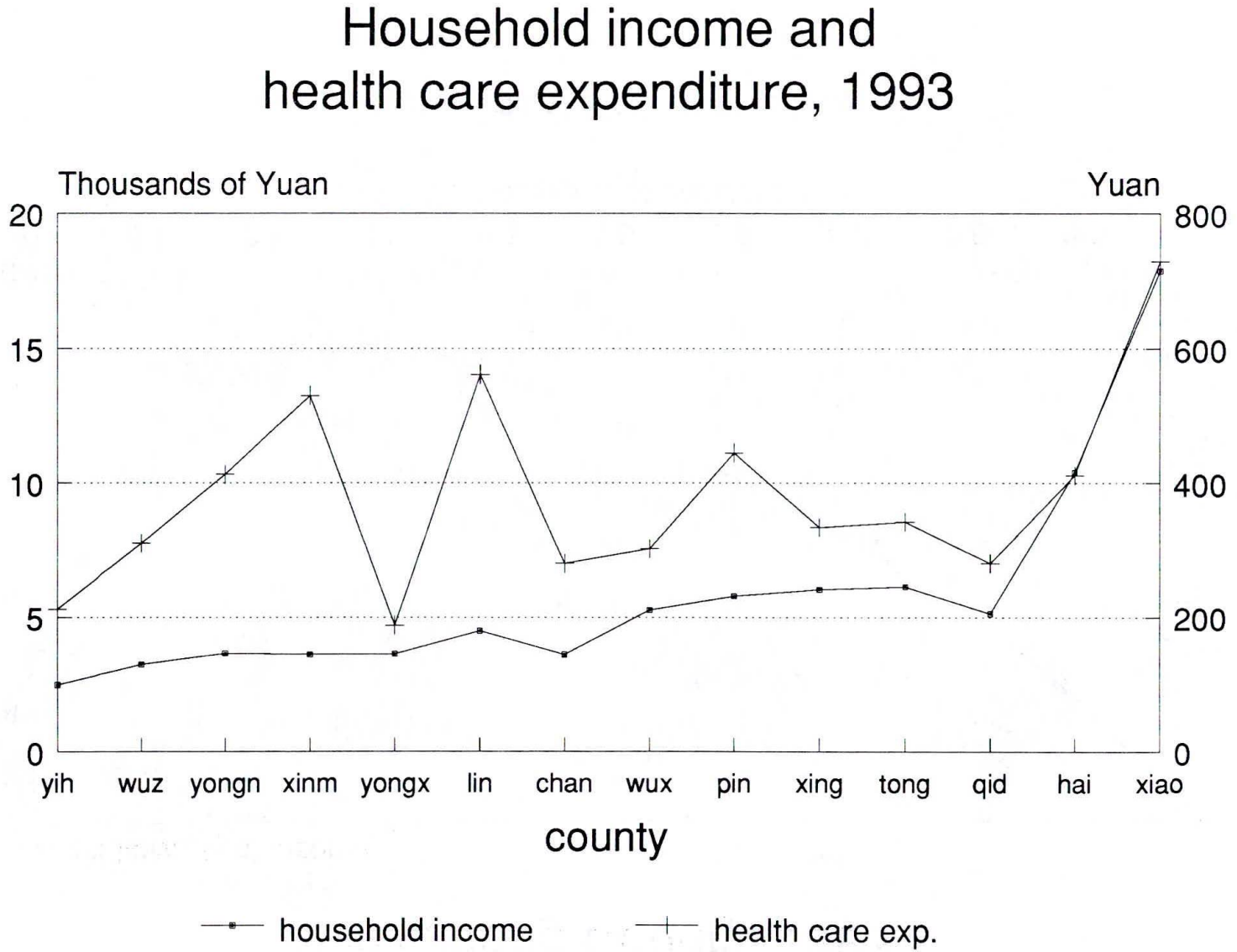
Household income and
health care expenditure, 1993
Thousands of Yuan
Yuan
20
15
10
5
0
800
600
400
200
0
yih
wuz
yongn
xinm
yongx
lin
chan
wux
pin
xing
tong
qid
hai
xiao
county
household income
health care exp.

Figure A3

Share of health care expenditure in household income, 1993

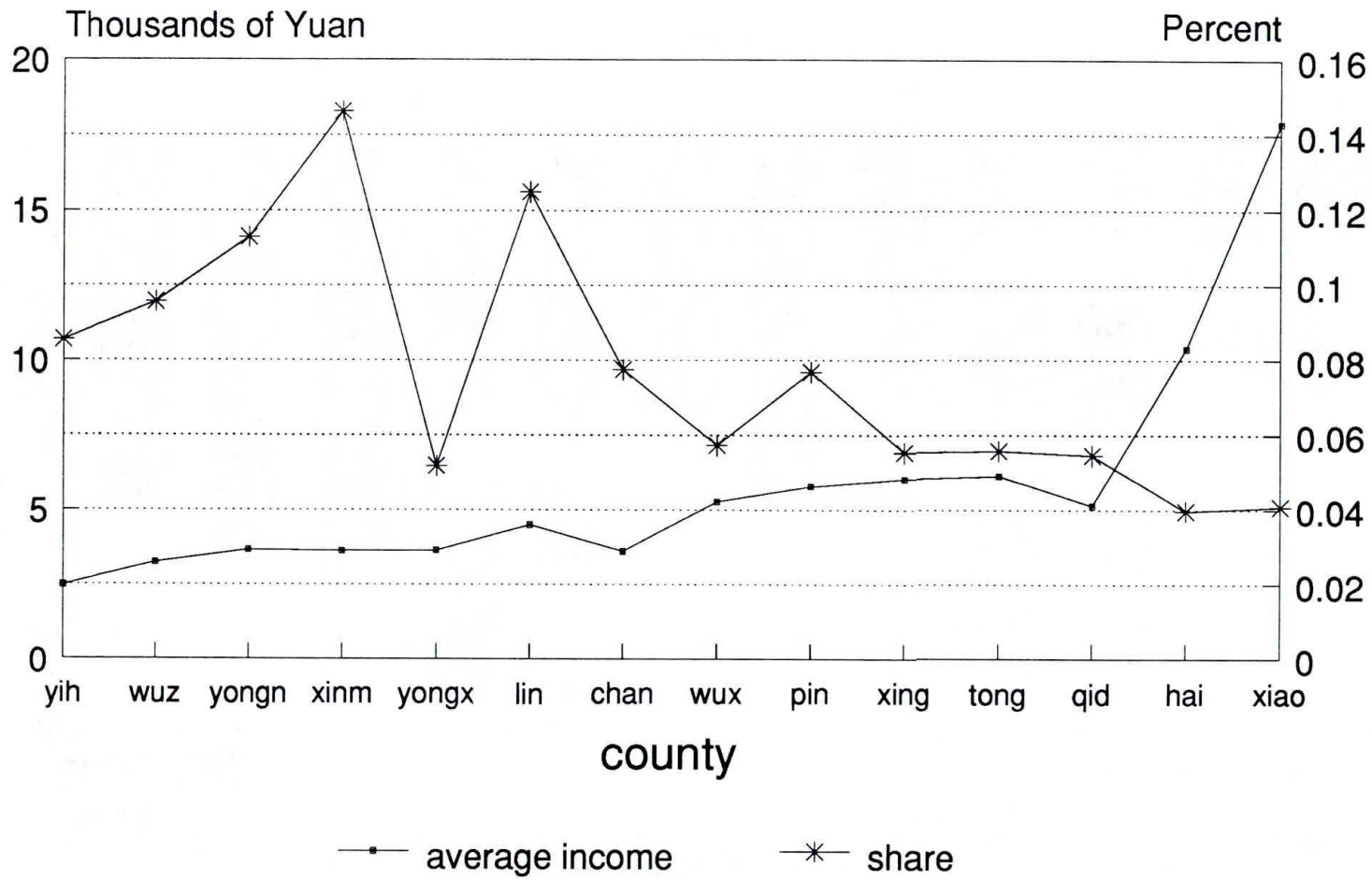

Figure A4

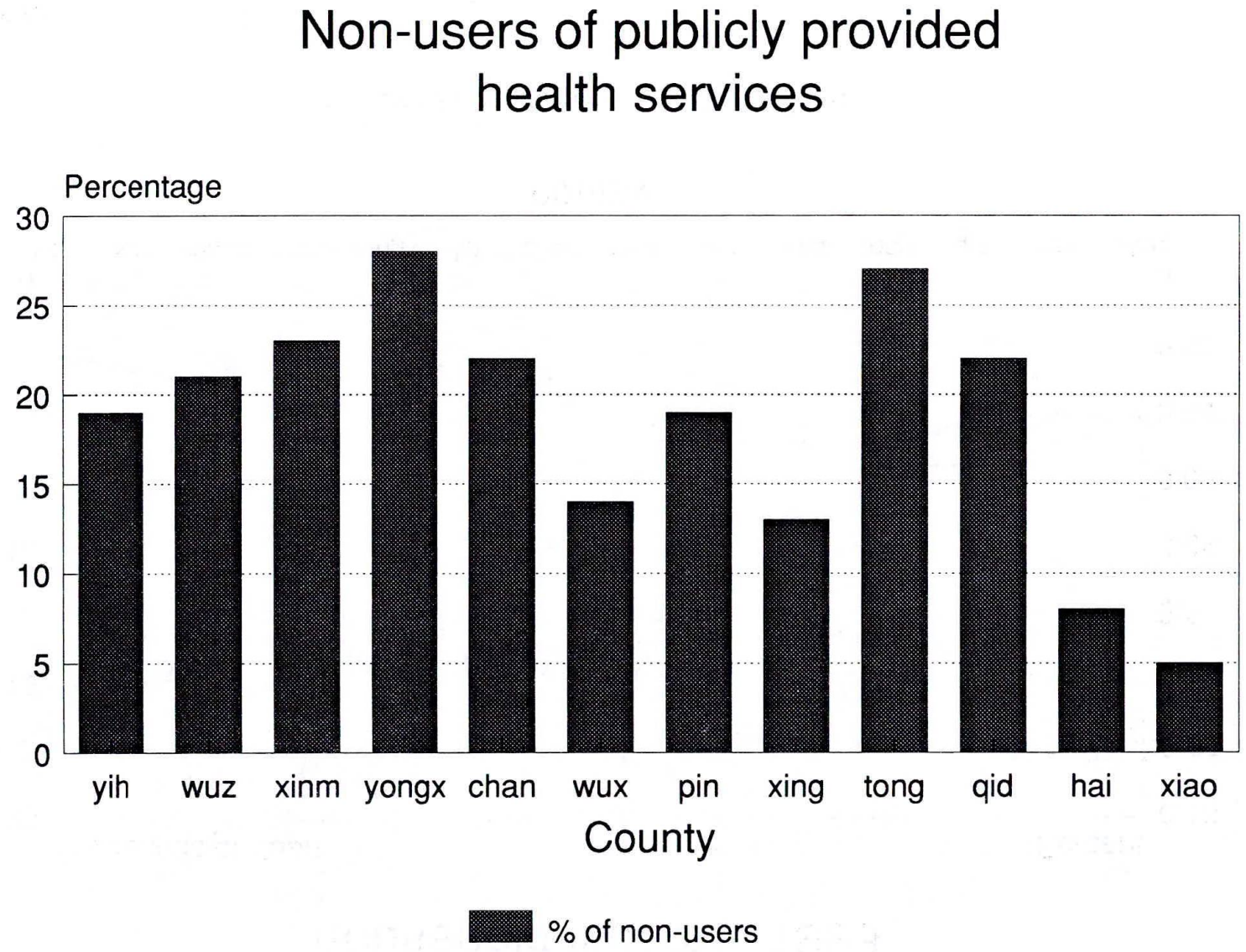
Non-users of publicly provided health services
Percentage
30
25
20
15
10
5
0
yih
wuz
xinm
yongx
chan
wux
pin
xing
tong
qid
hai
xiao
County
% of non-users

Figure A5

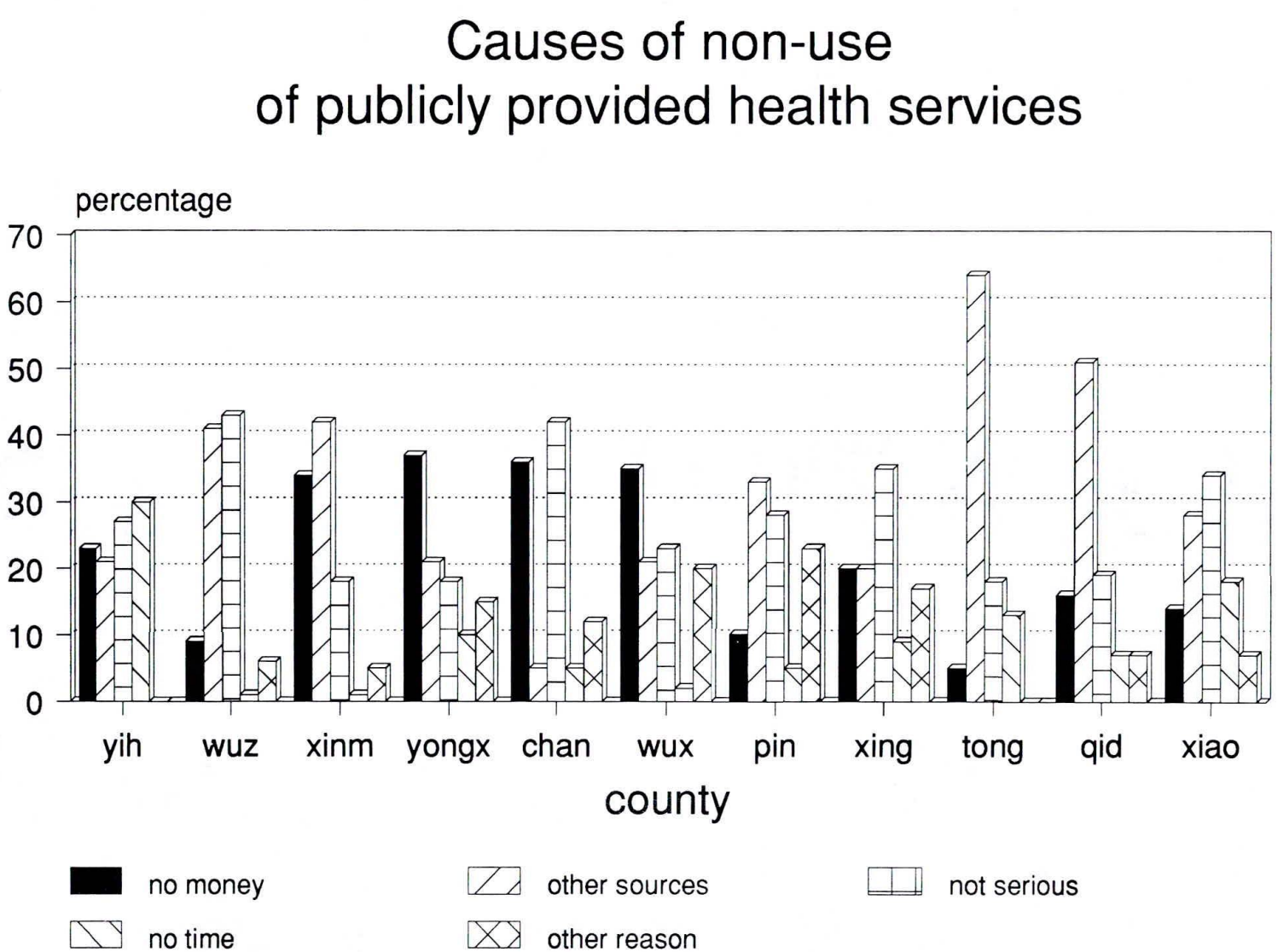
Causes of non-use
of publicly provided health services
percentage
70
60
50
40
30
20
10
0
yih
wuz
xinm
yongx
chan
wux
pin
xing
tong
qid
xiao
county
no money
other sources
not serious
no time
other reason

Figure A6