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REFORMING HEALTH SERVICES FOR EQUITY AND EFFICIENCY IN URBAN CHINA

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The project was organised in sub-studies of equity and efficiency. Prof. Youlong Gong of Fudan University and Prof. Qingyue Meng of Shandong University were the team leaders of the two studies, respectively. The equity study was conducted jointly by researchers from Fudan University, the IDS, and the University of Hamburg. The key researchers were Jiaying Chen, Fei Yan, Wei Wang, Baogang Su and Hao Yu, Fudan, Henry Lucas and Yuelai Yu, IDS, and Thomas Uhlemann, Hamburg. The efficiency study was performed jointly by researchers from Shandong University and the Stockholm School of Economics. The key researchers were Ying Bian, Ning Zhuang, and Qiang Shen, Shandong, and Clas Rehnberg, Stockholm. The Chinese Health Economics Institute and the former Department of Health Policy and Law of the Ministry of Health led by Prof. Renhua Cai was responsible for synthesising government polices related to urban health reform and for organising the final workshop. Dr Xianjun Xiong, Chief of the Medical Insurance Division of the Ministry of Labour and Social Security provided up-to-date information and a very useful background paper on the development of social health insurance in urban China.

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Contents

Chapter 1

INTRODUCTION

China has been in transition to a market economy since the late 1970s. The changes that have occurred have had a profound impact on almost every aspect of urban health services. There has been a growing recognition by the general public and decision-makers of the need to reform the urban health system. The government has acknowledged the importance of this issue in a series of policy statements. It has made health one of the key areas of concern in the current stage of the transition.

This study was developed in consultation with the Ministry of Health. It identified the need for systematic evidence on how changes in health finance had affected the performance of urban health services in terms of equity and efficiency and of the impact of certain reform initiatives. The study was designed to address this need. The original plan was to carry out the study in collaboration with that Ministry's Department of Health Policy and Law. When the Ministry was restructured the research team was advised to work with the Chinese Health Economics Institute.

Researchers from the collaborating institutions prepared reviews of recent experience with urban health reform in China and of the linkages between management of transition in health and other sectors. These reports have been compiled in a separate volume.

The project was designed as case studies in Nantong, Jiangsu Province and Zibo, Shandong Province. The aim was to generate an in-depth understanding of the relationship between transition, health reform and health system performance in medium size cities. One reason for the choice of the two cities is that their governments have actively supported innovative approaches to health system development.

The study was undertaken by a multi-disciplinary team from the School of Public Health of Fudan University, the Institute of Social Medicine and Health Policy of Shandong University, the Institute of Development Studies, UK, Stockholm School of Economics, Sweden, and the Institute of Medical Sociology of the University of Hamburg, Germany. The team collaborated closely with the relevant city and provincial governments. The team began by reviewing routine data for the two cities and interviewing key local officials about major areas of concern. They then undertook detailed studies of access to health services and the efficiency of hospitals. Chapter 2 describes the methods and chapter 3 presents background information on the two cities. The remainder of this volume presents the findings of the studies. Section 2 reports on the study of access to health services, section 3 presents the findings of the study of the efficiency of hospital services.

The team wrote a report on each city and presented it to a workshop attended by the research team, health managers and government officials from provincial and city levels. The workshops reviewed the accuracy of the findings and identified options for reform. The project ended with a national conference in Beijing. Section 4 presents the conclusions of the conference and proposals for follow-up activities. The annexes include background papers on policy issues that were prepared for the conference.

Chapter 2

RESEARCH METHODS

2.1 INTRODUCTION

This chapter presents details of the research methods used in the data collection conducted in the two study cities, Nantong and Zibo, in 1999 and 2000. The first section considers the equity study undertaken by the School of Public Health at Fudan University, the Institute of Development Studies and the University of Hamburg. The second describes the efficiency study, jointly organised by the Institute of Social Medicine and Health Policy at Shandong University and the Centre for Health Economics at the Stockholm School of Economics.

2.2 EQUITY STUDY

Data collection in the equity study included two household health surveys, a work unit survey and qualitative studies using focus group discussions and in-depth interviews. These were designed to examine the issue of access to and financing of health services, with a special focus on the factors affecting the access of vulnerable groups.

2.2.1 Household surveys

2.2.1.1 Organisation of the surveys

Two household health surveys were conducted in each of the two cities. One, described as the 'work unit-based survey', sampled households via the previously selected enterprise or institution that employed one of their members. The other, the 'community-based survey', sampled households from selected areas of each city with the objective of identifying potentially 'vulnerable' households.

The work unit - based survey

Work units were classified under five headings: A) Government Agencies and Public Institutions, B) Profitable State-Owned Enterprises (SOEs), C) Loss-Making SOEs, D) Collective Enterprises, and E) Others. These were defined as follows:

A) Government agencies and public institutions

Workers in these institutions were covered by the Government Insurance Scheme (GIS) prior to the introduction of the health insurance reforms. The health benefits enjoyed were typically superior to those provided by enterprises.

B) & C) Profitable and loss-making state-owned enterprises (SOEs)

All workers in SOEs are in principle covered by the Labour Insurance Scheme (LIS). However, the health benefits offered vary a great deal in accordance with the economic status of the enterprise. They were therefore further classified as either profitable or loss-making.

D) Collective enterprises

Collectively-owned enterprises are ones that belong to collective institutions, such as street administrative committees, or public institutions with collective property. Some enterprises of this kind were implementing the GIS, as advised by the government, but others were not.

E) Others
Other enterprises include joint-venture, joint stock, foreign-investment, and privately run. All have in general been profitable and many have developed their own health benefit packages. Some are implementing the LIS, and provide similar health benefits to the SOEs. However, others provide very limited health benefits to their employees, or none at all.

Community-based survey
The vulnerable groups initially identified for the community-based household health survey were those living in specific categories of households: primary earner unemployed or laid-off by their employer; primary earner disabled/handicapped; all household members over 60; officially designated as poor; and migrant households. Because the research team found that there were only a small number of disabled in the selected communities, these households were not included in the questionnaire survey, but a number were selected for the qualitative study.

2.2.1.2 Sample size and sampling methods

Different sampling strategies were employed according to the particular features of the various populations. Adopting a variety of approaches was necessary to facilitate data collection, but implied that considerable care was required in analysis and interpretation.

Work unit - based survey
The total number of households sampled in the selected institutions was 1,000. These were distributed across 20 sampled work units: 2 government agencies/public institutions, 4 profitable SOEs, 6 loss-making SOEs, 4 collective enterprises and 4 others. An equal number of households (50) was sampled from each work unit.

A number of criteria were used to select the enterprises for the survey:

1) Of the two Government Agencies and Public Institutions, one should be a government agency, such as a municipal health bureau, and the other should be a public institution such as a school, hospital, etc.
2) The four profitable SOEs should be sampled from the highest or nearly highest profit-making SOEs. Two should be covered by the new health insurance scheme, if the new scheme existed in the study city.
3) The six loss-making SOEs should be operating more or less normally in spite of their economic status. At least three of the six enterprises should be participating in the new health insurance scheme, if applicable.
4) Of the four collective enterprises selected, half of them should be participating in the new health insurance scheme. It was also thought desirable to include profitable, non-profitable, and loss-making enterprises in the sample.
5) Of the four other enterprises included, one should be joint-venture, one joint stock, one foreign-investment, and one privately owned. One or two of the enterprises should be covered by the new scheme, where this had been implemented.

A list of enterprises was compiled, along with information on their respective attributes and economic status. This data was then used to classify them based on the above criteria. Twice the number of enterprises required was then sampled from each category to allow for the possibility that some work units might refuse cooperation.

All the potential enterprises were contacted. A final list of sample work units was then compiled, based on the willingness of the enterprise managers to co-operate with the research team.

A list of all employees was obtained from each work unit. Fifty employees were then chosen from this list using systematic sampling. The households of the selected employees were included in the survey and interviews held, initially at the work place and then at the residence, with the head and key members.

Community-based survey

A sample of 500 households was selected for the community-based survey in each city. These were distributed across the four identified sub-populations (laid-off/unemployed, elderly, registered indigent, and migrant), with 200 migrant households sampled and 100 households from each of the other vulnerable groups. Street committees assisted in the identification of the four types of household in the districts selected for the survey. The following detailed criteria were adopted:

Households with laid-off or unemployed worker(s)

Laid-off and unemployed households were defined as those with at least one laid-off or unemployed member who was the main source of family income. Laid-off workers were those who no longer went to work, perhaps temporarily, but who still had some relationship with their former work unit. For example, the worker may have received payment from the employer's insurance fund, or the employer may continue to pay into a pension fund. Unemployed people were those who had lost jobs or never had a job, and who received payments from the Employment Insurance Fund. Both laid-off and unemployed workers are administered by the Labour and Social Security Bureau. A list of names of people who fall into these categories is also kept by the street administrative committees with which they are affiliated. Both sources were used to compile lists from which households were selected using systematic sampling.

Households with elderly people

These were defined as households with one or more persons over 60 years old, and with no children in residence. They could be either retired workers with a pension, or people who had never been employed. All were systematically sampled from the lists provided by the street administrative committees.

Poor households

Mainly those whose income level was below a minimum standard defined by the municipal government, who were identified as poor by local authorities and received payments from them regularly or occasionally. However, this category also included households which were not officially identified, but were considered extremely poor by the street administrative committees.

Migrant households

A migrant household was defined as one in which all members of the household originated from outside of the study cities. They had to have been resident in the city for six months or longer. The households selected were typical those with a husband, wife and children. Single parent households were also included in the sample, where these consisted of a mother and her children.

2.2.1.2. Data collection

Different methods of data collection were employed in the work unit- and community-based surveys.

Two rounds of interviews were held with households selected in the work unit-based survey. The first round was undertaken at the work unit. Employees of sampled households were asked to provide basic information about their household and also a home address, telephone number and convenient date for a second interview. They were given a health diary to record information on illness and health care seeking behaviour for each household member over a two week period.

The second round was undertaken two weeks later. This follow-up interview was intended to gather completed questionnaires from each family member, collect the diary and check responses. The place for the second visit was originally designed to be the employee's home. However, many difficulties arose in attempting to visit all the families selected, and it was decided to interview employees at the work place if they met certain criteria. These criteria included: the employee was an adult woman and clearly aware of what happened to each member of her household over the two week period, especially the need for and use of health services; the employee was one of the key family members, especially in terms of decision-making at the household level; and no member of the household had given birth in the previous two years, with the exception of the employee. If employees did not meet the criteria, a visit to their home or at least a telephone interview with other household informants was required.

In the community-based survey, all the households selected were initially visited by researchers who arranged for interviews to take place in their homes. The interviewers located households according to the addresses provided by the street administrative committees. If no one was at home, the researcher returned again later. If three attempts to visit a household failed, a replacement was substituted.

2.2.1.3. Pilot study

In order to test the questionnaires and enumeration procedures, a pilot study was carried out in Nantong in August 1999. All the instruments were tested on 100 selected households of which 30 were sampled using the approach described for the community-based study and 70 (in 7 work units) using that for the work unit study. All households recorded the health diary.

Fifteen researchers were trained, including five from Shanghai and Shandong universities and ten from the Health Bureau and the Centre of Health Insurance Fund Administration. They participated in the pilot studies on both the household health surveys and the enterprise surveys, and later became the field supervisors in the major data collection phase.

Upon completion of the pilot study, a workshop was held in Shanghai to summarise the results and findings, revise the instruments, and finalise the survey procedures and sampling methods.

2.2.1.5. Selection and training of interviewers

A total of 40 interviewers were chosen from each city for data collection. In Nantong, all the interviewers, besides those participating in the pilot study, were selected from primary health facilities. All the interviewers had some survey experience. In Zibo, 10 people were from Shandong University and 30 were selected from the graduate students of the local medical college or trainees at the Zibo Health School.

A two-day training course was organised in each city. As one component of this training, participants were divided into small groups to conduct at least two interviews. They then discussed with key researchers the problems they had met and the mistakes they had made. All interviewers were examined at the end of the course to test their understanding of the questionnaires.

2.2.1.6. Quality control

During data collection, a system of quality control was developed to ensure that the data collected was reliable and valid. The interviewers were divided into five groups, consisting of eight people each. Of the eight, one was a key researcher from either Fudan University or Shandong University, and acted as the field supervisor responsible for quality control. In addition, there was a group leader who was usually from a local institution and responsible for communication and the organisation of daily activities. The remaining six people were divided into three sub-groups.

The first tier of quality control was undertaken at the sub-group level, with each member instructed to check the other's work. The second tier was performed by a key researcher from either university. They had to check all the questionnaires completed by three sub-groups and if anything was found to be wrong or questionable, were required to return the questionnaire to the interviewer for revision. Finally, all completed questionnaires were reviewed by the supervisor. He/she was responsible for checking all the questionnaires and organising a daily debriefing meeting to provide feed-back.

After completing all household interviews, the research team queried some of the information provided. This occurred mainly when the interviewers had been unable to make a second visit to the employee's home, and focused on the possibility that the employee might have missed out information relating to other household members. Phone calls were made to these households to check and confirm all questionable items. The total number of questionnaires in Nantong to which this problem applied was about 15% of the sample. A further 15% of households were randomly sampled for a telephone confirmation of selected key items.

Results of these two types of telephone checks are shown in Table 2.1.

Table 2.1. Results of the two types of telephone quality checks*

Type of call	Items checked				
	Total	No revisions required	Revision related to health insurance	Revision related to health problems and service use/expense	Others
Calls to households where information was suspect.	100	40	18	40	2
Calls to the average household	88	78	8	2	0

* Data in the table does not include those without a telephone or with no response.

From the table, we can see that the quality of the information collected from households meeting the criterion described in 2.2.1.2. was high and the criteria for requiring an interview at an employee's home was appropriate.

2.2.1.7. Data entry and cleaning

Data coding for the household surveys was conducted before the data was entered into the computer. Epi Info 6.04C was then used to create databases and develop a logic check programme for the data entered. Experienced staff and undergraduate students from Shanghai were responsible for data entry. All the data was entered into the computer twice, and then validation was performed to check and correct mistakes. All the databases were validated and cleaned repeatedly until no further errors could be detected.

All questionnaires for the enterprise survey were entered directly into an SPSS (Statistical Package for the Social Sciences) data set. Due to the small number of enterprises involved, data entry and cleaning were relatively straightforward.

2.2.1.8. Results of the Survey

Data on an overall sample of 3,083 households were collected in the two cities: 1,539 in Nantong and 1,544 in Zibo. Details are shown in the tables below.

Table 2.2. Number of valid households and members: community sample

	Nantong				Zibo			
	Households		Members		Households		Members	
	Number	%	Number	%	Number	%	Number	%
Laid-off	110	19.9	356	25.2	124	23.7	388	27.6
Elderly	119	21.5	246	17.4	103	19.7	224	15.9
Poverty	113	20.4	238	16.9	98	18.7	277	19.7
Floating	212	38.3	571	40.5	198	37.9	519	36.9
Total	554	100.0	1411	100.0	523	100.0	1408	100.0

Table 2.3. Number of valid households and members: work unit sample

Work unit category	Nantong				Zibo			
	Households		Members		Households		Members	
	Number	%	Number	%	Number	%	Number	%
1	101	10.3	303	9.6	102	10.0	281	9.5
2	197	20.0	617	19.5	198	19.4	571	19.2
3	293	29.7	924	29.2	319	31.2	928	31.2
4	195	19.8	635	20.1	215	21.1	663	22.3
5	199	20.2	686	21.7	187	18.3	528	17.8
Total	985	100.0	3165	100.0	1021	100.0	2971	100.0

The number of valid samples of different categories of household are a little larger than the planned sample size, with the exception of employees in Nantong.

2.2.2. Work unit survey

In addition to the household surveys conducted in the two study cities, the project also collected data relating to the selected work units. This included basic information on organisation, income level of employees, fiscal status, expenditure on medical care and health insurance, etc. As indicated above, the original intention had been to sample 20 work units in the two cities However, in Nantong the number of staff in government agencies is small and it was difficult to find one with 50 employees. Therefore two agencies were sampled. On the other hand, one unit in Zibo failed to provide information. Thus data on 21 work units in Nantong and 19 in Zibo were obtained.

A half-day workshop was organised to explain clearly all the required items to the individual nominated by the selected work unit. If any problems were subsequently found, this individual was asked to revise the responses accordingly. The data was initially entered into SPSS, and then transferred to a spreadsheet and analysed using Excel software.

Every work unit was also requested to provide a copy of any available documents outlining their health insurance scheme.

2.2.3. Qualitative Studies on Vulnerable Groups

2.2.3.1. Key informant interviews

To obtain additional data on vulnerable groups (for example the size and composition of this population; and government regulations or policies on their access to health and other welfare services) the research team organised a number key informant interviews. When they conducted these interviews, the researchers also collected relevant documents and information.

The following people from each study city were interviewed by senior researchers from Shanghai.

The Deputy Director of the Municipal Health Bureau. Questions centred around health service delivery and quality in the context of health sector reform, and focused particularly on the impact
of medical insurance on access to health care, especially with regard to the urban poor who had been laid-off and lost jobs.

The Director of the Municipal Civil Affairs Bureau. The interviewers sought to obtain information regarding the number of disabled people and their entitlements, and access to employment and health services and other welfare services.

The Deputy Director of the Municipal Labour and Social Security Bureau. The discussion focused on the following: social benefits to which laid-off and unemployed workers are entitled; social security system development, with special reference to medical insurance; income support and re-employment; and loss-making enterprises' participation in medical insurance schemes.

Managers from two enterprises (one profitable and the other loss-making) were interviewed to understand the issues related to service coverage of medical care through medical or labour insurance schemes, cost of medical care for the enterprises, and impact of medical insurance reform on service use, etc.

Two hospital managers from each city were also interviewed. The interviews covered the issues of efficiency in service provision, rapid increase of medical care costs, and access of the poor to basic health care.

2.2.3.2. Focus Group Discussions

Two focus group discussions with health professionals were organised in hospitals in each city. The participants of the discussions represented different health professions working at the hospitals (doctors, nurses, pharmacists, other technicians, etc). Issues covered included the impact of medical insurance reform on service use and provision, major health problems, changes in efficiency and cost of service provision over the past decade.

Six representatives of the workers union from five selected enterprises and public institutions in Nantong were invited to attend a focus group discussion on access to, use of, and expenditure on health services among the workers and retirees of these institutions.

One focus group discussion with community (street committee) cadres from Hongqiao District of Nantong (who participated in the community-based household health survey) was also organised. Topics raised included access of vulnerable people to health care, the medical financial assistance available from the community and government, family planning (with special reference to migrants), and the social security system.

In addition, a focus group discussion with cadres from the Street Administrative Committee, Hongqiao District, Nantong was organised to obtain some insights as to the most vulnerable groups in the city and the social benefits and subsidies they receive from government.

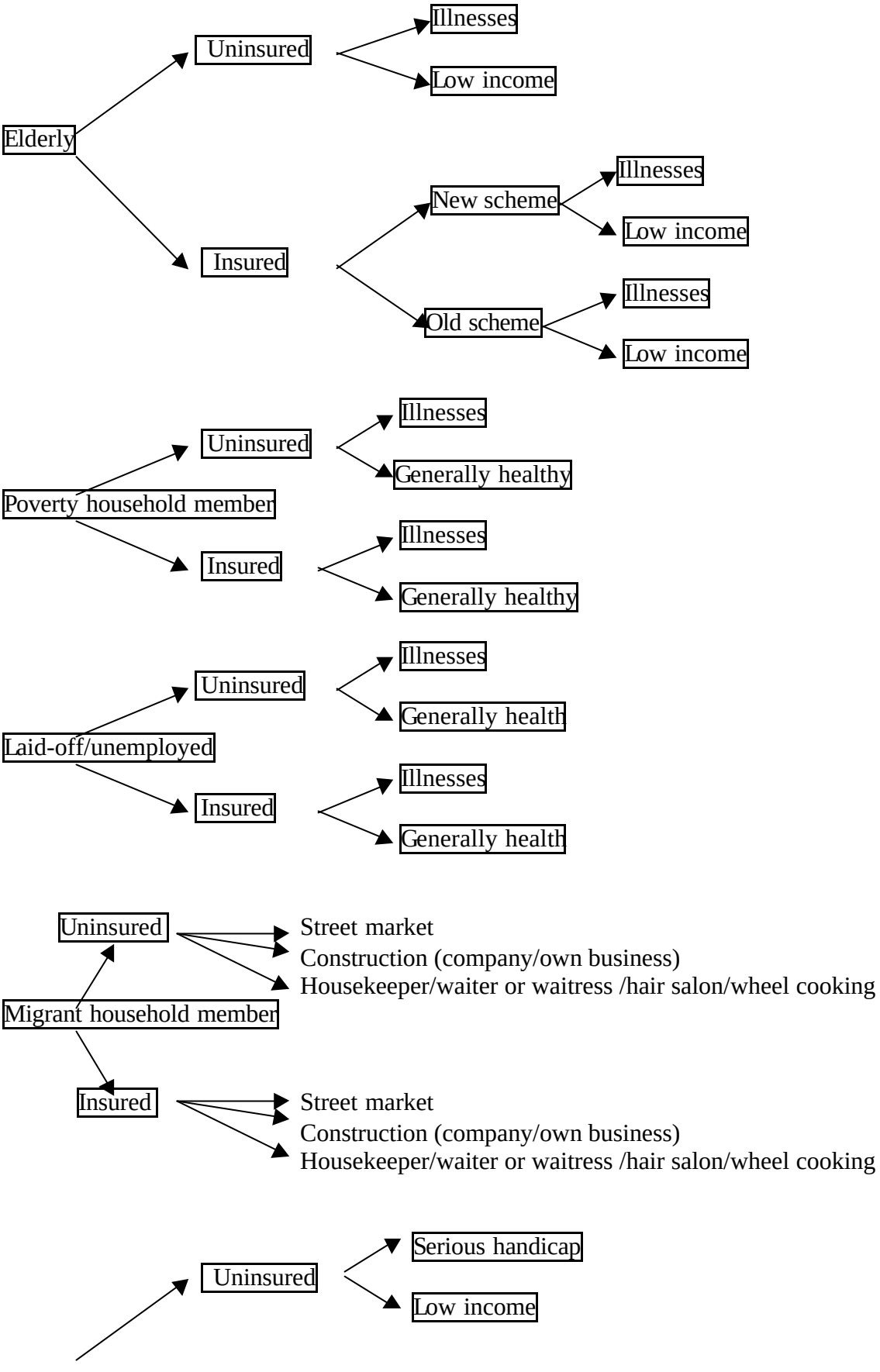
2.2.3.3. In-depth interviews

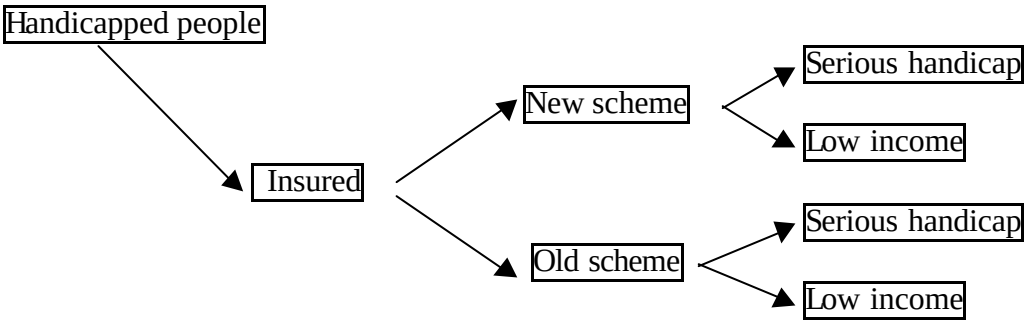
About 30 in-depth interviews were conducted with people from five vulnerable groups – the elderly, the poor, laid-off/unemployed workers, migrants, and disabled people. Definitions of the first four vulnerable groups have been provided in 2.2.1.2. The fifth group, disabled people, were defined as those who lacked the abilities of speaking, hearing or seeing, who have lost a limb, or who have mental retardation or long term mental illness.

Selection of the interviewees.
In the two study cities, six people from each of the five vulnerable groups were selected for interview. Six elderly people were randomly selected from the households with elderly people included in the community-based household survey. The same approach was used to select the poor, laid off/unemployed and migrant households. Six disabled persons were selected using the list of disabled people provided by several street administrative committees. These had been compiled according to the regulations and policies on disability developed by the municipal civil affairs bureau.

Figure 2.1. illustrates how these individuals were chosen from the different vulnerable groups for the in-depth interviews.

Figure 2.1. Diagram Demonstrating the Selection of People from Vulnerable Groups for In-Depth Interview





Organisation of the In-Depth Interviews

Experienced senior researchers from Shanghai and Shandong took the major responsibility for the in-depth interviews. Three people from Nantong Medical Insurance Administration Centre and the Municipal Health Bureau were also recruited to conduct interviews after they had received proper training. All the interviews were held at the interviewee's home and all were tape recorded. An assistant from the research team participated in the interviews and took notes throughout. Usually the head of the household, or a key member were the main respondents. During the process of the interviews, the interviewers were asked to observe the interviewee's expression, emotion and living environment, and to record these findings in the notes. Upon completion of the interview, a small gift was given to the household as a token of appreciation.

All the interviews used semi-structured questionnaires. In order to ensure that these questionnaires were appropriate, a pilot study was performed to test the instrument before the exercise. In this pilot study, the team selected for interview one individual from each of five vulnerable groups in Nantong.

Analysis of the Qualitative Data Collected

Transcripts of each interview were prepared from the tape recording. The researchers checked these transcripts with the notes taken during the interviews. Once the transcripts were finalised, analysis of the information was performed based both on the initial research questions and themes arising during the study.

2.3. HOSPITAL EFFICIENCY STUDY

This section presents the methods employed in the hospital efficiency study conducted in Nantong and Zibo. It is divided into five sub-sections covering: the purpose of the study; the conceptual (theoretical) framework; data sources, sampling size and sampling technique; descriptive and statistical analysis; and problems and adjustment of methodology.

2.3.1. Purpose

The objectives of the efficiency study were to examine the association between health care reform and changes in facility management, and to explore the outcome in terms of the implications for efficiency. The changes in facility management relate to both external and internal factors. The external factors include changes in sources of finance, composition of facility income and pricing of health services. The way in which hospitals receive their revenues has also to be considered. Various payment methods are practiced including fee-for-service, fixed charge, capitation and DRGs.

It was intended to analyse the detailed contractual mechanisms between the provider and the different payers. Given those external factors that constrain hospital behaviour, there is still scope for internal monitoring and management of resources which providers decide upon themselves (though they may also be regulated by government rules). The internal monitoring systems relate to internal budgeting, fund retention to regulate performance, and methods used to reward facility employees (bonus etc.). It is also of interest to analyse how hospitals have used their autonomy with regard to investment in construction and equipment technologies. Special attention has been paid to the procedures governing the use of drugs and other medicinal materials.

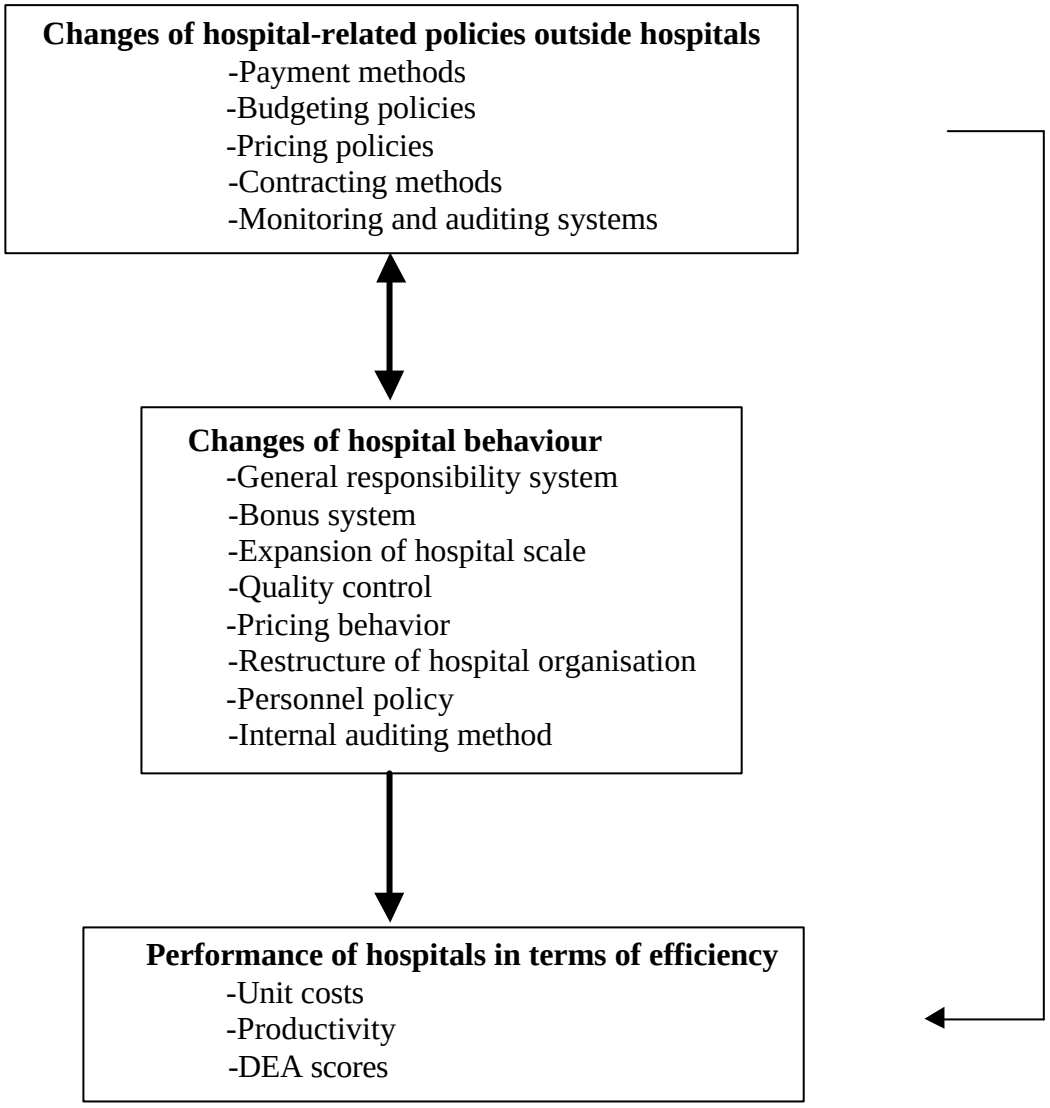
Finally the relationship between health care reforms/facility management and efficiency of the hospital sector has been examined. This has been done by presenting descriptive performance indicators, such as unit cost analysis and utilisation measures. Productivity analysis has been carried out based on the method of Data Envelopment Analysis (DEA). All output measures have also been adjusted for quality and case mix. An explanatory model has been created to explain the differences in productivity across the hospitals.

2.3.2. Conceptual Framework

The study is concerned with the relationship between changes in the hospitals' environment, particularly those relating to health care reforms, and the impact on hospital behaviour and efficiency. Given that Chinese hospitals have been given a considerable degree of autonomy, the study attempts to find out how this freedom has been used and what restrictions they are facing. It seeks to measure and explain the efficiency of the hospital sector by relating the performance to health care reform changes. The first part is a pure efficiency study wherein different analyses are used to relate the use of inputs to produced outputs. Descriptive efficiency measures and unit cost measures are used for all hospitals and a number of departments within the hospitals.

The second part tries to explain behaviour by relating the hospital performance to the changes in the environment. It attempts to uncover which type of internal monitoring mechanisms have been developed and used by hospitals. Figure 2.2. provides the general framework for analysis.

Figure 2.2. Framework for Exploring the Relations between Changes to Hospital Environments and Behaviour, and Changes in Hospital Efficiency



In assessing the likely impact of changes to payment systems and contractual relationships, it is important to bear in mind that the underlying nature of demand from patients is unchanged and that patients with insurance coverage are not very sensitive to user charges. It is most likely that this and the increased autonomy of providers in a competitive market will result in non-price competition. The role of keeping costs down will rest on different third party payers (government and/or health insurance schemes) who will be in the best position to exert cost containment.

2.3.3. Data Sources and Sampling Procedure

The data sources are varied and are both quantitative and qualitative in nature. In order to analyse efficiency as well as try to explain the changes, several sources were used which are summarised below:

- Hospital survey for data on expenditures, staff, equipment, performance and structure of hospitals for the period 1985 to 1999. The sample consisted of 22 hospitals in Zibo and 19 hospital in Nantong. In each hospital specific data was collected from the departments level for major clinics.
- Official documents from the hospitals and health authorities.
- Key informant interviews and focus group discussions with hospital managers and representatives from health authorities.
- A tracer condition study.

Hospital survey
As the focus of the study is on the hospital sector, a sampling strategy was used to include the most common type of Chinese hospitals. The sample consisted exclusively of hospitals from two levels: municipal and county. Smaller hospitals with few beds, so-called township hospitals, were excluded. There were no tertiary/university hospitals in the two study cities. With this sampling strategy all hospitals at municipal and county levels were included (n=22 in Zibo and n=19 in Nantong). The hospitals were also categorised into different types of hospitals (general hospitals, Chinese hospitals and enterprise hospitals).

A questionnaire was developed covering specific items: hospital background data; sources and size of revenues; categories of expenditure; use of inputs and equipment; and performance in terms of outputs and quality outcomes. Most questions referred to the whole hospital, whereas some were specifically about hospital departments (see appendix). The indicators in the hospital study included:

- unit costs and case-mix: financial documents, facility questionnaire and stratified samples of financial and medical records; and
- quality of care: stratified samples of medical records and current patients.

The questionnaire was managed and filled in by the investigators who met with representatives from the hospitals (departments of finance, accounting etc.). The questionnaire was completed with the assistance of the hospital representatives and was based on reviews of financial and medical documents and records. Discussions were held about unclear information and a second interview was made if necessary if data was missing or invalid.

Official documents from the hospitals and health authorities
The purpose of collecting documents was to get background information about the health care reforms that had affected the hospitals, and to find out how these had influenced hospital policy and management. An additional aim was to obtain information about changes of internal facility management. Specific information was collected to understand the implementation and structure of the staff bonus/reward system, personnel policies and the responsibility system. Existing data including health policy documents and statistical information was collected by consulting relevant health officials, and reviewing related statistical books and reports. The investigators visited each hospital to collect the documents.

This information was then used to create ‘dummy variables’ (yes/no) which were later used in the explanatory analysis of efficiency. In addition to documents from the hospitals, similar information on the topic of health care reforms was collected from the local health authorities. Particular attention was paid to issues about health insurance, price regulations and payment methods to hospitals.

Key informant interviews and focus group discussions with managers at hospitals and representatives from health authorities

A survey of key informant interviews and focus group discussions was conducted in each city using open and semi-structured questions. The interviewees were both hospital managers and representatives from the health authorities. Health workers and patients were also interviewed. The overall question raised in connection with various aspects was the impact of health policy on the performance of hospitals in terms of management, efficiency and costs of services.

The tracer study

The tracer study was based on a medical record review in which two health conditions, acute appendicitis and normal birth delivery, were targeted. Medical records of 888 patients with acute appendicitis and 891 patients who had given birth from three Zibo hospitals in 1995 and 1999 were surveyed. The purpose of tracing the medical records was to examine differences in medical expenses under different health insurance plans with different payment methods. Indicators used included patients' personal information (age, sex, occupation), health insurance coverage, medical procedures received (diagnosis and procedure), categorised items of medical expenses, and payment methods.

2.3.4. Descriptive and Statistical Analysis

The initial step taken in the analysis was to adjust the performance data for differences in case-mix and quality. Differences in case-mix in particular might lead to unfair comparison of performance for hospitals admitting severe cases.

Adjustment of case-mix

Severity of illness has close relation with medical expenses. Patients with severe conditions cost more than others. The adjustment of case-mix for in-patient services was based on the diagnosis. A Case Mix Index (CMI) that is widely used for such adjustment was employed. The formula to calculate CMI is as follows.

$$CMI_j = \frac{? (C_jX * P_jX)}{? (CX * PX)}$$

Where CMI_j is the value of CMI of j hospital, C_jX is the average expense of j hospital, CX is the standard expense of X disease, P_j is the proportion of patients with X disease in j hospital, and PX is the proportion of patients with X diseases in total patients of sample hospitals. By considering the differences in the share of patients with different diseases the total output could be weighted. For outpatient services there is a lack of diagnosis data. In the study, the average expense per outpatient service was used to adjust the case-mix of outpatient services. In order to avoid unstable expenses across years, the medical expenses of each hospital in the four selected years were averaged.

Adjustment of quality

Comparison of relative service efficiency levels of different hospitals requires that quality of care should be adjusted to be equal across the hospitals. In this study, a Quality Adjusted Index (QAI) was used to adjust the quality of sample hospitals. The formula for calculating QAI is:

$$QAI = X = \sum_{i=1}^{n} Xi / Si * Wi \qquad (1)$$

Where X_i are the factual numbers of indicators, S_i are the standard numbers of indicators, and W_i are the weights representing importance of selected indicators in determining quality. Xi were obtained from the survey, S_i were set by the Ministry of Health, and W_i were provided by medical experts. From 50 indicators that are usually used for assessing quality of hospital services, 6 were selected by a panel of medical experts. Selected indicators include recovery rates of hospitalised patients, consistent rates of diagnosis before and after discharge of inpatients, consistent rates of diagnosis before and after physical operations, rates of successfully rescuing emergency cases, rates of qualified nursing, and hospital infectious rates. Those indicators represent key procedures of diagnosis, treatment, and nursing in outpatient, inpatient and surgical care facilities. Table 2.4. shows the variables for measuring QAI.

Table 2.4. Indicators used for Calculating the Quality Adjusted Index

Indicators	**Si(%)**	**Weights**
Recovery rates of hospitalised patients	=93.7	0.190
Consistent rates of diagnosis before and after discharges	=95.0	0.172
Consistent rates of diagnosis before & after physical operations	=90.0	0.170
Rates of successfully rescuing emergency cases	=80.0	0.185
Rates of qualified nursing work	=90.0	0.172
Hospital internal infectious rates	=10.0	0.126

The above figures for each hospital were substituted into formula (1). Values of QAI of each hospital in 1999 were obtained as listed above. There are no considerable variations in values of QAI among the hospitals. Values of QAI in 1990, 1995, and 1997 were also calculated. Those values are used in the productivity calculation.

Descriptive statistics and unit costs analysis

In the first part of the analysis some background variables concerning total revenues and expenditure were compared with similar data for China and the Shandong and Jiangsu provinces. All revenue and expenditure data was calculated in fixed prices in order to compare figures over time. Hospital expenditure and utilisation trends were compared in order to gauge how representative was the data collected from the two cities. Descriptive data of the hospital expenditure and utilisation was collected for different types of hospitals. The unit costs analysis was performed by calculation of the following measures:

- Out-patient services per doctor
- Bed-days per doctor
- Revenues per health worker
- Occupancy rate for in-patient care
- Average length of stay
- Turnover days
- Cost per out-patient visit
- Cost per in-patient admission

For all these indicators an adjustment has been made for quality and case-mix. For comparison over time all costs were calculated in fixed prices. In addition to the measures above, several other output measures, such as emergency cases, discharged patients, surgical operations etc. were analysed.

Productivity analysis and models for determining efficiency
A problem with unit cost analysis and other descriptive measures of efficiency is how to incorporate and put a weight on several outputs delivered by hospitals. An analysis of the multidimensional activities in which hospitals are engaged, requires methods for concentrating outputs into a single number reflecting performance. A latter technique called the Data Envelopment Analysis (DEA) is used to estimate the efficiency of the hospitals sector. The method is a non-parametric technique which uses linear programming to measure the magnitude of departure from efficiency frontiers for each decision-making unit (e.g. a hospital) based on their use of resources to produce multiple outputs. To put it simply, the DEA is basically a benchmarking practice where the most efficient units form an efficient frontier to which all other units' performance is related.

DEA is a convenient method for several reasons. First, it can handle multiple-output activities. The method does not require the input or the cost side to be expressed in monetary terms. It can use information about inputs such as number of staff and number of beds instead. Hence, factor prices for each input is not a necessary requirement. The DEA method allows for a certain number of total inputs and outputs depending on the size of the sample. As a rule of thumb the sample size (n) should exceed the sum of all inputs and outputs by several times. Hence, different models have been tested where different combinations of inputs and outputs have been used.

In order to explain the changes of hospital behaviour and related performance several explanatory models have been set up. In these models different hypothesis have been formulated regarding which factors (external and internal) influence the behaviour of hospitals. These explanations could be summarised in the following categories:

- Ownership, administrative relations, type of hospital.
- Sources and mix of finance, payment system (external reimbursement).
- Bonus system (year of turning point of methods) and design of general responsibility system (internal incentives and monitoring systems).
- Personnel policy.
- Changes in hospital scales: increase rates of capital input (personnel, beds).
- The dependence of sales of drugs.
- Structure of hospitals and use of hi-technology equipment.

The explanatory models are analysed by using multiple regression analysis where the significant explanatory variables are discussed. Several models are used for different measures of DEA and other performance variables. The basic model could be described by Figure 2.3. below.

2.3.5. Problems and Adjustment of Methodology

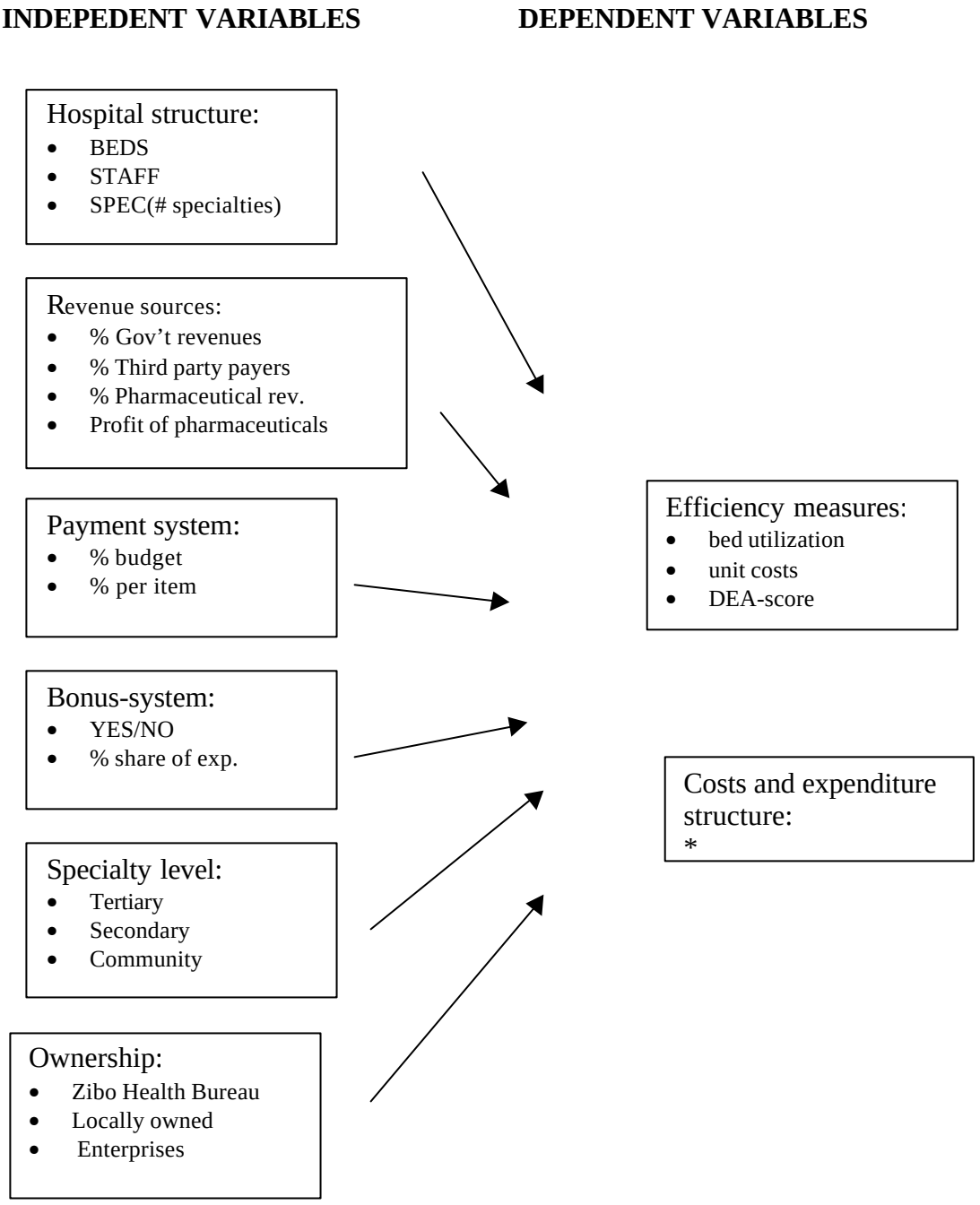
There were a number of methodology-related problems (for example, adjustment) which explains why the study somewhat deviates from the original proposal. As there was a limitation on the sample size and the scope of the study was to focus on the hospital sector

and hospital efficiency, a choice had to be made concerning which categories of hospital to concentrate on. In addition, the study looked at efficiency of urban health reforms, and in the urban areas the hospitals at municipal and county level supply most of specialised care. Hence, it was decided to exclude the community health centres or township hospitals from the sample.

There was also a lack of medical information regarding disease categories and diagnosis for outpatient care, which resulted in some assumptions being made when calculating case-mix for outpatient care. Also the quality indicators had to rely on existing information.

Another circumstance which lay outside the influence of the research team was the late implementation of the new health insurance reform in the city of Zibo. This made it impossible to make a before and after study of the impact of the reform. Still, the situation gave the team an interesting comparison between Zibo and the city of Nantong where the reform had been implemented.

Figure 2.3. A Model for Explaining the Performance of Hospitals' Efficiency



Chapter 3

BACKGROUND INFORMATION

NANTONG CITY, JIANGSU PROVINCE

3.1. GEOGRAPHY AND ADMINISTRATIVE STRUCTURE

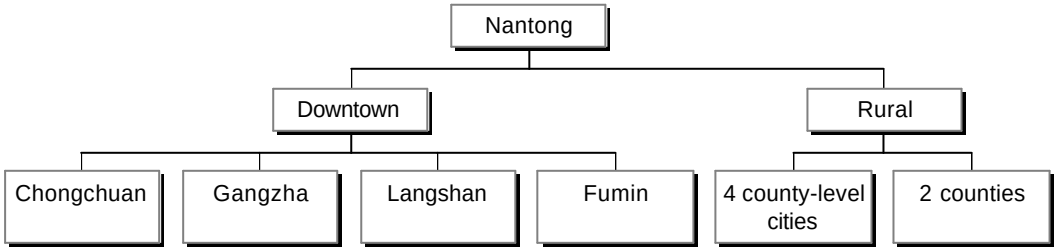
3.1.1. Location and Size of City

Nantong is one of thirteen prefectures in Jiangsu Province, one of the most developed provinces in China. It is located in the southeast corner of Jiangsu, occupying a territory of 8001 $km^{2,}$ and in 1999 had a population of 7.86 million. The prefecture city, or 'downtown Nantong' covers 224 km^2 and has a population of 640 thousand. The Yangtze, the largest river in China, is situated to the south of the city; to its east lies China's Yellow Sea, and to its north and west, Yancheng City and Yangzhou City respectively. Nantong was one of the first of fourteen coastal cities selected by the State Council in 1984 to be involved in international trading and tourism.

3.1.2. Definition of Administrative Divisions

Nantong is comprised of two counties, four county-level cities and four districts. Of the latter, two districts, Chongchuan and Gangzha, are original, and two, Langshan Tourist District and Fumin Harbour Agency, were newly created in the 1990s. These districts constitute 'downtown Nantong', and it is in this area that the detailed studies presented in this paper took place. The canton structure of Nantong is illustrated below.

Figure 3.1. The Canton Structure in Nantong



3.1.3. Population of City and of Administrative Divisions

In China, *urban population* refers to those who are legally allowed to live in cities and towns. *Rural population* indicates those officially registered with a village administrative committee or township/town government. Theoretically, the rural population are not entitled to reside in urban areas. However, since the economic reforms launched in 1978, an increasing number of the rural population have relocated to urban areas in order to obtain more lucrative employment.

Table 3.1 presents data on Nantong's total population (rural and urban) in 1990, categorised by age group and sex. Table 3.2. provides an identical breakdown of the population occupying downtown Nantong.

Table 3.1 Structure of Nantong's Total Rural and Urban Population by Age Group and Sex in 1990

Age group (year)	Male		Female		Total	
	Number	%	Number	%	Number	%
0~	64697	0.84	61081	0.80	125778	1.64
1~	225310	2.94	213802	2.79	439112	5.73
5~	205932	2.69	195880	2.55	401812	5.24
10~	234344	3.06	221139	2.88	455483	5.94
15~	276034	3.60	267168	3.48	543202	7.08
20~	429480	5.60	431794	5.63	861274	11.23
25~	375449	4.90	374501	4.88	749950	9.78
30~	336899	4.39	324232	4.23	661131	8.62
35~	344015	4.49	330677	4.31	674692	8.80
40~	286578	3.74	271654	3.54	558232	7.28
45~	226801	2.96	208496	2.72	435297	5.68
50~	203941	2.66	193303	2.52	397244	5.18
55~	181923	2.37	178276	2.32	360199	4.70
60~	153153	2.00	162283	2.12	315436	4.11
65~	122790	1.60	137934	1.80	260724	3.40
70~	85351	1.11	105856	1.38	191207	2.49
75~	50758	0.66	71821	0.94	122579	1.60
80~	38344	0.50	76217	0.99	114561	1.49
Total	3841799	50.10	3826114	49.90	7667913	100.00

Data source: The Fourth National Population Census (1990), published by the Statistical Bureau.

Table 3.1 reveals that in 1990 almost 9% of Nantong's total population were over 65 years of age, underlining the fact that it is an ageing city. Children under five constituted 7.4% of the total population and childbearing women (15~49 years old) 29.68%.

Table 3.2. Population Structure by Age Group and Sex of Downtown Nantong in 1990

Age group (year)	Male		Female		Total	
	Number	%	Number	%	Number	%
0~	2929	0.61	2831	0.59	5760	1.21
1~	11246	2.35	10981	2.30	22227	4.65
5~	13478	2.82	12769	2.67	26247	5.49
10~	13407	2.80	12567	2.63	25974	5.43
15~	18963	3.97	17812	3.73	36775	7.69
20~	29517	6.18	26560	5.56	56077	11.73
25~	26227	5.49	23583	4.93	49810	10.42
30~	22126	4.63	20432	4.27	42558	8.90
35~	23914	5.00	22976	4.81	46890	9.81
40~	20107	4.21	18438	3.86	38545	8.06
45~	14745	3.08	13047	2.73	27792	5.81
50~	13133	2.75	11898	2.49	25031	5.24
55~	11076	2.32	9812	2.05	20888	4.37
60~	8749	1.83	8323	1.74	17072	3.57
65~	6834	1.43	7226	1.51	14060	2.94
70~	4290	0.90	5372	1.12	9662	2.02
75~	2705	0.57	3596	0.75	6301	1.32
80~	2203	0.46	4114	0.86	6317	1.32
Total	245649	51.39	232337	48.61	477986	100.00

Data Source: As for Table 1

Table 3.2. shows that the population over 65 years old in Nantong downtown areas accounted for 7.6 % of the total, with children under five representing 5.9 %, and childbearing women 23.4 %.

3.1.4. Recent Trends in Population and Migration

The total population in Nantong increased only slightly, from 7.44 million in 1985 to 7.86 million in 1999, owing to the effective implementation of the one child one family policy. However, the urban population rose rapidly (Table 3.3.), due partly to the establishment of more cities (particularly county-level cities), and partly to an increase in legal immigrants from rural areas (*Nong-Zhuan-Fei*) since the mid-1980s. With regard to the unregistered, 'floating population', precise numbers are uncertain due to deficiencies in procedures to manage this population. In 1997, the registered floating population was 246,100 in the Nantong downtown area. However, the actual number may be much more.

Numbers of the so-called 'vulnerable population' have increased. By the end of 2000, 1.27 million residents of Nantong, 16.2% of the total, were aged 60 and over, and in downtown Nantong, over 6110 households or twelve thousand people, 0.2% of the total, were living below the poverty line. Since 1997 the poor have been covered by a local government social security scheme which provides subsidies of 156 yuan per-month per capita to poor families to enable them to meet the lowest standard of living. 7.79 million yuan of social security funds subsidised this scheme in 1997. In 2000, 410000 people, or 5.2% of the population, were registered disabled. Each level of government has programmes for their rehabilitation and employment.

The birth rate, IMR and MMR are all lower than the national average level. The birth rate has declined since 1989, whilst the mortality rate has remained steady at around 7 per 1000 people. This has led to a decline in the natural increase rate of the population over the past decade to a level of just 0.35 per 1000 in 1999. Although the IMR rose between 1986 and 1990, generally speaking it has remained low, declining from 19.3 per 1000 live births in 1990 to 12.70 per 1000 live births in 1998. This phenomenon is most likely due to inherent weaknesses in the death reporting system, resulting in mis-reporting. Instances of this were greatly reduced after 1990 with the implementation of the Primary Health Care (PHC) programme, which strengthened the collection and management of statistical data relating to health.

The maternal mortality rate (MMR) has varied tremendously, being 18.2 per 100,000 live births in 1997, but remaining at zero in many other years because of the low birth rate. With regard to urban/rural variations, in 1997, the IMR was 37.7‰ in rural areas and 13.1‰ in urban, whilst the MMR was 80.4/100000 in rural areas, 38.3/100000 in urban.

Table 3.3. Population Changes in Nantong, 1985 - 1999

Year	Population(*10,000)		Birth and mortality rate(‰)			
	Total	Urban	Birth	Mortality	Natural increase	IMR
1985	744.72	152.37	9.66	6.64	3.02	---
1986	749.07	149.73	12.83	6.74	6.09	11.82
1987	755.75	137.13	15.37	6.75	8.62	13.44
1988	762.48	145.84	14.90	6.59	6.31	15.37
1989	770.54	151.42	16.40	6.50	9.90	17.61
1990	776.01	153.39	14.80	7.00	7.80	19.30
1991	778.84	155.67	11.24	6.71	4.53	15.64
1992	779.86	161.65	10.05	7.11	2.94	15.27
1993	781.20	191.13	10.19	6.99	3.20	---
1994	782.43	203.47	10.17	7.00	3.17	---
1995	784.24	211.61	10.37	7.17	3.20	---
1996	785.24	340.24	9.00	7.09	1.91	---
1997	786.30	244.36	8.68	6.97	1.71	12.54
1998	787.49	247.21	9.15	7.53	1.62	---
1999	785.99	248.46	7.53	7.18	0.35	---

Data Source: Statistical Bureau

The IMR, mortality rate of under fives (U5MR) and MMR from 1990 to 1998 in downtown Nantong are shown in Table 4. These indicators are all lower than the national average level, for example, in 1995 the U5MR was 44.5‰ in the whole population and 16.4‰ in urban. Generally speaking, the three mortality rates in Nantong are all at quite low levels in the downtown area, although fluctuations have occurred in some years.

Table 3.4. IMR, U5MR and MMR in Downtown Nantong, 1990 to 1998

Year	IMR(‰)	U5MR(‰)	MMR(1/100000)
1990	6.42	--	21.82
1991	7.62	--	23.44
1992	12.94	15.91	21.21
1993	15.60	18.23	20.26
1994	8.38	9.94	0
1995	9.36	11.08	0
1996	10.70	13.91	0
1997	10.21	12.52	23.19
1998	10.02	12.70	0

Data Source: Health Bureau

3.2. SOCIAL AND ECONOMIC SITUATION

3.2.1. Structure of the Economy and Recent Trends

In recent years huge changes in the Nantong economy have taken place (see Table 3.5.). From 1986 to 1999 in downtown Nantong, GDP increased 7.47 times and per capita GDP 6.21 times. In the same period, residents' income has also improved. The average income of downtown residents was 8835 yuan in 1999.

Table 3.5. GDP and Per Capita GDP in Downtown Nantong, 1986-1999

Year	GDP (10000 yuan)	GDP/person (yuan)	Year	GDP (10000 yuan)	GDP/person (yuan)
1986	180431	3415	1993	521795	8834
1987	204131	3796	1994	703704	11738
1988	249285	4556	1995	910307	15034
1989	247854	4436	1996	1085952	17643
1990	315109	5524	1997	1184739	18895
1991	361133	6259	1998	1239755	19496
1992	448497	7710	1999	1348116	21218

Data Source: Statistical Yearbook of Nantong 2000

Table 3.6. presents a breakdown of numbers of employees and average salaries in public and government institutions and various types of enterprise in downtown Nantong in 1997. It reveals that there are a total of 2053 business units in Nantong, and that the average annual income of employees was 8032 yuan. The average salary of employees was 10,488 yuan. The highest income, 17,749 yuan a year, was derived from joint-ventured enterprises, and the lowest, 6241 yuan a year, from collective-owned enterprises. The latter figure is still higher than the average yearly income level of employees in Chinese cities, which amounts to about 4000 yuan. The above indicators confirm that businesses and employees can support a health insurance premium.

Table 3.6. Number of Employees and Average Salaries in Enterprises and Public and Government Institutions in Downtown Nantong in 1997

Category	Number of units	Number of employees	Total salary (million)	Salary per person (yuan)
Public & government institutions	636	41973	395	9402
Government institutions	178	9535	108	11285
Public institutions	458	32438	287	8848
Enterprises				
State-owned	404	100172	770	7684
Collective-owned	575	46214	288	6241
Joint ventured	15	3177	56	17749
Stock shared	196	26040	220	8458
Foreigner invested	133	25091	230	9159
HK, Taiwan & Macao	80	10011	70	7023
Others	14	268	2	7485
Total	2053	252946	2032	8032

Data Source: Statistical Bureau

Table 3.7. reveals that back in 1985 people in downtown areas in Nantong spent very little on health care, since a vast majority of the urban population were covered by work-related health insurance schemes. However, in the ensuring years people have had to pay an increasing amount of money for their medical care costs. In 1999 every household spent almost 4% of its annual expenditure on health care, and it is likely that the trend for people to pay greater amounts out of pocket will continue in the future.

Table 3.7. Household Yearly Expenditure Structure per Capita in Downtown Nantong

Category	1985	1990	1995	1999
Net income (yuan)	974.04	2195.11	6728.84	8835.39
Consuming expenditure (yuan)	732.72	1551.19	4318.61	5835.10
1. Foods	405.12	875.37	2443.43	2574.78
2. Clothes	106.80	198.55	439.65	481.23
3. Family facility and service	92.16	190.93	307.83	444.74
4. Health care and medicine	0.96	17.01	90.01	215.63
5. Transportation and communication		10.23	191.16	358.62
6. Entertainment and education services	48.84	93.84	419.24	810.33
7. Accommodation/House rent	3.36	44.18	250.28	531.89
8. Other goods/services	61.44	121.10	177.02	417.88

Data Source: Statistical Bureau

3.2.2. Economic Situation and Enterprise Reforms

Twenty years of economic reforms have boosted Nantong's economy and led to a surge in development. In 1978, the GDP in Nantong was only 293.9 million yuan; by 1997 it had reached 5774.3 million. This represented a 6.5 fold real increase, or 11% per anuum. This

rapid economic growth has had significant implications for the structure of the economy and of industry.

With the introduction of economic reforms in 1978, the unique, public-owned economic system collapsed and in its place developed the present-day economy in which multiple economic systems co-exist. This system includes state-owned, collective-owned, private-run, joint-ventured, stock-sharing, foreign-backed, and Hong Kong, Macao, Taiwan-supported enterprises. Table 3.8. demonstrates the proportions of annual product values for each kind of economic form against gross industrial products in Nantong for the period 1978 - 1997. It is evident that during this period the non-public owned economic forms developed enormously, their product value rising from a little over 0% of total products to 36.6%.

Table 3.8. Annual Product Values of Various Types of Enterprise against Gross Industrial Value in Nantong, 1978 to 1997

Year	Gross value	State-owned	Collective-owned	Other kinds
1978	100	59.9	40.0	0.1
1980	100	52.9	47.1	0.0
1985	100	41.1	58.5	0.4
1988	100	34.2	62.3	3.4
1990	100	33.3	59.0	7.6
1995	100	20.0	52.3	27.5
1997	100	16.5	46.9	36.6

Data Source: Statistical Bureau

In 1997 profits from industrial enterprises stopped falling as a whole. Gross industrial products began to rise, especially in large and middle-scale enterprises, and by 1999 the total industrial profit of such enterprises was 1.07 billion yuan, 82.8% of total industrial profit in Nantong. However, many middle and small-scale enterprises, especially those which were state or collective-owned, faced many difficulties and operated in minor profit or at a loss. As a result, the number of laid-off workers rose, and some lower income urban residents were forced to subsist in very poor conditions. Low profits led many enterprises to withdraw from social security schemes, since their budgets could not extend to employee medical insurance. Participation rate in such schemes stands at less than 20% of enterprises.

Reform has also taken place in the labour field. In 1997, 24,380 unemployed workers in Nantong urban areas re-obtained their jobs, of which 10,436 live in downtown Nangtong. The re-employment rate for laid-off employees was 54.4% in downtown areas, and by the end of 1997 Nantong's unemployment rate stood at 2.3%. Insurance schemes for the elderly and unemployed have been established and are working well.

3.2.3. The Vulnerable Population

There is increasing evidence that the poorer, more vulnerable sectors of Nantong, the aged without fixed income, workers in loss-making enterprises, and laid-off workers are experiencing difficulty in accessing health care. The floating population are mainly young and in good health, but they suffer particularly from common diseases such as gastro-intestinal infections.

3.3. ORGANISATION OF LOCAL GOVERNMENT AND TRENDS IN MUNICIPAL FINANCE

3.3.1. Structure of the Government Administrative System

As described in Figure 3.1., the governance system in Nantong has three levels: municipal; county and district; and township. Township government is the lowest government agency in China. Below this level, village committees for agricultural and other related affairs assist the township government in rural areas. County (and county-level city) governments are the highest form of government in rural areas. In downtown Nantong, the districts are managed by their respective district governments. The lowest most basic form of government agency in downtown areas is the street committee. The Neighbourhood Commission is responsible for affairs in residential areas and assists the street agencies. Municipal government is the highest level of government in Nantong City. It is the general governing organisation and is comprised of a series of bureau dealing with affairs relating to the whole city.

3.3.2. Trends in Total Government Revenue and Expenditure

Prior to 1994 Nantong collected taxes (as set by the national government) and transferred a proportion to higher levels of government (Table 3.9.). Nantong is a relatively rich locality and it only retained around a third of its tax revenue for local services. Since that time Nantong has been permitted to impose local taxes that are not subject to the rules of fiscal transfer. It also collects extra-budgetary revenue from fees and other payments by individuals and enterprises. Budgetary revenue and local taxes and extra-budgetary revenue have both risen sharply. However, the latter has risen more quickly and Nantong now retains a much higher proportion of revenue for local use.

Table 3.9. The Municipal Financial Balance in Downtown Nantong, 1985 to 1999
current price *10000 yuan RMB

Year	Budgetary income		Extra-budgetary income	Local financial expenditure
	Total	Local		
1985	37023		795	8743
1986	36217		571	12976
1987	39273		901	12705
1988	43361		1046	15820
1989	46688		1132	17552
1990	48576		977	18844
1991	48991		1203	21065
1992	52752		2505	21526
1993	75346		2264	29496
1994	88003	42785	2052	42021
1995	100271	52161	3105	55136
1996	107676	54177	3782	61319
1997	132773	65833	4474	76634
1998	152666	83134		90777
1999	174540	93875		105252

Data Source: Statistical Bureau. In 1998 and 1999, extra-budgetary income was not listed separately, but included in local budgetary income.

3.3.3. Health Financing

Table 3.10. outlines the sources of general health expenditure in Nantong in 1997. Government health budgets up to 1997 did not increase significantly, whereas total health expenditure rose rapidly. (For a comprehensive discussion of this topic, see Chapter 5: Financing Access to Health Services).

In downtown areas, municipal government health expenditure from 1988 to 1997 increased in terms of the amount, mainly due to the Government Insurance Scheme (GIS) and health insurance schemes, but the percentage of government budget expenditure allocated to health was low. See Table 3.11.

Table 3.10. The Estimated Total Health Expenditure in Nantong in 1997 (*10000 yuan)

Items	1997
GENERAL HEALTH EXPENDITURE	178787
GOVERNMENT BUDGET	26751
SOCIAL HEALTH EXPENDITURE	74966
INDIVIDUAL HEALTH EXPENDITURE	77070
Urban residents	28510
Rural residents	48560
GDP (100 million)	580
GHE/GDP (%)	3.1
GHE per capita (yuan)	227.46

Data Source: Health Bureau

Table 3.11. Government Health Expenditure in Downtown Areas, 1988~1997(*10000 yuan)

Year	Health operating budget	Budget for TCM	GIS or health insurance	Total	Share of government budget %
1988	521	55	357	933	5.90
1989	706	54	459	1219	6.95
1990	829	103	531	1463	7.76
1991	1031	86	633	1750	8.31
1992	1079	94	787	1960	9.11
1993	1008	90	1154	2252	7.63
1994	2080	147	1495	3722	8.86
1995	2109	142	1895	4146	7.52
1996	2689	146	2385	5220	8.51
1997	2893	187	2960	6040	7.88

Data Source: Health Bureau

Table 3.12. shows the financial status of Nantong's urban and country hospitals in 1990, 1995 and 1999. The urban hospitals include the general hospitals located in the prefectural city, and the county hospitals indicate county and county-level city hospitals.

In 1999 the total income in urban hospitals was lower than in 1995. This decrease in income is attributable to health service reform. To elaborate, since government subsidies are low,

and have actually decreased in some years, hospitals rely heavily on drug sales to generate profits, leading to their over-prescription. (In both urban hospitals and county hospitals, drug-sale income accounts for over half of the total income, and expenditure on drugs takes up more than half of the total expenditure). The Ministry of Health was aware of this practice, and at the end of 1996 set out to control cost increases. It was hoped that this measure would support the implementation of the employees' health insurance scheme, introduced in April of the following year, which set as a priority the control of health expenditure. However, these reform measures had little impact since the price system of the health service was left untouched, and in 1999 the deficit of income against expenditure increased in urban hospitals.

If hospitals are to generate sufficient income to cover their operational expenses without recourse to excessive drug sales - an inefficient tactic considering the balance of medical service income and expenditure was negative in urban hospitals in all three years - the price system of the health service must be reformed.

It should also be noted that in 1995 county-level city hospitals were included in 'urban hospitals', but were excluded in 1999. Unsurprisingly, the reported income in county hospitals in 1999 was almost six times greater than in 1995.

Table 3.12. Hospital Income and Expenditure in Nantong in Fixed Years (*10000 yuan)

Item	Urban hospitals			County hospitals		
	1990	1995	1999	1990	1995	1999
Total income	**5259**	**27858**	**25772**	**4728**	**7740**	**43452**
1. Medical service	1726	9799	11301	1644	2792	16548
2. Pharmacy	3084	14613	13768	2649	4097	25508
3. Pharmaceutical income	157	616		150	249	
4. Others	292	2830	703	284	602	1394
Total expenditure	**4954**	**28458**	**28329**	**4480**	**7539**	**42990**
1. Service cost	1940	13586	15617	1759	3595	22259
2. Drugs	2906	14394	12156	2582	3779	20117
3. others	108	478	512	139	165	614
Balance	**305**	**-600**	**-2557**	**248**	**201**	**462**
1. Medical service	-214	-3787	-4317	-115	-803	-5711
2. Drugs	178	219	1612	67	318	5391
4. Others	341	2968	148	296	686	782
Government complement	**402**	**1506**	**3029**	**399**	**289**	**2709**
Owed by patients in this year	**69**	**148**		**13**	**10**	
Surplus after allocation in last year	**0**	**-80**		**0**	**0**	**-129**
Surplus	**638**	**678**	**472**	**634**	**480**	**3171**
Allocation of surplus						
Development fund	282	462	283	335	269	1905
Collective welfare fund	153	103	189	95	87	1273
Bonus fund	185	60		174	109	
Manager's fund	18	53		30	15	

Data Source: Health Bureau

3.3.4. Reorganisation of the Government Sector

In 1999, central government launched a government sector reform programme. The key goal of this programme was to simplify the administrative structure, reduce the number of government employees and increase operative efficiency. In order to be consistent with higher levels of government, some bureau have been combined or their functions reoriented following provincial and central government reorganisation. However, the reform of personnel and internal issues commenced relatively recently. The Social Security Department and the Labour Department were combined into the Labour and Social Security Bureau, which is responsible for labour force employment, and social security affairs, such as pension/unemployment/health insurance. Health insurance was originally organised and managed by the Health Bureau. This adjustment could be advantageous in that the separation of management and service will reduce the risk of policies favouring health providers. However, a disadvantage also exists: the health sector may overly encourage the use of its health facilities, over-providing health services, to ensure their survival. Co-ordination between these two sectors will be very important for the newly established health scheme.

3.4. ORGANISATION OF THE HEALTH SECTOR

3.4.1. Organisation of Municipal Government Health-Related Departments

Health-related departments in Nantong mainly are Labour and Social Security Bureau, -Financial Bureau, Family-Planning Committee, Bureau of Civil Affairs. These bureau influence health sector in different aspects. Labour and Social Security Bureau is responsible for reform of Health Insurance Scheme, but health sector provides services to those participants. Financial Bureau is in charge of allocating health budget which is an important source of income to health facilities, particularly in current situation that many health service prices are lower than their cost and pricing right is still handled by government. Family planning Committee is for the population control. Family planning services were originally the responsibility of health facilities. However, in many places, there is another service system belong to family planning department providing the services. Bureau of Civil Affairs makes policies to provide some helps to those vulnerable groups, including subsided health services.

3.4.2. Structure of the Municipal Health Department

The following departments are responsible for health administration, the Labour Insurance Scheme (LIS), the Government Insurance Scheme (GIS), civil affairs and family planning.

A. *Municipal level*: The Health Bureau, the Office of GIS, the Centre of Medical Insurance Fund Administration, the Bureau of Civil Affairs, and the Family Planning Commission.
B. *County level*: As for the municipal level.
C. *District level*: The Health Bureau, the Bureau of Civil Affairs, and the Family Planning Commission.

The administrative network of the health system in Nantong is illustrated in Figure 3.2.

In October 1998, the State Council decided that the new Ministry of Labour and Social Security should take responsibility for health insurance, a task previously handled by the Ministry of Health. In Nantong a Municipal Health System Reform Office was established

within the Municipal Health Bureau, and to date it remains in charge of health insurance reform. The Municipal Health Bureau is the health administration unit in Nantong. It supervises the district and county level health bureaux and directly manages the municipal level health facilities. It also partly manages the affiliated hospital of Nantong Medical College in accordance with directives of the Jiangsu Provincial Health Department and the Nantong Municipal Government. The divisions of the Municipal Health Bureau and their specific duties are outlined in Table 3.13.

Figure 3.2. Management Structure of Nantong's Health System

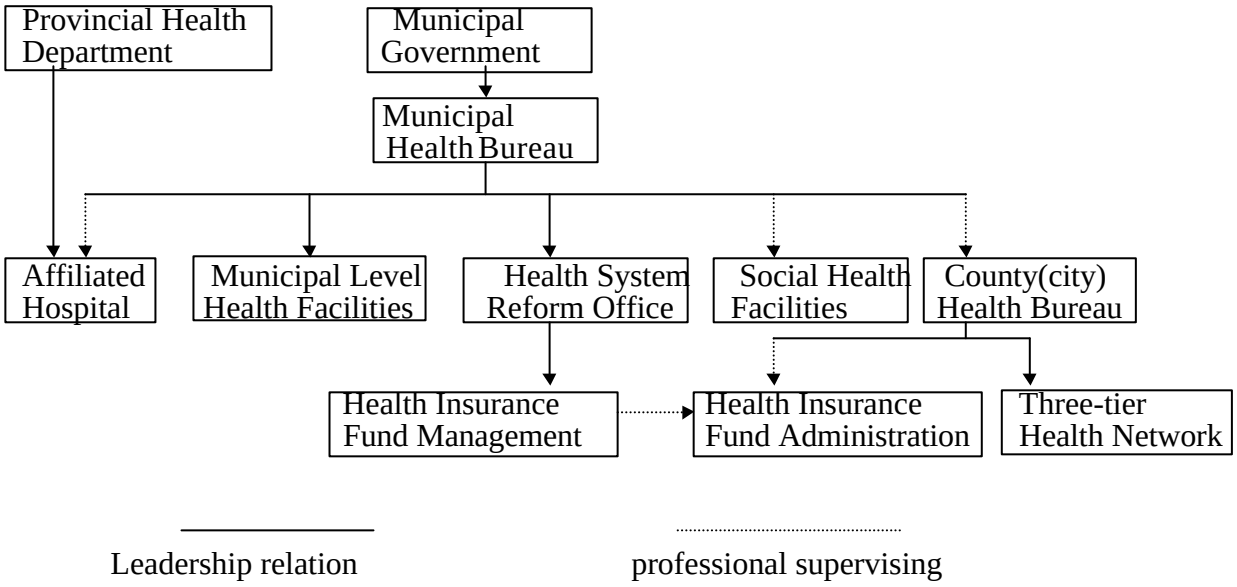


Table 3.13. Duties of the Divisions in Nantong's Municipal Health Bureau

Divisions	**Functions**
General Office	Secretarial; co-ordination; internal affairs administration; safeguard, etc
Medical administration	Hospitals; PHC; medical services; nursing services; regional health programme
Pharmaceutical Management	Pharmaceutical service (including manufacture, supply and use)
Prevention Management	Administration of disease control (social health); prevention of endemic diseases
MCH Management	Administration of MCH service
Traditional Chinese Medicine management	Administration of Traditional Chinese Medicine facilities and pharmaceuticals
Research and Education	Medical research and education
Personnel management	Administration of personnel and professional promotion

Data Source: Health Bureau

3.4.3. Organisation of Preventive Programmes

There are three units for preventive services: The Anti-Epidemic Station, The Maternal and Child Healthcare (MCH) Station, and the STD Surveillance Centre. The Anti-Epidemic Station is responsible for disease prevention and control, which includes children's immunisation programmes, disease epidemic surveillance, environmental health and so forth. The MCH Station is the key facility for maternal and child healthcare; its functions include the surveillance of children's growth, perinatal services, and the prevention and treatment of women's disease. The STD Surveillance Centre records and examines STD epidemics, and provides health education related to STDs. These facilities organise all preventive programmes.

At present, very few preventive programmes are being implementing in Nantong. A TB control programme was introduced a few years ago, but has now been closed. There are currently no other specific programmes related to disease prevention.

3.4.4. Health Facilities

In China, the Ministry of Health has divided all of the hospitals into three categories with regard to their technical capacity: Grade I, II and III. In Nantong, there are 328 hospitals and township health centres (THC) located in the municipal, district, county and township levels, of which 10 hospitals are run by institutions and enterprises. Among those hospitals and THCs, there are 3 tertiary hospitals (Grade III) located in the downtown areas, and 20 secondary hospitals (Grade II), of which three are located in the downtown area. There are 284 primary hospitals (Grade I), 13 being located in the downtown area (Table 3.14.).

Table 3.14. Health Facilities in Nantong 1998

Category	Total	Health Sector	Other Sectors
Hospitals	328	318	10
Municipal level	9	9	
District level	2	2	
County level	22	22	
Township health centres	285	285	
Sanatoriums	1		1
Clinics	1		1
Special disease control centres	9	9	
Health and anti-epidemic stations	11	10	1
Maternal and children health centres (MCH)	7	7	
Other health facilities	902	48	854
Private-run clinics	832		832
Village health stations *	4074		

Notes: No village health stations in Nantong are public institutions. A vast majority of the village health stations are probably owned and run by the village collectives. Some of the township health centres are public institutions, but others are collective-owned. (Information provided by the Health Bureau).

There are 33,494 health personnel (not including village clinics) in Nantong and 19,649 beds. Of these only 6,205 health workers (18.5%), and 1019 beds, (5.2%) are in preventive, MCH, facilities (Table 3.15.). The total number of health workers in Nantong hospitals is 27,289

(81.5%). Of these, 21428 (78.5%) are health technicians. 5264 health workers (19.3%) are employed in downtown facilities. Of the total beds in health facilities in Nantong, 18,630 (94.8%) are allocated to hospitals. 3,646 hospital beds are in urban areas, accounting for 19.6% of all hospital beds.

Table 3.15. Hospital Beds and Staff of Health Institutions by Levels in 1998

Category	Beds	Health personnel			
		Total	Health technician	Other technician	Logistics
Hospitals(including employee hospitals)	18630	27289	21428	88	3202
Municipal level	3480	5020	3635	61	805
District level	166	244	191	0	23
County level	3995	6097	4567	27	1019
Township health centres	10258	14971	12296	0	1239
Sanatoriums	150	46	20	0	22
Clinics	0	17	13	0	2
Special disease control centres	330	215	133	0	41
AES	12	738	542	10	92
MCH centres	0	188	142	2	12
Other health service facilities	527	4169	3259	166	420
Private-run clinics	0	832	832	0	0
Village clinics	0	7065	7065	0	0
Total	19649	40559	26369	266	3791

Data Source: Health Bureau

3.4.5. Utilisation of Health Services

A 1996 survey of the urban population found that the outpatient visit rate over a two week period was 204.26 per 1000 people, and the inpatient admission rate over one year was 53.69 per 1000 people. In 55% of cases of ill-health in a two week period, people did not seek health care, in 9% of referred cases over one year, hospital treatment was required but did not result in admittance.

Table 3.16. shows the number of outpatient visits and inpatient admissions in various types of health facility in Nantong in 1999. Township health centres, utilised predominantly by the rural population, are the most important health providers. County general hospitals are the second most important health providers, the majority of their users again being rural residents. The municipal level hospitals are the primary health providers for the urban population. The data presented in the table reveals that the bed-occupancy rate in Nantong hospitals is not high, especially in the district general hospitals; in 1999 it was only 27%, far lower than in other hospitals.

In general, the higher the level of health facility, the higher the charges for outpatient and inpatient services, and of these fees, the problem of over-prescribing means that a major proportion will be for drugs. About 68 - 72% of fees charged for outpatient visits and 47 - 68% of fees charged for inpatient care were for drugs. The average costs for health services in different health facilities are also quite high. An outpatient visit costs more than 100 yuan in county and higher level hospitals. See table 3.17. for details.

Table 3.16. Utilisation of Medical Services at Specific Levels in 1997

Category	Outpatient visits	Inpatient admission	Occupied bed-days	bed-days per inpatient	Occupancy rate %
Municipal level	1350833	51424	994643	19	76
District level	65012	580	16316	35	27
County level	8264289	73433	886131	12	66
Township health centres	5716517	170776	1283191	7	35
Total	15396651	296213	3180281	10.74	--

Source of data: Health Bureau. NB. Unable to separate patients' utilisation into urban and rural.

Table 3.17. User Fees for Outpatient and Inpatient Services at Specific Levels in 1997

Category	Fee per outpatient visit (yuan)		Fee for inpatient (yuan)		
	Total	Drug fee(%)	Per day	Drug (%)	Per inpatient
Municipal level	145	58	308	50	5046.7
Municipal Hospitals	149	57	312	47	5135
TCM hospitals	123	67	230	54	3495
County hospitals	107	64	196	59	2334
County TCM hospitals	71	68	431	55	5258
Township health centres*	47	72	123	68	972

* Data in 1997

Data Source: Health Bureau. NB. Cost of inpatient service in county TCM hospitals may be a statistical mistake.

3.4.6. Disease Patterns of Admission and Causes of Death

According to a national survey in 1992, the leading five causes of death in Nantong during the period 1988 -1991 were respectively, malignant tumor, respiratory system diseases, cerebro-vascular diseases, heart disease, and injury and toxicosis, both in the downtown area and in the city as a whole. Table 5 shows the leading causes of death in Nantong in 1999. In downtown Nantong, the leading five diseases account for 80.13% of total deaths. The principal cause of death is from chronic diseases, indicating that the disease pattern in Nantong has changed since ten years ago. In 1999, the causes of death are similar. In the first ten leading causes, nine of them are non-communicable chronic diseases (NCD), but infectious disease still ranks at 7. Mental illness is also prevalent, especially among women. Average life expectancy is 75.30 - 73.01 for men and 78.30 for women. Please refer to Table 3.18.

Table 21 shows the disease classification in eight urban general hospitals (including county-level cities) in Nantong in 1998. In a departure from the death pattern, digestive system disease ranks number one, with pregnancy, bearing and puerperium complications ranking third. Injury and toxicosis ranks second, and has the highest total admission days. Thus, even though the death pattern in Nantong is due predominantly to non-communicable chronic diseases, acute and infectious diseases are still important causes of people's ill health.

Table 3.18. The Ten Leading Causes of Death in Nantong in 1999

Rank	Male	Female	Total
1	Malignant tumour	Respiratory system diseases	Malignant tumour
2	Respiratory system diseases	Malignant tumour	Respiratory system diseases
3	Cerebro-vascular diseases	Cerebro-vascular diseases	Cerebro-vascular diseases
4	Heart disease	Injury and toxicosis	Heart diseases
5	Injury and toxicosis	Heart diseases	Injury and toxicosis
6	Digestive system disease	Digestive system disease	Digestive system disease
7	Infectious disease	Mental disease	Infectious disease
8	Neonatal disease	Infectious disease	Mental disease
9	Urinary system	Neonatal disease	Neonatal disease
10	Mental disease	Endocrine and immunology	Urinary system

Data Source: Nantong Statistical Yearbook 2000

Table 3.19. Disease Classification of Inpatients in 8 Urban Hospitals in Nantong in 1998

Rank	Classification of diseases	Patient Number	%	Total bed-days	%
1	Digestive system	10493	15.07	124385	13.19
2	Injury and toxicosis	10218	14.68	146770	15.56
3	Pregnancy, bearing, puerperium complications	9968	14.32	66380	7.04
4	Respiratory system	8756	12.58	107882	11.44
5	Tumor	7430	10.67	146295	15.51
6	Circulatory system	5912	8.49	124831	13.24
7	Urinary and reproductive system	3764	5.41	56163	5.96
8	Neuro-system and feeling organ	2644	3.80	36788	3.90
9	Infectious and parasite	2209	3.17	45832	4.86
10	Muscular, skeleton and connective tissue	1401	2.01	22721	2.41
11	Derivation from perinatal period	1013	1.46	8928	0.95
12	Endocrine, nutrition, metabolism and Immunology	881	1.27	20861	2.21
13	Congenital abnormal	734	1.05	9552	1.01
14	Blood and hemopoiesis system	710	1.02	12143	1.29
15	Diagnose unclear	632	0.91	6433	0.68
16	Dematosis and hypoderm disease	429	0.62	5821	0.62
17	Mental disorder	96	0.14	1321	0.14
18	Others	2324	3.34	0	0.00
	Total	69614	100.00	943106	100.00

Data Source: Nantong Health Bureau

The pattern of death causes has changed with chronic and non-communicable diseases becoming the leading cause of death. However, infectious and parasitic diseases remain the major factors affecting people's health. The chief priority of the health care system must be to strengthen disease prevention efforts, particularly with regard to controlling the incidence of infectious diseases, especially intestinal infectious disease such as viral hepatitis and dysentery.

3.5. HEALTH SECTOR REFORM

3.5.1. Health Sector Problems

The main problems with the health care system in Nantong are:

- Governmental health investment is Iow. This not only obliges hospitals to operate chiefly on their health service income, resulting in rising health costs, but the paucity of funds for development has led to severe deficiencies in service provision.

- The price system of the health service has not been reformed. Health facilities continue to rely on drug sale profits to cover their operational expenses. Consequently, almost all of the health facilities in China tend to over-prescribe drugs, a malpractice which has serious implications for both costs and service quality.

- Disease prevention efforts are severely deficient. There is a lack of emphasis on public awareness campaigns, and Nantong residents have minimal knowledge about health. They are therefore unlikely to invest more on health care, instead continuing to rely on the Government Insurance Schemes (GIS) and the Labour Insurance Scheme (LIS). Consequently, the health condition of the general population continues to deteriorate, and the incidence of disease to rise.

- The vulnerable population - the aged without fixed income, workers in loss-making enterprises, and laid-off workers - are experiencing difficulty in accessing the increasingly expensive health care system.

3.5.2. Recent Reforms

In recent years, the Nantong government has launched a series of health reforms focusing on three areas: personnel administration; hospital management; and the disease prevention system.

1. Reforming Personnel Administration

Previously, college graduates coming to Nantong upon graduating from medical school were allocated to health facilities with available positions. Now, before they are assigned to an appropriate post, all graduates must sit an examination to test if they are qualified for the position.

Another personnel reform is the separation of title and appointment. In the past, a health professional was granted a certain title for his/her qualification, and a relevant position and salary. Now, titles confirm that one is qualified for a certain position, but if there are a number of candidates, all of them must compete for the post. This encourages all health workers to work harder at their current positions. If an employee breaks a health regulation, he may be dismissed from his current position and will have to await another opportunity.

2. Hospital Management

Reform policies relating to hospital management concern the following: categorised hospital administration (different regulations governing different types of hospital - profitable and non-profitable, Grade 1, 2 and 3); the separation of income and expenditure (hospitals cannot retain all income from drug sales); aggregated purchase of medicines through competitive tender (this will be beneficial with regard to controlling irregular behaviour in the sale of medicine).

3. Separation of Disease Prevention and Surveillance

Previously disease control and prevention and enforcement of public health laws were integrated in preventive facilities, such as anti-epidemic stations, and health bureau. These two functions have been separated and fall under the remit of two institutions, the Centre for Disease Prevention and Control, and the Institute of Health Surveillance.

3.5.3 Plans for Additional Reforms

In Nantong, the major problem facing the health system is the low efficiency of health services. In order to remedy the situation, the Nantong municipal government has recently issued a formal document to launch the regional planning of health resources. This work has been assigned to the municipal Health Bureau. The Health Bureau is now proposing a programme to reorganise the health resources in downtown Nantong as the first step to implementing the regional plans. The key points of the proposal are to adjust the service functions of each health facility, and to merge some hospitals together to form several medical groups assembled in different ways (some close, some loose), so as to achieve the best possible allocation of health resources. An additional plan is to establish a unified system for hospital logistic services to reduce service cost and optimise health resource allocation.

ZIBO CITY, SHANDONG PROVINCE

3.6. GEOGRAPHY AND ADMINISTRATIVE STRUCTURE

3.6.1. Location and Size of City

Zibo is one of seventeen prefectures in Shandong Province, an eastern province with a population of 90 million, making it the second largest in terms of population size. There are 139 counties within the 17 prefectures, and 2,310 townships. Zibo occupies an area of 5,900 km² in the central part of the province. In 1999, Zibo's total GDP was 854 billion Chinese yuan, a per capita GDP of 9,488 yuan. The per capita income of the urban population was 6,490 yuan, and that of the rural population 2,660 yuan. Numbers of bankrupt enterprises and unemployed have steadily increased in recent years. In 1999, official statistics revealed that 20% of enterprises were declared bankrupt, and 450,000 people were registered unemployed.

3.6.2. Definition of Administrative Divisions

Zibo is organized into 3 counties (Huantai, Yiyuan, and Gaoqing) and 5 districts (Zhangdian, Zhoucun, Boshan, Zichuan, and Linzi). In terms of political administration and management, the district and county are at the same level. In 1999, there were 120 township-level organizations under the 8 districts and counties and 3,500 villages within the townships. Unlike other prefectures, the central city is scattered; Zibo is actually composed of five satellite cities.

3.6.3. Population of City and of Administrative Divisions

In 1999, there were 4.08 million registered residents in Zibo. These can be divided into two groups: urban and rural. The urban residents account for 34.5 % of the total population, and live mainly in the cities (the location of the district and county governments). Rural residents reside primarily in the villages, and make up 65.5% of the population. In 1999, there were 1.3 million households in Zibo, with an average of three people in each household. Zichuan is the most populated district with 670,000 residents, and Zhoucun the least with 310,000. Table 3.20. shows that although the natural rate of population has declined since 1980, the number of urban residents has mushroomed, especially between 1995 and 1997. In 1980, urban residents totalled 0.66 million; by 1999 this figure had leapt to 1.75 million. This rapid increase is attributable to population movements resulting from urbanisation, together with changes in business labour policies.

Table 3.20. Population Numbers in Selected Years

Years	Total population	Urban population (10,000)	Rural population (10,000)	Natural growth rates *(%)*
1980	340.41	65.69	247.72	12.94
1985	358.43	84.40	274.03	10.18
1990	380.99	99.22	281.77	9.36
1995	393.94	121.95	271.99	6.97
1997	401.03	173.86	227.17	6.78
1999	407.98	174.54	233.34	4.42

Data Source: Zibo Statistical Yearbook, 2000

In recent years, large numbers of migrants have been attracted to urban areas. These originate from rural villages within Zibo, or outside.

The Department of Police is the government agency responsible for population administration. Police stations and bureaux are responsible for registering all members of the population, including the floating population, within their own demarcated administrative area. Within this area each institution is responsible for reporting changes in resident numbers to the police station. The Department of Police then reports this data to the Department of Statistics. Thus, government agencies can obtain population information from either department.

3.6.4. Recent Trends in Population and Migration

Accurate information on the floating population was not available, because there is no system in Zibo for recording their exact numbers. According to government regulations, all those moving to a place and remaining for over one month must register with the local police

station. However, large proportions of migrants do not adhere to this regulation for various reasons. Short-term migrants (2 - 3 months) especially tend not to report to the police station. Hence, the accuracy of numbers of floating population on the registration books is determined by the cooperation of the migrants themselves.

This household registration system is the chief barrier to population movements. Non-registered residents in urban cities are not covered by any social insurance system. Whether they have any insurance status at all is determined solely by their employer - if they have been fortunate enough to secure a job. It is in fact extremely difficult for rural people to find permanent jobs in urban cities, because most jobs are reserved for urban residents. However, there are plans in the near future to completely overhaul the household registration system in China. In some big cities, the dual systems of urban and rural registration have already been phased out. In Guangdong, for instance, the boundary between rural and urban residents has been removed. People can relocate anywhere within the province, and are eligible for social insurance benefits regardless of their original place of residence. This reform has provided an environment that is highly conducive to the free movement of people, a prerequisite of a market-oriented economy.

Zibo is not a large, advanced city and it is likely that changes in the dual household registration system by the Zibo government will occur later rather than sooner. Migration into cities is in any case limited by the availability of jobs for migrants; since these cannot increase rapidly, neither can the rate of migration. According to the Department of Police, 123,000 rural migrants live in the five urban districts. However, the actual number of the floating population is thought to be at least double the official figure. The yearly increase rate of this population group is estimated by local officials to be about 15%. Very few people migrate out of the city.

There are no social security programmes designed specifically for the floating population in Zibo. Migrants who have permanent employee status may have access to the health insurance benefits offered by their employers. However, the non-institutional floating population have to bear the total burden of disease themselves. To date, no agenda has been raised by the government sector to address health service utilisation by the floating population.

3.7. SOCIAL AND ECONOMIC SITUATION

3.7.1. Structure of the Economy and Recent Trends

Traditionally, the industrial sector is classified into three categories:

- Primary sector: extraction of natural resources, including agriculture, forestry, animal husbandry, and fishery.
- Secondary sector: processing of primary products, including industry (mining and quarrying; the manufacture production and supply of electricity, water and gas), and construction.
- Tertiary sector: banking, social utilities, and other services.

Gross domestic products (GDP) are generated from the above sectors. In 1999, 8.2% of GDP was generated from the first sector, 57.4% from the second, and 34.4% from the third.

Within Shandong province, Zibo is a major heavy industry base. Mining and quarrying, and manufacturing are the principal industrial activities. Zibo is particularly famous throughout China for its production of china and silk. In recent years, the petrochemical and textile industries have been developed.

In 1999 Zibo's GDP was 56.8 billion yuan, a per capita GDP of 14,035 yuan. Table 3.21. shows the sources and values of GDP and per capita GDP in selected years, revealing that the GDP growth rates have reached high levels in recent years.

Table 3.21. Total GDP and Sources of GDP in Zibo

Year	Total GDP (Billion)	Source of GDP (%)			Per capita GDP (yuan)
		Primary	Secondary	Tertiary	
1980	26.01	15.8	72.6	11.6	768
1985	50.55	16.0	64.0	20.0	1415
1990	114.09	15.4	61.0	23.6	3013
1995	394.96	10.9	61.6	27.5	10018
1999	568.00	8.2	57.4	34.4	14035

Data source: Zibo Statistical Yearbook, 2000

The majority of enterprises are very small and located and operated in villages. Only 6.25% of the enterprises are at or above township level, and of these, 14.0% are state-owned, 68.1% are collectively owned, and 7.5% and 7.6% are share-holding and joint venture respectively. Exclusively private enterprises accounted for 0.5% of the total.

Table 3.22. provides details of the major indicators of social and economic development at the end of 1997. The official reported unemployment rate in the urban area was 2.1%. However, the actual number is purportedly at least five times higher. In addition, there is no official statistical information on the number of temporarily unemployed workers. If one measures the total available labour force in urban areas against the number of employees, it becomes clear that about 40% of productive people have no formal jobs.

The functions of local government are administration, regulation, and the provision of public utility services. In principle, operating costs are covered by government budgets, and, indeed, in some sub-sectors, for instance, education, government budgets are the major financial resource for covering costs. However in other sub-sectors, such as hospital, the major financial resource is user fees. Approximately 14.8% of urban workers are employed in the government sector.

The social service sector includes sub-sectors providing services such as education, health, and entertainment. About 9.7% of urban employees work in this sector.

Table 3.22. Number of Enterprises and Distribution of the Urban Labour Force

Indicators	Numbers
Number of enterprises	
Total	15,776
At and above township	986
State-owned	103
Collective-owned	431
Private-owned	122
Share-holding	215
Joint ventures	113
Others	2
Distribution of the urban labour force	
Total	525,270
Government sector	78,100
Social services	51,000
Industry and commercials	297,900
Self-employed	97,070
Others	1,200
Employment	
Urban available labour force	870,000
Number of employees	525,270
% of labor forces without jobs	39.6
Registered unemployed workers	18,132
Registered unemployment rate (%)	2.1

Data Source: Zibo Statistical Yearbook, 2000

The industrial and commercial sector is the largest sector with about 56.7% of total urban employees. This sector has been facing increasing difficulties in its business activities, especially state-owned and run enterprises. It has been estimated that in the past few years about 40% of enterprises in Zibo have been at or approaching bankruptcy, 40% have broken even, and only 20% have been able to make a profit.

In 1999 there were 97,070 self-employed workers, accounting for 18.5% of total urban employees. This number will increase as enterprise reforms are implemented.

The income and expenditure of urban households are detailed in Table 3.23.

Table 3.23. Income and Expenditure of Urban Households

Items	1985	1990	1995	1999
Per capita income (yuan)	790.44	1687	4367	6300
Per capita expenditures(yuan)	653.40	1392	3487	4803
% on food	51	49	43	36
% on health services	0.8	1.1	5.7	11.4

Data Source: Zibo Statistical Yearbook, 2000

3.7.2. Economic Situation and Enterprise Reforms

In 1994, after a fifteen-year period of piecemeal economic reform, central government clearly defined the goal of macroeconomic policy as the establishment of a market economy in the

very near future. This guiding orientation resulted in two radical changes in the enterprise sector. One is that state-owned enterprises are no longer regarded as the only, uniquely important sector in the economy, and multi-ownership systems are now encouraged as a means to developing the production economy. The other change is that within state-owned enterprises a series of radical reforms has been introduced which have fuelled the rapid expansion of non-state-owned enterprises. Private and share-holding enterprises in particular have grown very rapidly.

The goal of reform in state-owned enterprises - for which the textile sector has provided an entry point - is the establishment and regulation of a market-oriented administrative apparatus. Concrete measures introduced since 1995 for achieving this goal include:

1) Improving efficiency of production through labour force reduction, and reorganisation of the enterprise structure (ie. sacking employees surplus to requirements, and closing down enterprises which cannot generate profits).
2) The establishment of a comprehensive social security system for unemployed and laid-off workers by the end of 2000 - a complementary goal to enterprise reform.
3) The overseeing of management selection by local government.

These reforms have resulted in an increase in bankrupt state-owned enterprises and in employees being laid-off. In 1999 there were 15 million reported unemployed and laid-off workers; 8 million of these were from state-owned enterprises.

Although Zibo's enterprise reform packages are identical to those in other parts of the country, there is more pressure for enterprise reform in Zibo because textile production and heavy industry are the major components of its economy. It has been estimated that about 30% of firms at and above township level are loss-making enterprises. Reorganisation of the enterprise structure and employee cuts are the major reform activities in Zibo, and it is likely that in the future the number of layoffs will continue to increase.

With regard to welfare safety nets, there are four types of social security scheme in Zibo city: health insurance, unemployment insurance, insurance plans for the elderly, and insurance schemes for occupational injuries. The health insurance scheme has been in operation for fifty years. The other insurance schemes were introduced in 1987, and suffer from operational deficiencies due to the fact that they lack the financing and administration capabilities of local government.

The health insurance scheme is presently undergoing a transition: government health insurance and labour health insurance are to be replaced by a single urban employee health insurance scheme. Business managers and officials from the Department of Labour and Social Security who were interviewed in this study, expressed their concerns about the impact of enterprise reform on the financing of health services for the unemployed. It was indicated that the old health insurance system failed to give the employees of bankrupt enterprises access to health care, because it lacked a risk-pooling mechanism. The new urban health insurance scheme also fails to protect the employees of such enterprises because they are unable to contribute premiums, deductibles, and co-payments.

3.7.3. The Vulnerable Population

Five population groups constitute the vulnerable population in Zibo - a population which should be the priority of health care workers in urban areas: old people, laid-off and unemployed workers, disabled, indigents and floating people. The numbers of people in the above groups in 1999 is shown in Table 3.24.

Table 3.24. Numbers of Vulnerable Population in Zibo in 1999

Population groups	Registered or reported numbers	Estimation of actual numbers
Pensioners	80,000	
Laid-off and unemployed	18,132	91,000[1]
Disabled	Not applicable	Not applicable
Indigents	8,207	262,000[2]
Floating	123,000	246,000[3]

1. Estimated by a panel from the Department of Labor and Social Security
2. Estimated according to the household survey that was conducted by Zibo Bureau of Statistics
3. Estimated by a panel from the Department of Civil Affairs and Police Stations

3.8. ORGANISATION OF LOCAL GOVERNMENT AND TRENDS IN MUNICIPAL FINANCE

3.8.1. Structure of the Government Administrative System

In terms of political administration, there are four levels: municipal, district and county, township, and village. At and above township level, government agencies responsible for various issues have been established. In villages, the administrative unit consists of 3-5 people. Villages within the townships are directly administered by township governments. Townships within districts and counties are directly administered by district and county governments. The municipal government coordinates the administrative issues of district and county governments. Zibo's municipal government is located in Zhangdian district.

Major departments within government agencies at and above county level include Planning, Labour and Social Security, Finance, Health, and Civil Affairs. The government is responsible for coordinating activities across the different agencies. (For a discussion of the government departments involved in health care and their specific health-related responsibilities see 3.4.1.) Within township governments, there are no specific divisions responsible for dealing with the issues mentioned above; each task from higher levels of government is simply addressed by an individual official.

3.8.2. Trends in Total Government Revenue and Expenditure

Table 3.25. presents data on government income and its composition from 1985 to 1999. The yearly growth rate of government income is about 11.26 %. The major sources of income are industrial and commercial taxes and enterprise income tax. Table 3.26. lists the composition of government expenditure. Expenditure on health, education, and entertainment accounted for around 30% of the total between 1985 and 1999; the proportion spent on this area exhibited a slight decrease during this period. In 1985 about 3.6% of government expenditure was allocated to social security; by 1999 this proportion had dropped to just 1.7 %.

Table 3.25. Sources of Government Revenue in Zibo, 1985-1999

Years	Total government revenues (10,000 yuan)	In total (10,000 yuan)		
		Industry and commercial taxations	Agricultural taxation	Enterprise income taxation
1985	36802	6079	690	5559
1986	43963	39512	710	5305
1987	49338	44292	927	5559
1988	62047	52711	1437	7179
1989	71145	61206	1405	7446
1990	83010	68805	2568	5935
1991	94067	76537	2846	5852
1992	103301	85402	3101	5815
1993	135975	118435	2940	6360
1994	94555	59403	4268	9248
1995	107320	71842	4447	7910
1996	134407	86022	5651	12202
1997	169181	102330	6191	20521
1999	226492	138283	6121	36241

Data Source : Zibo Statistical Yearbook, 2000

Table 3.26. Composition of Government Expenditure in Zibo (%), 1985-1999

Years	City utilities	Culture and health care	Social security	Administration
1985	19.6	32.6	3.6	15.0
1986	18.3	29.6	3.0	12.8
1987	15.5	26.3	3.2	11.7
1988	16.5	24.1	2.7	7.3
1989	15.8	25.1	3.0	7.7
1990	13.8	24.7	3.3	8.4
1991	13.6	25.0	2.9	9.1
1992	12.2	26.5	3.1	10.4
1993	10.0	30.2	3.1	12.3
1994	9.1	31.1	2.8	14.0
1995	8.5	31.8	2.7	13.7
1996	9.5	31.4	2.4	13.1
1997	8.8	29.6	2.3	12.4
1999	8.5	30.0	1.7	12.1

Data Source: Zibo Statistical Yearbook, 2000

3.8.3. Health Financing

Sources of health finance can be categorised into government budget, social organisations, and individuals. The government budget is comprised of three parts: the regular budget for use in meeting the operating costs of health facilities; specific subsidies for new buildings or medical equipment; and funds for health insurance. Social organisations provide funds for supporting the health facilities they operate, and for covering their employees' medical expenses. The majority of health finance provided by individuals is in the form of user fees. In addition, the money spent by individuals on buying medicines or other medical products is also an important source of health finance. Owing to a lack of research into health financing in Zibo, the exact composition is not clear.

The incomes and expenditures of municipal and county hospitals in 1990 and 1997 are listed in Table 3.27. In selected years, hospitals as a whole were able to generate surplus revenue, albeit this profit was a relatively minor one. In recent years, sources of income have changed. In general, income from the provision of health services and drug markups has increased, whilst the government budget for health has decreased. In 1985 19,3% of income in municipal hospitals came from medical services; by 1997 this had increased to 38.6%. Generating revenue by prescribing drugs is the major method of hospital financing. In 1997, drug sales accounted for 50% of hospital income; in 1985 the proportion was 38%.

Table 3.27. Distribution of Hospital Incomes and Expenditures in Zibo, 1990 and 1997

Items	Municipal hospitals		County hospitals	
	1990	1997	1990	1997
Total income	11673.9	46680.12	6353.5	29872.63
Medical services	4057.1	18016.06	2638.3	13038.36
Outpatient services	1439.8	6328.69	810.8	4006.57
Registration	102.7	307.66	53.8	214.11
Surgical operation	75.8	182.13	29.5	92.72
Examination	772.9	3449.62	502.9	2382.26
Others	90.8	536.38	17.3	265.77
Inpatient services	2443.5	10592.81	169.70	7953.71
Bed fee	540.2	1217.61	333.4	903.84
Surgical operation	110.0	32.36	66.0	370.69
Examination	1251.2	6207.79	910.7	4730.99
Others	220.0	820.43	145.2	659.11
Others	18.0	1.13	13.2	1.13
Drugs	6903.7	23429.22	3370.3	14821.00
Outpatient drugs	4294.1	14355.66	1794.1	8271.87
Inpatients drugs	2609.6	9073.56	1576.2	6549.13
Government regular budget	1548.4	4527.77	609.2	1755.80
Government specific subsidies	2683.4	9025.30	1574.2	5568.00
Others	474.0	4324.90	191.7	1367.86
Total Expenditures	11026.9	45381.27	5659.2	28193.37
Personnel	2602.1	12465.12	1202.3	7064.85
Salaries	1251.2	4062.03	594.6	2095.05
Social security	260.7	890.43	94.9	471.68
Pensions	247.8	1866.76	72.0	883.95
Maintenance	399.6	1712.90	242.8	1237.35
Overheads	207.4	915.82	112.8	489.52
Utilities	963.5	5140.94	578.1	3049.98
Drugs	5782.3	19781.58	2852.8	12737.66
Medical materials	4522.5	23040.53	2572.2	14223.46

Data Source: Financial report of hospitals, Zibo Health Department, 1998.

3.8.4. Reorganisation of the Government Sector

Following the reorganisation, commencing in 1999, of government structures at central and provincial levels, the government of Zibo has recently reorganised. The principal aims of this

reorganisation strategy are to reduce the scale of government employees and to clearly redefine the functions of each government agency. The major radical change for the health sector is that the task of managing the urban health insurance scheme has been shifted from the Department of Health to the Department of Labour and Social Security. The latter department is now responsible for designing and implementing the urban health insurance scheme in co-operation with the former department. One of the advantages of this approach is that it may facilitate the implementation of the new health insurance plan in the enterprise sector. However, potential problems also exist, such as the possibility of poor quality services and billing for unnecessary health care, if the two departments cannot be well co-ordinated.

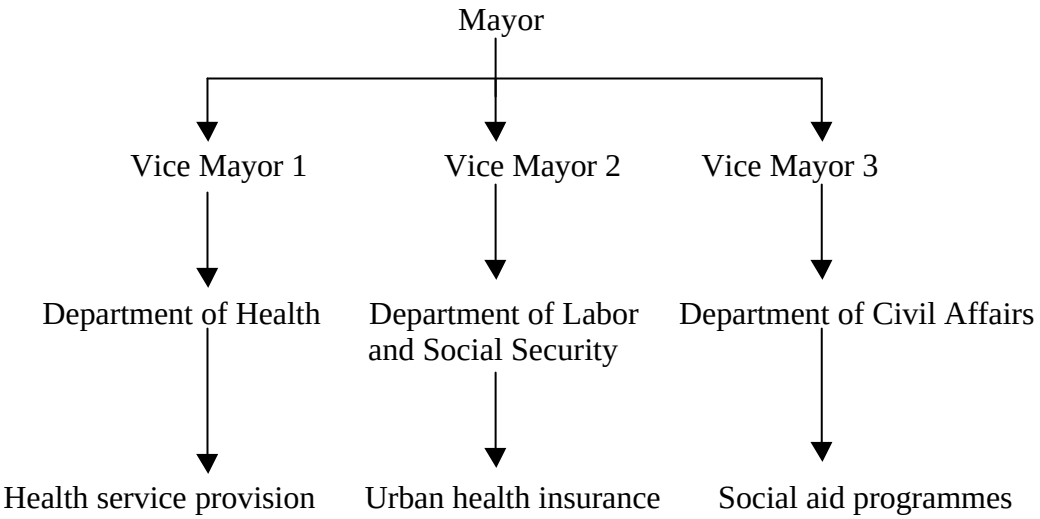
3.9. ORGANISATION OF THE HEALTH SECTOR

3.9.1. Organisation of Municipal Government Health-Related Departments

As shown in Figure 3.3., the three principal government departments involved in health care are The Department of Health, the Department of Labour and Social Security, and the Department of Civil Affairs. These departments are managed by different vice-mayors, and their activities are co-ordinated by the municipal mayor.

The Department of Health is responsible for policy-making, health service provision, and health care regulation. All the health facilities within the government sector are administered at various levels by this department. The Department of Labour and Social Security has primary responsibility for managing and implementing the urban health insurance scheme and for selecting contract hospitals. It also implements other social security plans such as the unemployment insurance scheme, as well as being involved in the development of policy for state-owned enterprises. The Department of Civil Affairs is responsible for organising social aid programmes for indigents and other sections of the vulnerable population. In addition to the above departments, the Department of Finance and the Department of Planning, also have functions which impact significantly on the health sector; the former department sets the government budget for health, and the latter plans health resource distribution.

Figure 3.3. The Administrative Organisation of Health-Related Departments



3.9.2. Structure of the Municipal Health Department

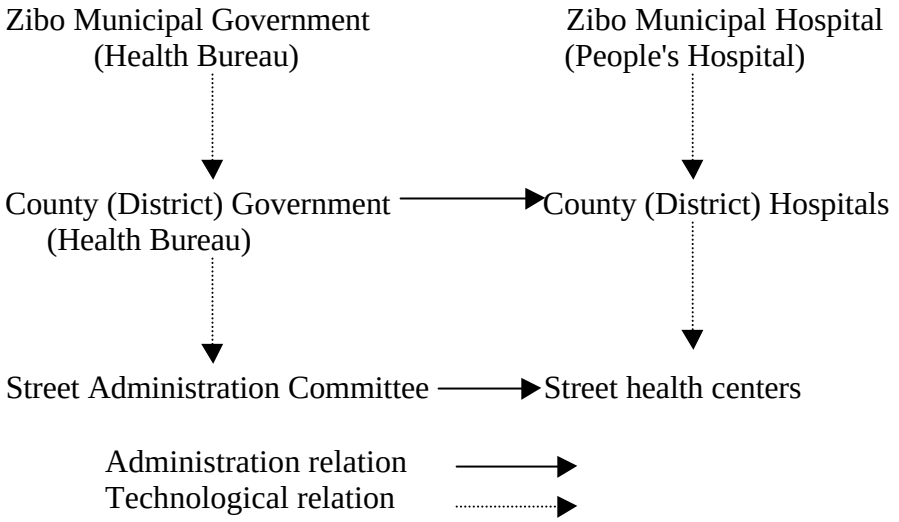
Table 3.28. summarises the departments and their functions within county (district) health bureau.

Table 3.28. Structure and Responsibilities of Zibo's Municipal Health Department

Divisions	Description of responsibilities
Administrative Office	Coordinating activities across the divisions
Personnel	Formulating personnel policy
Hospital Management	Administering and regulating hospitals
Maternal and Child Health	Administering and regulating MCH care
Science and Education	Organising scientific and educational activities
Planning and Finance	Budgeting government funds to health facilities and planning health resource distribution
Chinese Traditional Medicine	Administering and regulating services of Chinese traditional medicine

Hospitals are managed by various administrative agencies. Zibo People's Hospital (Zibo Municipal Hospital), the largest in Zibo, is directly managed by the Zibo Municipal Health Bureau. Both county and district people's hospitals are managed by county or district health bureaux. Street health centres are managed by street administration committees (Figure 3.4.). Health facilities outside the health sector, for example military hospitals or clinics or hospitals in business enterprises, and military are administered by their own governing bodies, with technical administration assistance provided by The Department of Health.

Figure 3.4. Structure of the Urban Health Care System



3.9.3. Organisation of Preventive Programmes

Preventive programmes are organised by two types of health facility: anti-epidemic stations, and maternal and child health stations. At municipal and county (district) levels, these facilities operate independently, but are administered by the Department of Health. In townships, preventive programs are implemented by specific groups within township health centres. Major preventive programmes carried out in Zibo include:

- Programme on Immunisation;
- Maternal and Perinatal Health;
- TB Control;
- Hepatitis B Vaccination;
- Systematic Management of Childhood Diseases;
- Management and Surveillance of Acute Infectious Diseases;
- Health Education;
- School Health;
- Food Surveillance;
- STD Control and Education; and
- Mental Health

3.9.4. Heath Facilities

There are 766 health institutions in Zibo, including all the hospitals and preventive care facilities, of which 124 institutions are managed by the health authorities. The rest are owned and run by the enterprise or military sectors. The volume and distribution of major health resources in 1999 are listed in Table 3.29.

Table 3.29. Health Facilities in 1999:
Numbers of Hospital Beds, Employees, and Health Professionals

Facilities	Number of beds	Number of employees	Number of health professionals
Hospitals	11,156	14,756	11,609
Municipal hospitals	10,075	13,318	10,423
County and district Hospitals	1,081	1,438	1,186
Township hospitals	1,949	2,319	1,992
Rehabilitation institutions	200	195	125
Clinics		3,061	3041
Anti-epidemic Stations	20	1,077	885
Maternal and Child Health Stations	30	304	255
Other health institutions	0	80	37

Data Source: Health Statistics, Zibo. 2000.

3.9.5. Utilisation of Health Services

As listed in Table 3.30, in Zibo's hospital sector, about 11 million outpatient visits were provided in 1999 in township and above hospitals, and about 75% of these services were provided by county (district) and municipal level hospitals. Approximately 267,000 patients were discharged in 1999, and of these around 78% were discharged from county (district) and municipal hospitals.

Table 3.30. Health Service Utilisation by Health Facilities in 1999 (10,000)

Health facilities	Number of outpatient visits	Number of hospital admissions	Number of hospital discharges
At and above county hospitals	810	20.8	20.8
General hospitals	240	10.1	10
Chinese traditional hospitals	78.5	2	2
Enterprise hospitals	441	0.3	0.3
Others	50.5	8.4	8.5
Township hospitals	270	5.9	6

Data source: Zibo Statistical Yearbook, 2000

3.10. HEALTH SECTOR REFORM

3.10.1. Health sector problems

According to key informant interviews with officials from the Departments of Health, Labour and Social Security, and Civil Affairs as well as with hospital managers, enterprise managers, and community representatives, the major health sector problems are as follows:

- *Cost escalation of medical services.* Cost escalation has become the most serious problem in health care in Zibo, as in the rest of China. It was estimated that the increase rate of health expenditure has exceeded growth rates of GDP in recent years. Causes of cost escalation in Zibo were largely attributed to the inflation of medical supplies, and the use of sophisticated equipment and expensive drugs. Drug expenses accounted for at least 50% of total medical expenditures, and the use of hi-tech diagnostic and treatment services are very common.

- *Inefficient health service provision.* Inefficient service provision is widespread. Key people from the Municipal Department of Health emphasised that average hospital outpatient visits and hospital bed days was not increased in line with the number of hospital personnel and other types of resource. This was attributed to the imbalance between demand for health care and the development of health care services.

- *Access to health care.* The income gap between the poor and the rich has widened in recent years in Zibo. Besides significant differences in income (and in other indicators of economic and social status) of rural and urban populations, within the urban environment the gaps between different population groups have also increased. In Zibo, the urban vulnerable population (the laid-off/unemployed, old people, the disabled, indigents, and the floating population) are experiencing difficulty in accessing basic health services because they simply cannot afford them.

- *Pricing policy*. After the changes in pricing policy in 1980 from a 'low price' policy to a 'cost-based' pricing policy, user charges have been the major source of finance for public hospitals. Priced are fixed by the provincial government, which constrains the autonomy of the municipal government in setting and regulating its own prices.

- *Payment systems*. Fee-for-service is still the main payment method in the urban health insurance scheme. Problems of cost escalation and the provision of unnecessary care are closely related to this payment system. The Zibo government has not radically changed the urban health insurance schemes; hence, the introduction of new payment methods has been thwarted.

3.10.2. Health Sector Reforms

In order to address the above problems, a number of health sector reforms have been taken in Zibo. These reforms include:

- *Hospital Reimbursal System Reform*
  From 1980, in line with China's economic reform, the local government in Zibo began to reform reimbursement method for hospitals. The major features of the reform are: a user fee has been introduced to generate revenue; hospitals can retain all the surplus of revenues generated for their own development, and, in general, hospitals now have more economic autonomy. As a result of the above reforms, government health budgets have decreased rapidly and user charges have become a major source of hospital revenue.

- *Government Urban Health Insurance Reform*
  In order to control the escalation of medical costs and sustain the existing government urban health insurance scheme, Zibo's government initiated health insurance reform in 1994. 1,608 institutions and 105,000 employees are involved in this scheme. This reform has modified the traditional insurance financing mechanism. In central cities, 11% of total salaries is collected as the insurance fund, about 20% of which comes from individual employees. In county cities, 10% of salaries is collected. A health insurance fund management organisation has been established in each district and county. Hospitals which meet certain set price levels and standards of service quality are eligible for contracts from the insurance management organisation. If the contract hospitals provide treatment over and above these agreed services, the fund administrative agent will refuse to pay the costs. The reform also established a referral system.

- *Regional Health Resource Planning*
  In 1992, the Zhoucun district of Zibo was involved in an experiment to reform the existing pattern of health resource allocation, in an effort to increase efficiency and equity. The reform package granted local government the authority to plan the distribution of available health resources regardless of the ownership of the resources. By doing this, it was hoped that the duplication of facilities and functions would be avoided and more resources could be transferred from high level hospitals to community health centres. However, to date this reform has not achieved its expected outcome due to the political and administrative complexities of the health resource management system.

- *Community Health Care System Reform*
  Since 1980, the community health care system in urban cities has been largely destroyed owing primarily to an increase in hospital autonomy and the cancellation of the referral

system. An inadequate community health care system is one reason for the rapid increase in medical costs, and its re-establishment is one of the strategies being employed to combat unreasonable medical fee escalation. Community health centres and stations have been established which provide curative and preventive services. These centres are successfully recruiting newly trained health workers from hospitals. The success of this reform will benefit both regional health resource planning and health insurance reform, because the redistribution of health resources will increase the efficiency of the health system. However, it is understood that developing the community health sector will take a long time and it is expected that political support for the initiative should be cumulative.

Health sector reforms implemented in Zibo including those presented above are summarised in Table 3.31.

Table 3.31. Summary of Health Sector Reforms in Zibo

Type of Reform	Key Aspects	Comments
Hospital Reimbursement Reform	• Reduce government share in total hospital revenues • Increase financial autonomy of hospitals • Adjust prices of medical services	Hospitals depend much more on the market
Urban Health Insurance Reform	• Pool the urban health insurance fund across the municipal city • Collect funds from both employees and employers • Change payment methods • Set co-payment	Cost contained. Affect utilisation of health service by the poor
Regional Health Planning	• Redistribute health facilities • Control equipment of high technologies; • Remove duplicated health facilities and services	Cost contained
Community Health Care System	• Reallocate health resources from high level health facilities to primary health care units • Increase access to health care through reducing the distance travelled to health services • Control costs through establishing referral system	Cost contained and access to health care improved

3.10.3. Plans for Additional Reforms

At the time of this report, two main health sector reforms are planned by the Zibo government. One is to reform the ownership system of the public hospitals. The second is to continue to reform the urban health insurance scheme.

- *Hospital Sector Ownership System Reform*. Undertaken by Zibo's municipal government in accordance with guidelines from central and provincial government. Hospitals within Zibo will be divided up, according to their particular functions and sources of finance, into two categories: not-for-profit hospitals and for-profit hospitals. Different financial and pricing policies will be implemented in each type of hospital, and service provision and target population will be clearly defined.

- *Implementation of the Urban Health Insurance Scheme* Reform of urban health insurance was to commence on January 1, 1999, according to the agenda laid down by the state government. In Shandong Province, five cities were to have begun implementing reforms on this date; other cities, including Zibo were to do so six months later, on July 1, 1999. However, for various reasons, the schedule for implementing urban health insurance reform in Zibo has actually been set as the end of 2001. The following changes to the benefit package and arrangements for unemployed workers are expected to take place:
  1) Unemployed workers will be offered special government subsidies for their insurance, and hence will be able to obtain a basic health insurance package.
  2) The scope of the benefit package will be narrowed because the level of financing will be regulated at 8% of yearly total incomes.
  3) One disadvantageous change is that patients suffering catastrophic diseases will bear heavy economic burdens because a ceiling will be set in the new health insurance scheme.
  4) A specific administrative unit is to be established within the Department of Labour and Social Security.

Chapter 4

HEALTH AND HEALTH NEEDS

4.1 Introduction

This chapter first introduces the change of demographic structure in the two study cities. It then looks at the burden of major communicable and non-communicable diseases among the study population. In the final subsection the major health problems of vulnerable groups in the study cities are examined.

4.2 Changing Demographic Structure

4.2.1 Nantong City

In 1998, the population of Nantong City amounted to approximately 7.875 million, of which about 639.7 thousand (8.1%) were officially registered in four urban districts (Chongchuan, Gangza, Langshan and Fuming), as city/town dwellers, and the rest of the population were officially living in the counties, as rural residents. The population ratio of urban male to urban female was about 50:50.

Of the urban population of Nantong City, 11.2% of them were over 60 years old, according to the 1990 national census data. The proportion of people over 60 years old must have been increased over the past decade[1]. The proportion of female population over 60 years old (12.3%) was much higher than that of male population (10.1%).

It is interesting to note that the fertility rate in the whole city rose from 9.66 per 1,000 population in 1985 to 16.40 per 1,000 population in 1989, and in urban areas of the city it increased from 8.61 per 1,000 population in 1985 to 14.60 per 1,000 population in 1989. It then declined to the level of around 9 per 1,000 population in both the whole city and the urban areas of the city in later 1990s[2]. This may imply that, due to rapid development of local economy and the urbanisation of the city, the fertility rates between the urban and rural rich areas of China have been closing.

As to the floating population, the specified number is not certain because of weaknesses in the management of the floating population. In 1997, the registered floating population was 246,100 in Nantong downtown area. However, the actual number of the floating population in Nantong may be much higher than the reported one, according to Mr Lu, Deputy Director of Nantong Municipal Bureau of Labour and Social Security.

The crude mortality rate, as a whole, increased slightly over the period of 1985-1998 in both the whole city and in urban areas of the city. It is not surprising, therefore, that the rate of population growth rose in the second half of the 1980s and then declined from 9.90 per 1,000 population in 1989 to 1.62 per 1,000 population for the whole city, and from 9.30 per 1,000 population in 1989 to 3.74 per 1,000 population in the urban areas of the city. The possible reason for the difference in urban and rural population growth rates might be a difference in the mortality rates between the two areas.

[1] The 2000 national census data had not yet been released when the study was conducted.

[2] The first peak of population growth in China was in early 1950s and the second one was in mid 1960s. The period of 1985 and 1989 was the time when those born in the 1960s were expected to get married and have children. Therefore, the population growth in the late 1980s was called the third peak of population growth.

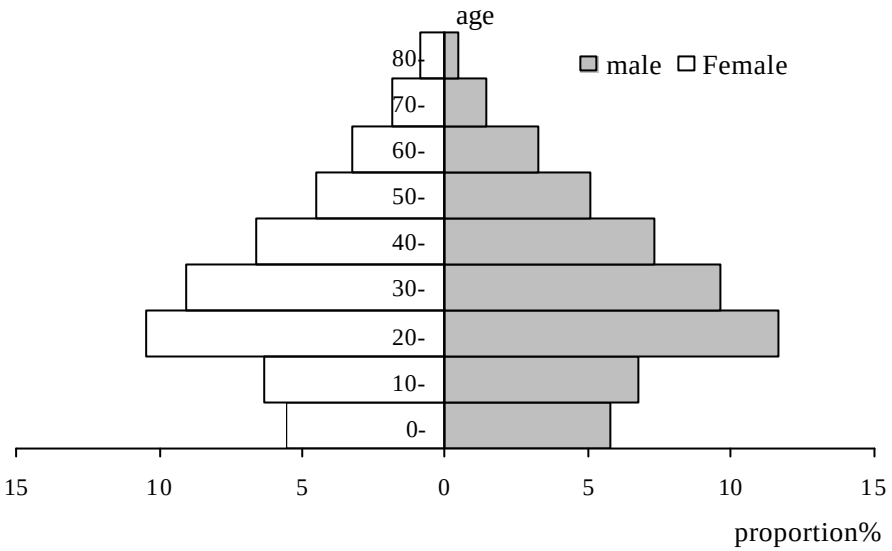


Figure 4.1. Structure of the Nantong Population by Sex and Age in 1990

Table 4.1. Fertility Rates, Mortality Rates and Natural Growth Rates of the Nantong Population in 1985-98

Year	Fertility rates ‰		Mortality rates ‰		Nature growth rates ‰	
	Total	Urban	Total	Urban	Total	Urban
1985	9.66	8.61	6.64	5.04	3.02	3.57
1986	12.83	10.39	6.74	6.29	6.09	4.10
1987	15.37	11.99	6.75	4.73	8.62	7.26
1988	14.90	12.87	6.59	5.24	8.31	7.63
1989	16.40	14.60	6.50	5.30	9.90	9.30
1990	14.80	10.70	7.00	5.50	7.80	5.20
1991	11.24	10.00	6.71	5.24	4.53	4.76
1992	10.05	8.82	7.11	5.85	2.94	2.97
1993	10.19	10.56	6.99	5.46	3.20	5.10
1994	10.17	9.65	7.00	4.84	3.17	4.81
1995	10.37	10.57	7.17	4.94	3.20	5.63
1996	9.00	11.37	7.09	5.14	1.91	6.23
1997	8.68	9.08	6.97	4.89	1.71	4.19
1998	9.15	9.13	7.53	5.39	1.62	3.74

Data Source: The Statistical Yearbook in Nantong

No areas in Nantong City were selected by the Ministry of Health as IMR or MMR surveillance sites. Hence, there was no reliable data on IMR and MMR to obtain. The research team did manage to get the data on IMR, U5MR (Mortality Rate for Under Five Children) and MMR, which showed a very low level over the past decades (IMR: 6-15‰; U5MR: 9-18‰, and MMR: 20-23 per 100,000). Some of the indicators even showed a much lower level than that of the indicators reported by the riches cities in China, such as Shanghai and Beijing. Of course, this cannot be taken as true, given that no explicit reasons were

provided to explain such an achievement. In the meanwhile, the authors of the report believe that the IMR, U5MR and MMR in the city are far better than the national averages.

4.2.2 Zibo City

In 1997, Zibo City had a population of about 4.01 million, of which about 1.739 million (43.4%) were officially registered in several urban districts and towns, as city/town dwellers, and the rest of the population were living in the counties, as rural residents. The proportion of the population registering as city/town dwellers has increased dramatically over the past two decades, from19.3% in 1980 to 43.4% in 1997. One reason for such a significant rise was the change in administrative structure which came about as part of the urbanisation of the city. The population ratio of urban male to urban female was almost 50:50 in 1999.

Of the urban population of Zibo City, 9.4% of them were over 60 years old, according to the 1990 national census data. The proportion of female population over 60 years old (10.6%) was much higher than that of the male population (8.1%). About one fifth of the urban population in the city was under 15 years of age in 1990.

Information on floating population was not available before 1995. In 1995, according to registered data in police stations, there were 146,018 people originally resident outside of the cities living in urban areas. The yearly increase rate of this population group was estimated at 20 per cent. There is no clear definition from the police department for defining the floating population. Local police stations ask all the people who are staying in a place over one month to report and obtain a permission card for their residence. However, a large proportion of people do not adhere to this regulation for various reasons. The numbers of floating population on the registration book are largely determined by the extent of co-operation from these people.

From 1985 to 1998, the fertility rate first rose from 13.55 per 1,000 population in 1985 to 17.89 per 1,000 population in 1987, and then declined gradually to 12.44 per 1,000 population in 1998. There was no significant change in crude mortality rates (around 6 per 1,000 population) over the period. Hence, the population growth rates over the period followed the pattern of fertility rates, rising from 1985 to 1987 and then declining afterwards (Table 4.2.). It is difficult to explain why from 1992-93 the population growth rates were so low. One possibility is that fertility rates were under-reported during these years.

The officially reported IMR and MMR in 1997 were, respectively, 12.41 per 1,000 live births and 37.06 per 100,000. There is a great possibility of under-reporting of the two rates in the city, although it is difficult to estimate the extent to which this occurred.

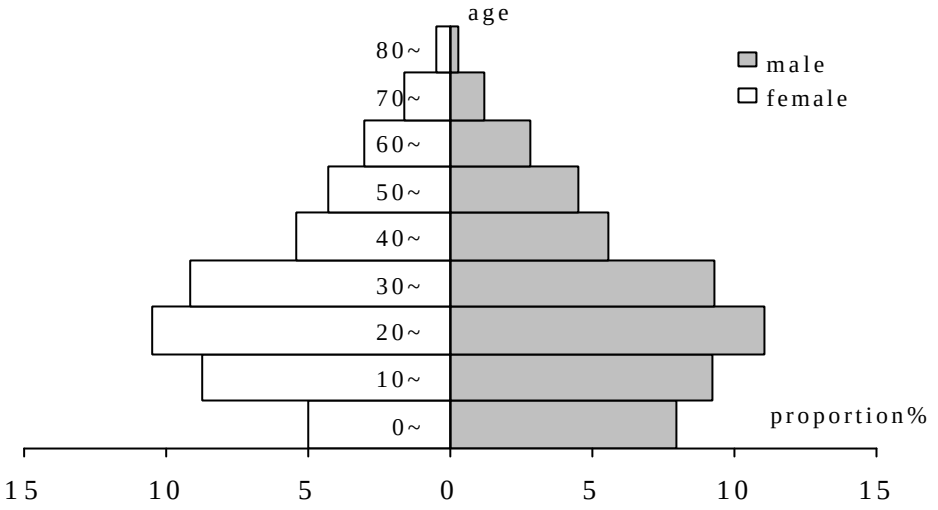


Figure 4.2. Structure of the Zibo Population by Sex and Age in 1990

Table 2. Fertility Rates, Mortality Rates and Natural Growth Rates of the Zibo Population, 1985-98

Years	Fertility rates‰	Mortality rates‰	Nature growth rates‰
1985	13.55	5.96	7.59
1986	14.77	5.61	9.16
1987	17.89	5.38	12.51
1988	15.23	6.17	9.06
1989	15.46	5.44	10.02
1990	15.40	6.04	9.36
1991	11.82	5.51	6.31
1992	10.33	5.83	4.5
1993	9.90	5.99	3.91
1994	11.55	5.98	5.57
1995	12.78	5.81	6.97
1996	12.85	5.95	6.9
1997	12.41	5.63	6.78
1998	12.44	6.02	6.42

4.3 Burden of Disease Profile

4.3.1 Nantong City

In the period 1988 - 91, the first three most common causes of death in Nantong City were cancers, respiratory diseases, and cerebro-vascular diseases. The mortality rates were, respectively, 137.8, 102.3 and 100.5 per 100,000 population. They were followed by the causes of heart diseases and injury/poisoning. One quarter of the deaths were associated with cancers, one fifth of the people died from respiratory diseases, and another one fifth of the people died from cerebro-vascular diseases. The three major diseases accounted for 65% of deaths duringover the period. This trend did not change in 1998, although the mortality rates have risen slightly.

Table 4.3. Five Leading Causes of Death in Nantong, 1988-91

Rank	Whole population			Downtown area		
	Diseases	Proportion %	Mortality (1/100000)	Diseases	Proportion %	Mortality (1/100000)
1	Cancer	27.48	185.33	Cancer	25.73	137.82
2	Respiratory system diseases	26.19	176.66	Respiratory system diseases	19.11	102.34
3	Cerebro-vascular diseases	14.34	96.71	Cerebro-vascular diseases	18.77	100.54
4	Injury and poisoning	8.16	55.01	Heart diseases	8.64	46.26
5	Heart diseases	7.40	49.89	Injury and poisoning	7.88	42.22

Data Source: Health Anti-epidemic Station

The anti-epidemic station of Nantong City refused to provide any information on incidence rates of notifiable diseases. According to the literature we reviewed, it seems that the incident rate of all notifiable infectious diseases has declined significantly since the foundation of the people's republic. However, the incident rate of hepatitis (particularly Hepatitis A) and diarrhoea had risen remarkably, from 13 per 100,000 population in 1950s to 465 per 100,000 population in 1980s, and from 54 per 100,000 population in 1960s to 235 per 100,000 population in 1980s, respectively. Over the past decade, the incident rates of two infectious diseases have come down slightly (Chen et al).

According to the statistics provided by eight hospitals at county/district level and beyond in the city, the most common causes of hospitalisation in 1995, excepting births, were digestive diseases, injury/poisoning, respiratory diseases and cancers. However, the number of hospitalisations as a result of injury increased dramatically from 7,806 cases in 1995 to 11,104 cases in 1999 and this became the primary cause in 1999. This may imply rising problems related to traffic and work-related accidents.

4.3.2. Zibo City

In Zibo City in 1997 the first three most common causes of death were heart diseases, cerebro-vascular diseases, and cancers. They were followed by injury/poisoning, and respiratory diseases. Over a quarter of deaths were associated with heart diseases; 22% associated with cerebro-vascular diseases; and about one-fifth associated with cancers. The three major diseases accounted for over 65% of deaths.

Table 4.4. shows the number of communicable diseases reported, and the incidence and mortality rates of all communicable diseases in selected years between 1985 and 1997. It appears that the number of communicable diseases declined from 17,613 cases in 1985 to 6,591 in 1995, and then rose slightly to 9,319 cases in 1997. The incidence rate during this period followed the same pattern. However, the mortality rate rose from 77 per 100,000 population in 1985 to 86 per 100,000 population in 1990, and then declined significantly to 38 and 33 per 100,000 population in 1995 and 1997 respectively.

Dysenteric diarrhoea was the most common communicable disease in Zibo. The incidence rate increased from 67.8 per 100,000 population in 1994 to 108.2 per 100,000 population in 1997. The next most common communicable diseases were hepatitis and meningitis. Tuberculosis was not listed as one of the top ten communicable diseases before 1997.

However, in 1997 it jumped to third place in the table of main communicable diseases in Zibo City with an incidence rate of 23 per 100, 000 population.

Table 4.4. Case Number, Incident Rate and Mortality Rate of Notifiable Infectious Diseases in Zibo City, 1985-97

	1985	1990	1995	1997
Case number	17613	6956	6591	9319
Incident rate (1/100,000)	642.33	181.92	168.03	233.29
Mortality rate (1/100,000)	77	86	38	33

According to the statistics provided by eight hospitals at the county/district level and beyond over the past two years, the major causes of hospitalisation were respiratory diseases, injury/poisoning, circulatory system diseases, and digestive system diseases.

4.4 Vulnerable Groups and their Major Health Problems

Using the data from our enterprise and community-based household health surveys conducted in the two cities, this section examines perceived needs of health services among the study population. We use self-reported illness/self-reported chronic diseases per 100 people and referred hospital admission rate over a two week period, as proxy indicators to the perceived needs of health services.

4.4.1 Nangtong City

Table 4.5. shows self-reported illness per 100 people by different vulnerable groups and their prevalence rate of self-reported chronic diseases[3] over two weeks, according to the community-based household health survey. It seems that 43.5% of elderly people and 37.4% of the poor surveyed reported illness over the two weeks prior to the survey. One quarter of the employed and laid-off workers reported illness over the period. These rates were not adjusted by age and sex. It is also found that almost half of elderly people and the poor investigated had at least one chronic disease over the past six months prior to the survey, in comparison to only 19.1% of unemployed/laid-off workers. Of these vulnerable groups, the migrants in Nantong City appeared to have the least need of health services. This can be explained by the fact that they are usually of a young age and also healthy.

[3] This indicator refers to the number of people reporting at least one chronic disease per 100 people at the time point of the interview.

Table 4.5. Two-Week Self-Reported Illness Rate and Prevalence Rate of Self-Reported Chronic Disease by Different Vulnerable Groups

Vulnerable Groups	No. of people	2-wk self-reported illness %	Prevalence rate of self-reported chronic diseases %
Unemployed/ Laid off	356	25.0	19.1
Elderly	246	43.5	49.6
The poor	238	37.4	44.1
Migrants	571	18.0	8.8
Total	1411	27.5	24.5

Data Source: Community-Based Household Health Survey

With regard to the perceived need of hospital care, the data from the survey shows that, of 100 elderly people surveyed, 16 were admitted to hospital over the past 12 months. Another vulnerable group which had a higher hospital admission rate was the poor (9.7%). The referral rate for unemployed/laid-off workers and migrants were 5.3% and 2.8%, respectively. It should be noted that those who had good access to health care might be more likely to be referred for hospital admission than those who had not.

Table 4.6. Two-Week Self-Reported Illness Rate and Prevalence Rate of Self-Reported Chronic Diseases by Age Group

Age	No. of people	2-wk self-reported illness %	Prevalence rate of self-reported chronic diseases %
0~	146	37.0	1.4
5~	384	31.8	5.5
15~	614	25.2	7.2
30~	1103	33.9	20.6
45~	693	43.9	40.0
60~	225	48.4	59.1
Total	3165	35.3	22.2

Data Source: Enterprise-Based Household Health Survey

The data from the enterprise-based survey showed that over the two-week period prior to the interview, women were more likely to report illness than men: 37.4% versus 33.2%. The differential is statistically significant ($P < 0.05$). In addition, with the exception of the youngest group, the older the person, the higher the rate of self-reported illness. The prevalence rate of chronic diseases also rose remarkably with age (Table 4.6.).

Table 4.7. reveals that the hospital referral rate for females was higher than that for males. Admittedly, 19 women of age group 15- and 30- were admitted to hospital to give birth. However, even if we exclude the number of baby delivery cases, the referral rate for women was still higher than that for men. This is true for all the age groups, except the 0-4 age group. It is not clear why there was a huge differential in referral rates between males and females. This type of finding was found in the poorest rural areas where a son is preferred and valued more by families for traditional reasons (Tang et al. 2001).

Table 4.7. Hospital Referral Rates by Age and Sex in Nantong City in 1998

Age	Male			Female			Total		
	No.	No. of People referred	Referral rate %	No.	No. of people referred	Referral rate %	No.	No. of people referred	Referral rate %
0~	76	7	9.2	70	1	1.4	146	8	5.5
5~	205	3	1.5	179	4	2.2	384	7	1.8
15~	277	3	1.1	337	22	6.5	614	25	4.1
30~	549	18	3.3	554	24	4.3	1103	42	3.8
45~	358	21	5.9	335	25	7.5	693	46	6.6
60~	94	12	12.8	131	19	14.5	225	31	13.8
Total	1559	64	4.1	1606	95	5.9	3165	159	5.0

Data Source: The Enterprise-Based Household Health Survey

4.4.2. Zibo City

Table 4.8. shows the two-week self-reported illness rate per 100 people by different vulnerable groups, and the prevalence rate of self-reported chronic diseases, according to information gathered in the community-based household health survey. Like the findings from Nantong City, elderly people and the poor were much more likely to have reported illness, than the unemployed/laid-off and migrants in the two weeks prior to the survey. It was also found that half of the elderly people and one-third of the poor were suffering or had suffered from at least one chronic disease in the six months prior to the survey. Migrants were least likely to have reported illness in the two weeks prior to the survey, or to have suffered from chronic diseases in the previous six months, for the same reasons stated above.

Table 4.8. Two-Week Self-Reported Illness Rate and Prevalence Rate of Self-Reported Chronic Disease by Different Vulnerable Groups in Zibo City in 1999

Vulnerable Groups	No. of people	2-wk self-reported illness %	Prevalence rate of self-reported chronic diseases %
Unemployed/ Laid off	388	16.2	10.3
Elderly	224	42.4	49.6
The poor	277	33.2	33.9
Migrants	519	8.1	3.5
Total	1408	20.7	18.7

Data Source: Community-Based Household Health Survey

Table 4.9 indicates that, with the exception of the 0-4 age group, the older the person, the higher the self-reported illness rate. The trend is the same for the prevalence rate of self-reported chronic diseases. There was no statistically significant difference in the two-week self-reported illness rate between the genders.

Table 4.9. Two-Week Self-Reported Illness Rate and Prevalence Rate of Self-Reported Chronic Diseases by Age Group in Zibo City

Age	No. of people	2-wk self-reported illness %	Prevalence rate of self-reported chronic diseases %
0~	179	31.3	1.7
5~	390	21.8	1.5
15~	672	14.7	3.3
30~	1171	26.0	13.0
45~	482	26.6	25.3
60~	77	44.2	41.6
Total	2971	23.8	11.3

Data Source: The Enterprise-Based Household Health Survey

Table 4.10. Hospital Referral Rates by Age and Sex in Zibo City in 1998

Age	Male			Female			Total		
	No.	No. of people referred	Referral rate %	No.	No. of people referred	Referral rate %	No.	No. of people referred	Referral rate %
0~	101	2	2.0	78	3	3.8	179	5	2.8
5~	195	3	1.5	194	1	0.5	390	4	1.0
15~	321	2	0.6	351	21	6.0	672	23	3.4
30~	608	13	2.1	563	15	2.7	1171	28	2.4
45~	252	14	5.6	230	14	6.1	482	28	5.8
60~	29	5	17.2	48	8	16.7	77	13	16.9
Total	1506	39	2.6	1464	62	4.2	2971	101	3.4

Data Source: Enterprise-Based Household Health Survey

The hospital referral rate for females seems much higher than that for males (Table 4.10.). However, if we exclude 24 hospital referral cases for baby delivery, the overall referral rates between men and women were not statistically significant. Although the referral rate for girls under five was still higher than that for boys under five, the difference was not as huge as the one found in Nantong City. Again, the difference between the sexes was not statistically significant.

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Chapter 5

HEALTH FINANCE AND EXPENDITURE IN NANTONG

5.1 Introduction

This chapter presents the findings of a special study of health finance and expenditure in Nantong. It includes an analysis of existing data using the national health accounts methodology and a survey of enterprises regarding health insurance.

5.2 National Accounts Analysis

China began to produce national health accounts in the early 1980s. In the early 1990s the Ministry of Health made the Chinese Health Economics Institute (CHEI) responsible for this area of work. The CHEI has published methodological guidelines. The present study applied these guidelines to data from the following sources:

- Annual statistics reports for 1993-99.
- Annual household expenditure surveys for 1993-99. This survey is organised by the Jiangsu Province Statistical Bureau with a province-wide sample. The sample includes 100 urban and 600 rural households in Nantong. Households are asked to record all income and expenditure for a defined period. The findings are published in the annual statistics reports.
- Routine government expenditure reports.
- Nantong Health Bureau Statistical Reports for 1995 and 1997-99.
- Statistical Reports by the Nantong Medical Insurance Fund 1997-2000.

The population of Nantong Municipality rose from 7.8 to 7.9 million during the 1990s, whilst the urban population grew from 1.5 to 2.5 million (Chapter 3, Table 3). Downtown Nantong had a population of 0.65 million in 1999, according to the Nantong Social and Economic Statistics for 1993-99.

Between 1993 and 1999 total health expenditure rose from 818 million rmb to 2,224 million rmb (table 1). GDP rose at approximately the same rate. Health expenditure accounted for around 3.3% of GDP throughout this period. This proportion is substantially lower than the national average of 4.8% in 1998.

Table 5.1. Total Health Expenses and GDP in Nantong, 1993-1999

Year	93	94	95	96	97	98	99
Total health expenses (million)	818	983	1089	1622	1788	1897	2224
GDP (billion)	25.1	32.8	46.7	54.0	58.0	62.4	67.0
Percentages of total health expense in GDP	3.26	3	2.33	3	3.1	3.04	3.32
Health expenditure per person per year (yuan)	105	126	139	207	228	241	283

*Nantong health bureau data: Nantong total health expenses table(1993-1999)

There are three major sources of health finance in Nantong: government budgets, social funds and out-of-pocket payments (table 5.2.). Government health budgets account for a

diminishing share of total expenditure. Their share fell from 17% to 14% between 1993 and 1999. The share provided by individuals rose from 40% to 44%.

Health's share of total government expenditure fell from 12.6% to 10.5% between 1993 and 1999 (Table 3). Government health expenditure includes budgetary allocations to providers of health services and the government insurance scheme (GIS). Between 1993 and 1999, spending on GIS did not rise as quickly as total health budgets (table 5.4.). The proportion of government health budgets allocated to service providers rose from 60.0% to 62.9%. Expenditure on public health providers rose from 10.4 to 25.9 rmb per capita.

Table 5.2. Sources of Health Finance in Nantong, 1993-1999 'million rmb'

Year	93	94	95	96	97	98	99
Total health expenses	818	983	1089	1622	1788	1897	2224
Budgetary health expenses	137	204	232	239	268	287	319
Budgetary health expenses as percentage of total (%)	16.7	20.7	21.3	14.7	15	15.2	14.3
Social health expenses	353	389	428	682	750	802	936
Social health expenses as percentage of total (%)	43.2	40.0	39.3	42.1	41.9	42.3	42.1
Individual health expenses	328	390	429	701	771	808	970
Individual health expenses as percentage of total (%)	40.1	39.7	39.4	43.2	43.1	42.6	43.6

*Nantong health bureau data: Nantong total health expenses table (1993-1999)

Table 5.3. Health's Share of Government Budgetary Expenditure, 1993-1999 'million rmb'

Year	93	94	95	96	97	98	99
Government expenditure*	1,086	1,459	1,731	2,019	2,389	2,707	3,044
Government health expenditure**	137	204	232	239	268	287	319
Health's share of total government expenditure (%)	12.6	14.0	13.4	11.8	11.2	10.6	10.5

* Nantong social and economic statistics (1993-99)
**Nantong health bureau data: Nantong total health expenses table (1993-1999)

Table 5.4. Government Health Budgets, 1993-1999, 'million rmb'

Year	93	94	95	96	97	98	99
Budgetary health expenses	137	204	232	239	268	287	319
GIS budget	55	85	105	98	111	112	118
GIS budget as a proportion of total (%)	40.5	41.8	45.3	40.8	41.4	38.8	37.1
Public health care budgets	81	119	127	141	157	176	200
Public health care as a proportion of total (%)	59.5	58.2	54.7	59.2	58.6	61.2	62.9

*Nantong health bureau data: Nantong total health expenses table (1993-1999)

Around 70% of the public health care budget is allocated to general operations. The remainder goes to traditional Chinese medicine, family planning, medical research, medical education and construction of facilities. Table 5.5. presents data on the allocation of the general operations budget. The proportion allocated to hospitals rose from 23.9% to 31.2%, while the percentage allocated to township health centres stayed relatively constant. The

proportion allocated to the Anti-epidemic Station (AES) and to the MCH Centre fell. Nantong allocated only 1.3 rmb per person to its anti-epidemic system and 0.4 rmb to its MCH services in 1999.

Table 5.5. Allocation of the General Operation Budget in Nantong (1995-1999)

Year	95		97		98		99	
	Million rmb	%	Million rmb	%	Million rmb	%	Million rmb	%
General operation	90	100	114	100	125	100	120	100
Hospital expenses	21.5	23.9	29.9	26.2	37.7	30.3	37.4	31.2
Township hospital expenses	31.8	35.2	39.9	35.0	41.0	32.9	43.3	36.1
Anti-epi expenses	9.1	10.0	10.3	9.0	10.9	8.8	10.3	8.6
MCH expenses	2.7	2.9	3.4	3.0	3.4	2.7	3.0	2.5
Other expenses	24.9	28.0	30.5	26.8	32.0	25.3	26	21.6
EPS per capita	1.2		1.3		1.4		1.3	
MCH per capita	0.3		0.4		0.4		0.4	

* Edited Nantong health statistics by Nantong health bureau (1995,1997-1999)

There were two broad categories of urban health insurance scheme until the recent reforms (Box 5.1.). The government insurance system (GIS) was for government employees and the labour insurance system (LIS) was for workers in state-owned enterprises (SOEs). The government recommended that collective enterprises (COEs) provide health insurance, but benefit levels tended to be low. The GIS was funded out of government budgets and LIS out of enterprise welfare funds. In 1997 Nantong launched a municipal health insurance scheme, to which all government institutions and enterprises were invited to join (see section 5.3.3). All three kinds of insurance scheme persisted throughout the study period.

Tables 5.6. and 5.7. present data on GIS. Although the government allocation to GIS rose yearly, it could not cover the full cost of health benefits for government employees. Institutions also contribute to their employees' GIS fund. The researchers could not obtain data on these contributions before 1996.

There are problems with the data in table 5.7. on the number of beneficiaries and expenditure per beneficiary of GIS. This is due to confusions during the establishment of the municipal health insurance scheme. The data for 1999 and 2000 do not include approximately one-third of GIS beneficiaries, whose employers did not join the scheme. It is important to treat the data in table 5.7. with caution. It is interesting to note that disbursements per person rose between 1996 and 2000. However, disbursements per person for current employees and retirees fell. This may be due to changes in the benefits

Box 5.1. Characteristics of the Major Health Insurance Schemes in Nantong

Type of scheme	Source of finance	Beneficiaries	Benefits
GIS	Government health budget	public sector employees and groups with special entitlements to health benefits (war veterans, senior cadres and so forth)	- medical care free of charge except for small registration fees and co-payments -industrial injury or work related- illness treated free of charge -members of special group have virtually free health care
LIS	Enterprise welfare fund	employees and pensioners of SOEs and other enterprises	- all forms of medical care free of charge except for small registration fees and co-payments -Industrial injury or work related-illness treated at no charge - 50% of cost of medical care for immediate family
Municipal health insurance	Contributions by enterprise and employees	all employees, whose employer has joined the scheme	- outpatient care funded from individual account and then out-of-pocket payments - hospital care funded from social fund with co-payments and a ceiling - members of special groups have virtually free care

Table 5.6. Expenditure by the Nantong GIS, 1993-1999 (million rmb)

Year	93	94	95	96	97	98	99
Contributions from government health budget	55	85	105	98	111	112	118
Contributions by enterprises[1]				43	32	32	39
Total				140	142	143	157

1. Data unavailable for before 1996

* Nantong health bureau data: Nantong total health expenses table(1993-1999)

Table 5.7. Basic Data on the Nantong GIS (1996-2000)

Year	96	97	98	99	2000
Beneficiaries					
Currently employed	22,887	23,730	24,888	14,646	14,795
Retired with special entitlements	1248	1265	1263	900	880
Disabled	30	30	30	7	14
Retired	5,500	5,614	5,778	3,546	3,862
Total	29,665	30,639	31,959	19,099	19,551
Disbursements per person per year					
Average	1,451	1,572	1,626	1,340	1,654
Average for current employees	835	808	830	584	757
Average for retired people with special entitlements	9,647	12,537	13,452	14,518	19,909
Average for retired people	2,162	2,337	2,482	1,119	936

* Edited Nantong health statistics by the management center of Nantong employee medical insurance fund (1997-2000)

package that required people to pay a substantial proportion of their outpatient costs. It may also reflect the fact that employers provided supplementary benefits for which data were not available.

The data on social health expenditure are complex (table 5.8.). This category includes labour insurance, enterprise-based health services and a variety of local rural health insurance schemes. The statistical rules changed in 1996 and it is difficult to compare data from before and after that date. The principal difference is that data from townships and villages were included after 1996.

Table 5.8. Social Health Expenses in Nantong (1993-1999) 'million rmb'

Year	93	94	95	96	97	98	99
Exp by public and government units				86	79	82	94
Health care for gov staff				43	32	32	39
Unit clinic exp. For gov staff				43	47	50	56
Health care for enterprise staff				362	398	418	501
Unit clinic expenses for enterprise employees				26	29	30	34
Exp by state-owned enterprises	191	211	232				
Exp by collective-owned enterprises	108	120	132				
Exp by other ownership	10	10	11				
Exp by township and villages				119	131	138	153
Private health facilities				2	2	2	4
Non-budgetary exp from health sectors (investment by facilities from their own earnings)				45	59	67	74
Others				43	53	66	75
Total	**309**	**341**	**375**	**682**	**750**	**802**	**936**

* Nantong health bureau data: Nantong total health expenses table(1993-1999)

Table 5.9. presents data on labour insurance between 1996 and 1998. In subsequent years a substantial number of people left LIS and joined the municipal health insurance scheme. The benefits provided to LIS members cost substantially more than average health expenditure in Nantong.

Table 5.9. Basic Data on the Nantong LIS (1996-1998)

Year	96	97	98
Number of beneficiaries	273,153	266,095	263,040
Total disbursements 'million rmb'	162	168	215
Disbursements per beneficiary rmb	592	633	817

* Edited Nantong health statistics by the management centre of Nantong employee medical insurance fund (1997-2000)

Table 5.10. Out of Pocket Health Expenditure in Nantong (1993-1999) 'million rmb'

Year	93	94	95	96	97	98	99
Total out of pocket expenditure	328	390	429	701	771	808	970
Out of pocket expenditure by urban residents[1]	74	88	97	259	285	322	386
Out of pocket expenditure by rural residents	254	302	332	441	486	487	584

1. Prior to 1996, 'urban population' only included downtown Nantong; from 1996 it included the entire county urban population.

* Nantong health bureau data: Nantong total health expenses table (1993-1999)

Table 5.10. presents estimates of out-of-pocket payments for health services based on the annual household expenditure survey. Health's share of total expenditure was higher in rural areas. This reflects the much higher levels of health insurance in the city. Out-of-pocket payments have risen rapidly in urban areas. This reflects the falling numbers who are fully insured. It may also reflect increasing willingness to purchase health-related goods from drug shops.

Table 5.11. Average out of Pocket Health Expenses per Resident in Nantong (1993-1999)

Year	93	94	95	96	97	98	99
Urban residents[1]							
Med exp per resident rmb	42	65	90	176	136	139	216
Medical expenditure as a proportion of total expenditure (%)	1.5	1.8	2.1	3.8	2.8	2.4	3.7
Rural residents							
Med exp per resident**			58		115	105	125
Medical expenditure as a proportion of total expenditure (%)	-	-	2.6	-	4.3	4.0	4.9

1. Prior to 1996, 'urban population' only included downtown Nantong; from 1996 it included the entire county urban population.

*Social economy statistic in Nantong

** The statistics of the family livelihood survey in Nantong residents(1993-1999)

5.3 Health Insurance in Nantong

5.3.1 National Trends

The pattern of urban employment has changed considerably. In 1980, most enterprise employees worked for SOEs or COEs; now these categories of enterprise accounted for about half of enterprise employees (China Statistic Yearbook, 2000). Fewer people have permanent employment and many more have fix-term contracts or temporary jobs. These changes have had a major impact on urban health insurance.

Different types of enterprises provide different health and welfare benefits; SOEs provide more benefits than COEs (table 5.12.). Enterprises may provide more benefits to permanent employees than to other workers. [4] The government urges all categories of enterprise to provide medical insurance for their employees, but the benefit level depends on the nature of the enterprise and the status of employment (Editorial Department of China Social Insurance, 1998).

[4] A document issued by the National Economic and Trade Commission, and the Ministries of Personnel and Labour and Social Security in early 2001, *Suggestions on Enhance Personnel, Labour and Redistribution Systems in SOEs*, requests SOEs to provide the same entitlements to all categories of staff.

Table 5.12. Welfare, Health Care and Salary for Enterprise Employees, 1999

Type of enterprise	Insurance and welfare funds per person (*yuan*)	Average health care fund per person (*yuan*)	Average Salary (*yuan*)
SOE	1078.1	521.1	8530
COE	430.1	198.9	5670
Other	427.4	175.3	9828

Source: China Labour Statistical Yearbook, 2000.

Social welfare and health insurance is a growing financial burden on enterprises and different levels of government (Xu, 1998; Yang, 1998; Hu and Gong, 1999). Between 1978 and 1996 the cost of LIS rose 20.8-fold, whilst GDP rose 17.9-fold (table 5.13.)

Table 5.13. Expenditure Under Labour Insurance Medical Service Scheme

Year	Expenditure on medical services			GDP (billion *yuan*)
	total (billion *yuan*)	Average per head (*yuan*)	percentage of total welfare funds (%)	
1978	2.8	37.9	-	362.4
1980	3.6	45.4	27.3	451.8
1985	6.5	71.9	19.7	896.4
1990	22.6	218.8	24.3	1854.8
1995	55.5	492.6	23.7	5847.8
1996	61.6	547.6	22.8	6859.4

Source: Yang (1998)

The government gives high priority to the reform of the system of urban health finance. It began a serious reform effort in the early 1990s with pilot schemes in several medium sized cities. The first two were in Jiujiang, Jiangxi province and in Zhenjiang, Jiangsu province. When the schemes were expanded to additional cities it was found that some units were keen to join, some were reluctant and some joined for only a year or two. Yu and Ren (1998) argue that these responses reflect different interests between enterprises and their employees. The team undertook a survey of enterprises in Nantong to assess whether attitudes to the municipal health insurance scheme were influenced by these factors.

5.3.2 Variations Between Enterprises in the Study Sample

The survey was carried out in December 1999, two and a half years after the launch of the scheme. The sample of 21 units included 2 government institutions, 1 public agency, 10 state-own enterprises, 4 collective enterprises and 4 enterprises of other ownership (Annex 1). The focus groups included managers and medical staff at the sample institutions.

Table 5.15. presents data on the kinds of employee in the sample institutions. Employees of government and public agency employees tend to have permanent posts. Enterprises in the category “other”, on the other hand, largely employ people on fix-term contracts or temporary workers.

Table 5.15. Composition of the Employees by Employment Type

Type of Unit	Employment type			
	Permanent	Contracted	Temporary	Retiree
Governmental & Public Agencies	64.2	0.9	0.3	34.6
SOEs	28.0	45.2	0.7	26.1
COEs	15.9	58.1	0.6	24.8
Other ownership enterprises	8.7	70.2	15.5	5.6

Government and public agencies have the highest proportion of retirees, followed by SOEs and COEs. The former units reported that 36.2% of their workforce (including retirees) was over 60 years of age (table 16). SOEs also reported substantial numbers in this category. The other kinds of enterprises had a much younger workforce. This difference reflects the history of different categories of enterprise. Many government and public agencies and SOEs were established years ago and their workforce has aged. Most other enterprises were established since 1990. This is one reason why their workforce is younger. Another reason is that they have few permanent staff.

Table 5.16. Composition of the Employees by Age, Nantong

Type of institution	**Age**			
	<40	40-60	60-80	>80
Governmental & Public Agencies	28.8	35.1	32.4	3.8
SOEs	32.8	37.0	25.1	1.5
COEs	48.3	32.4	18.5	0.8
Other ownership enterprises	85.2	11	3.6	0.2

Table 5.17. presents data on the cost of health benefits as a percentage of total salary in the years just before the launch of the municipal health insurance scheme. Government and public agencies spent 16.9% of salaries, SOEs and COEs spent a lower proportion and other enterprises spent very little on health. The differences reflect the age profile and benefits packages of the categories of employer. LIS schemes tend to demand smaller co-payments for those with long years of service (table 5.18.). This is another reason why enterprises with an older workforce tend to spend more on health benefits.

Table 5.17. Unit paid medical fee as percentage of total salary

Type of institutions	**Expenditure on medical benefits as a percentage of total salary**	
	1995	1996
Government & Public Agencies	16.3	16.9
SOEs	11.4	10.5
COEs	10.1	12.0
Other ownership	3.6	4.0

Table 5.18. Rates of Co-Payment by Enterprise-Bbased LIS

Enterprise	Rate of co-payment for those with different length of service (%)				
	<10 years	10-20 years	20-30 years	>30 years	Retired
A	25	20	15	10	5
B	20	15	10	10	8
C	25	20	15	10	10
D	22	20	18	16	16

5.3.3 Nantong Municipal Health Insurance Scheme

Nantong launched its municipal health insurance scheme in 1997. All government and public agencies, and enterprises were invited to join. Employers contributed a premium (11.5% of previous year's salary when the scheme was introduced in 1997, reduced to 8% in 2000) and individuals contributed to their individual account (1% of the previous year's salary in 1997, increased to 2% in 2000).

Initially, individuals were expected to fund minor illnesses out of their individual account, supplemented by out-of-pocket payments. After spending 5% of the previous years' salary people could claim reimbursement from the risk fund, with some co-payment. A small number of people with special entitlements (war veterans, retired cadres and so forth) could claim reimbursement for all medical expenses. The government established a Health Insurance Fund Administration to manage the scheme.

By the end of 1998 the scheme was experiencing serious financial difficulties. The individual accounts had a notional balance of 24 million rmb, but the risk fund had a deficit of 43 million rmb, of which 15 million had been used to finance health care for people with special entitlements. The net deficit was 17 million rmb.

The study took place in late 1999. At that time, 8 units were in the scheme, 12 had remained in LIS and 1 had joined a commercial insurance scheme. The enterprises that joined the municipal scheme tended to have an older workforce (table 5.19.). It is particularly notable that a much higher proportion of their workforce (working and retired) were over 60 years of age and 3.3% were over 80. Enterprises that did not join had a younger workforce. Enterprises that joined the scheme tended to have a much higher proportion of permanent staff and many more retirees (table 5.20.).

Table 5.19. Age Composition of the Employees and Type of Health Care, Nantong

Type of health care	**Age**			
	<40	40-60	60-80	>80
Municipal health insurance	36.6	31.3	30.8	3.3
Labour insurance	50.3	38.3	11.4	0.2
Commercial insurance	99.3	0.7	0.0	0.0

Table 5.20. Employment Type of the Employees and Type of Health Care

Type of health care	Employment type			
	Permanent	Contracted	Temporary	Retiree
Municipal health insurance	47.5	12.0	6.7	33.8
Labour insurance	18.6	66.9	1.9	18.6
Commercial insurance	0.0	100.0	0.0	0.0

Table 5.21. presents data on expenditure on the health benefit as a percentage of total salary. Institutions that joined the scheme reported high levels of health expenditure before joining (16.5%) and a subsequent fall. Institutions that did not join reported lower levels of expenditure on health benefits before and after the municipal scheme was launched.

Table 5.21. Expenditure on Health Benefits as Percentage of Total Salary

Form of insurance	**Expenditure on health benefits as percentage of total salary**			
	1995	1996	1997	1998
Municipal health insurance	16.5*	16.5*	12.3	13.2
LIS	9.1	9.1	9.3	8.9
Commercial insurance	1.6	1.6	1.1	1.0

*Before joined the scheme.

Tables 5.22. and 5.23. look particularly at the SOEs, distinguishing between profit-making and loss-making enterpries. The enterprises that joined had a higher percentage of permanent employees and retirees, a higher portion of elder employees, and higher spending on medical care. It is particularly noteworthy that the loss-making enterprises that joined the scheme had been spending a very high proportion of salary costs on health benefits.

Table 5.22. Types of Employment in SOEs that Joined and Did Not Join the Municipal Insurance Scheme

Type of SOEs		Type of employment (%)			
		Permanent	Contracted	Temporary	Retiree
Profit-making	Joined the scheme	62.5	36.2	4.7	32.7
	Not joined the scheme	42.5	45.7	0.3	11.5
Loss-making	Joined the scheme	33.3	34.1	0.2	32.5
	Not joined the scheme	0.0	72.2	0.2	27.6

Table 5.23. Age of Workforce and Cost of Medical Benefit in SOEs that Joined and Did Not Join the Municipal Insurance Scheme

Type of SOEs		Age of workforce (%)				Medical benefit as % of salary	
		<40	40-60	60-80	>80	1995	1996
Profit-making	Joined the scheme	39.0	37.2	19.3	4.5	9.2	9.6
	Not joined the scheme	45.0	45.3	9.7	0.0	7.8	7.3
Loss-making	Joined the scheme	36.3	34.6	27.3	1.8	20.5	19.2
	Not joined the scheme	35.6	48.4	15.7	0.3	11.5	8.8

Focus group discussions with enterprise managers and employees revealed that they assessed potential benefits and costs when deciding whether to join the municipal health insurance scheme. Box 5.2. summarises the discussions at one enterprise that joined the scheme and one that did not. Both discussions revealed serious doubts about the usefulness of the scheme. Many of these issues were addressed when the scheme was redesigned in mid-2000.

Box 5.2. Attitudes to the Municipal Insurance Scheme in Late 1999

Unit E
This was a loss-making enterprise. After joining the scheme, the enterprise had to spend more on medical care than previously. In 1995 and 1996, the enterprise sent 11.5% and 11.6% of total salary, respectively; in 1997 and 1998, after joining the scheme, it spent 11.9% and 12.2% of total salary. The employees had to pay more out of pocket according to the regulations of the scheme. They were less likely to visit hospitals than before, preferring to buy drugs from pharmacies for minor illnesses. Since joining the scheme, the number of health professionals working at the enterprise clinic fell from 4 to 2, due largely to a fall in utlisation.

Unit F
This was a profitable enterprise with a relatively young workforce. Between 1995 and 1998, its spending on health care was 8.4%, 5.6%, 4.9% and 7.7% of total salary, respectively. The enterprise did not join the scheme because it would have had to pay more in contributions, whilst the benefits to employees would diminish. Also,the employees would have to choose from a limited list of health providers.

Nantong modified the design of the scheme in July 2000. The main changes are listed below:

- The employer's contribution was decreased from 11.8% to 8% of average salary;
- The individual's contribution was increased from 1 to 2% of salary;
- The employer's contribution for retirees was set at 2% of pension to be paid into individual accounts;
- Funding from social pooling was only to be used for inpatient care and certain chronic conditions. Individuals would use their savings accounts for outpatient care;
- Special funds were available for catastrophic illness (when expenditure exceeds 30,000 yuan in a year);
- Employers were permitted to purchase supplementary insurance.
- The entitlements for the special group were to be paid from a government grant equivalent to 4100 rmb per person.

A report by the Nantong Health Insurance Management Centre (2001) suggests that these changes were successful. More loss-making enterprises could afford to join the scheme. The provision for catastrophic illness protected against serious impoverishment. After the modification, the scheme increased the number of beneficiaries and improved its financial situation. Between April 1997 and June 2000, 853 units with 71,000 employees had joined the scheme; total income was 228.14 million *yuan* and total spending was 219.65 million *yuan*. By June 2001, 1890 units with 255,000 employees were members of the scheme; total income for the year following July 2000 was 116.88 million *yuan* and total spending was 76.69 million *yuan*. It remains to be seen if the new arrangements are sustainable and if they provide adequate coverage to beneficiaries.

5. 4 Discussion

Nantong spends around 3% of its GDP on health. This is low compared to Chinese national averages and international experience. It is also well below the government target of 5% of GDP.

The contribution of out-of-pocket payments to total health expenditure rose between 1993 and 1999 from 40.1% to 43.6%. This occurred when total health expenditure was rising rapidly. Households are spending a growing share of their income on medical care. On the other hand, government budgets account for a diminishing share of total expenditure. One area of particular concern is that government budgets for preventive services and public health have fallen behind inflation.

There is a large difference in health expenditure between urban and rural residents and between those with various kinds of insurance coverage. Average out of pocket health expenditure by rural residents was 125 rmb per year in 1999. This represented a very large proportion of total health expenditure in rural localities. On the other hand, government employees covered by GIS received average benefits of 757 rmb and retired beneficiaries received 936 rmb per year. Health benefits for people with special entitlements cost much more than that.

The government has made great efforts to reform urban health insurance. The study revealed that there are considerable differences between government agencies and various categories of enterprise in the age of their workforce, the kinds of employee and the level of health benefit. Government and public agencies and well-established SOEs tend to have an older workforce with many more retirees. They have to spend a considerable sum on medical benefits and they saved money by joining the municipal health insurance schemes. Newly established enterprises, with a young workforce had a great deal to lose for joining such a scheme.

The calculation of costs and potential benefits seems to have been the major factor influencing the decision to join the municipal scheme. The insurance scheme responded by reducing the size of contributions and requiring beneficiaries to pay a substantial proportion of the cost of outpatient services themselves. It also made special arrangements to finance the benefits for people with special entitlements, who had accounted for 25% of disbursements of the scheme. There is some evidence that this led to increases in coverage by the scheme. However, it is too early to assess whether the present scheme is financially viable and whether it will retain the support of young workers and their employers.

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Chapter 5: Appendix 1

The surveyed units in Nantong

City	Categories of the unit	Name of the unit
Nantong	Government & public agency	Nantong Health Bureau
		Nantong Municipal Association of Trade Union
		Nantong Experimental Middle School
	SOEs	Nantong Tallow Factory
		Hua Qiang Group Co. Ltd
		Nantong Factory of Synthetic Material
		Nantong Landscape Co. Ltd of Agricultural Chemical
		Nantong Factory of Wireless Communication Instrument
		Nantong Factory of Electric Condenser
		Nantong Printing and Dyeing Mill
		Nantong No.1 Cotton Mill
		Nantong Factory of Cigarette Filter Tip
		Nantong Heat and Power Plant
	COEs	Nantong Wear Knit Factory
		Nantong No4 Cotton Mill
		Nantong Peppermint Factory
		Nantong Factory of Electric Welder
	Other ownership enterprises	Jiangsu Guanda Group Co. Ltd
		Nantong Silky Wear Knit Co. Ltd
		Nantong Sandexing Electricity Co. Ltd
		Nantong Huaneng Hotel

Chapter 6

ACCESS TO AND USE OF HEALTH SERVICES

6.0 INTRODUCTION

This chapter discusses the health needs and related use of out-patient and inpatient services in Nantong and Zibo. The first section focuses on a number of potentially 'vulnerable' groups, selected on the basis that they do not directly benefit as employees of those enterprises that have traditionally assisted in meeting the health care costs of the urban Chinese population. The second section undertakes a similar investigation for those employed in various types of work unit

6.1 THE COMMUNITY BASED STUDY OF VULNERABLE GROUPS

These groups consisted of the members of: laid-off and unemployed worker households; elderly households; 'poor' households; and households which are classified as being in the 'floating' population. The definition of the groups are discussed below.

6.1.1 Definition and Selection of Target Groups

Laid-off and Unemployed Worker Households

Laid-off and unemployed households were defined as those in which a laid-off or unemployed member was the primary income earner. In Nantong, they were sampled from the name lists of local street committee. In Zibo, household sampled were those whose main earner had a certificate of laid-off work or unemployment and were receiving regular subsidy from the Municipal Bureau of Labour and Social Security. Some of these households were identified through street committees, but most were approached through the Bureau. Most of these workers were still covered by the Labour Insurance Scheme[5] (LIS) of their previous work unit, or the recently established Health Insurance Scheme (HIS) of the municipality, if their erstwhile employer had joined. In the former case, the LIS would assist with health costs if the enterprise was not bankrupt. In the latter, the Bureau would take responsibility.

Elderly Households

Elderly households were designated as those consisting only of people over 60 years old. However, during the fieldwork it was found that a limited number of selected households had another 'temporary' member, who was often said to be visiting to provide assistance. In Nantong, many elderly households contained retired workers, who were still entitled to support from their work unit LIS. Some were in so-called 'special groups', including employees or cadre members who started work before 1949 and disabled ex-servicemen. These could obtain 100% reimbursement of their health care. In Zibo, where urbanisation was relatively recent, there were many 'neighbourhood commissions' based on former villages. Where these had some economic resources, they typically provided a retirement income of some ¥400 to ¥500 per month to elderly households. Most of the elderly had no health scheme coverage, though they might be given some subsidy for large expenditures.

[5] See annex for a description of the many insurance schemes in operation

Poor Households

In Nantong, the poor households sampled were selected from those designated by local agencies, for example the Bureau of Civil Affairs or Municipal Labour Union. These households were eligible for limited financial support from these agencies. Many of those supported by the Bureau were elderly or widowed. They could obtain reasonably generous subsidies for their living and health expenses. Other households received regular welfare payments but no specific help with health care costs. Those designated by the Labour Union were mainly laid-off or unemployed workers, whose enterprise had become unprofitable or bankrupt. They had no routine income or health care support.

In Zibo, only a very small number of households are officially defined as poor by authorised agencies. Here poor households were sampled from a list based on the assessments of local street committee and neighbourhood commissions. Because these households are not legally designated, many do not receive routine payments from local government. Some obtained limited support from their neighbourhood commissions where these had income from collective enterprises.

Floating Population Households

In Nantong, floating population households were identified from the registration lists in two local police agencies. The households selected were those in which a family group had migrated. They included some households consisting of two or more adults, with and without children, and some in which a woman with children had travelled without her husband. Most adults were young and healthy, and some were well educated with reasonable employment prospects. In Zibo, the nature of the households was similar, but because of the absence of an effective registration system, most were sampled in the market places where they worked.

6.1.2 Findings from Nantong City

6.1.2.1 Population Structure and Economic Status

Table 6.1.2.1 shows the distribution of the sampled household members by age and sex. As indicated, the members of floating population households tend to be in the younger age bands, with around 50% being below 30 years, 20% below 15 and just 4% over 60. The majority of members of sampled poor households are over 45, and some 60% are female. Note that a small proportion of 'elderly' households do contain some members of working age, as discussed above.

Table 6.1.2.1 Sampled household members by age and sex (%)

	Laid-off		Elderly		Poor		Floating	
Age group	Male	Female	Male	Female	Male	Female	Male	Female
0~	14.8	17.6	6.1	4.6	7.5	10.3	22.7	18.6
15~	14.2	13.9	3.5	2.3	16.1	11.0	24.8	33.3
30~	39.6	41.7	5.2	3.1	22.6	19.3	39.2	36.1
45~	21.9	15.0	1.7	8.4	18.3	17.9	9.4	8.1
60~	9.5	11.8	83.5	81.7	35.5	41.4	3.8	3.9
Number	169	187	115	131	93	145	286	285

As can be seen in table 6.1.2.2, the number of members varies very widely between the household types. Whereas 39% of the poverty households contain just one member, this is the

case for less than 10% of the floating population and very few of the laid-off households. Over 70% of elderly households consist of just two members.

Table 6.1.2.2 Sampled households by size and type

Household type	1	2	3	4	=5
Laid-off	0.9	10.9	67.3	10.9	10.0
Elderly	16.8	70.6	7.6	0.8	4.2
Poverty	38.9	25.7	26.5	6.2	2.7
Floating	9.0	32.1	46.2	9.0	3.8
All	15.2	34.8	38.1	7.0	4.9

Table 6.1.2.3 provides details on the economic status of the different household groups with reference to the national poverty line (PL) of ¥195/month/capita. From this table it can be seen that overall the incomes of the elderly and floating population households are considerably higher than those of the other two groups. Around 86% of members of the elderly, and 65% of the floating population households, are in households with per capita incomes more than twice the poverty line. Indeed, less than 4% of members of elderly households are living below the poverty line. Laid-off households have around 7% of members in poverty, similar to the figure for those in the floating population, though a further 60% are in the next lowest income category. Around 12% of members of the 'poor' households sample are in households with per capita incomes that are more than twice the poverty line. As discussed above, in Nantong these are households that were designated as poor by local agencies. The apparent contradiction may be due to a misclassification or it may simply be that the situation of some households has improved considerably since the designation was made.

Table 6.1.2.3 Members by household type and household per capita income

Income	Laid-off		Elderly		Poor		Floating	
group	Number	%	Number	%	Number	%	Number	%
< PL	24	6.7	9	3.7	145	60.9	48	8.4
1 PL~	217	61.0	24	9.8	63	26.5	151	26.4
2 PL~	78	21.9	69	28.0	19	8.0	161	28.2
3 PL~	37	10.4	144	58.5	11	4.6	211	37.0
Total	356	100.0	246	100.0	238	100.0	571	100.0

6.1.2.2 Health Care Needs

6.1.2.2.1. Acute Illness

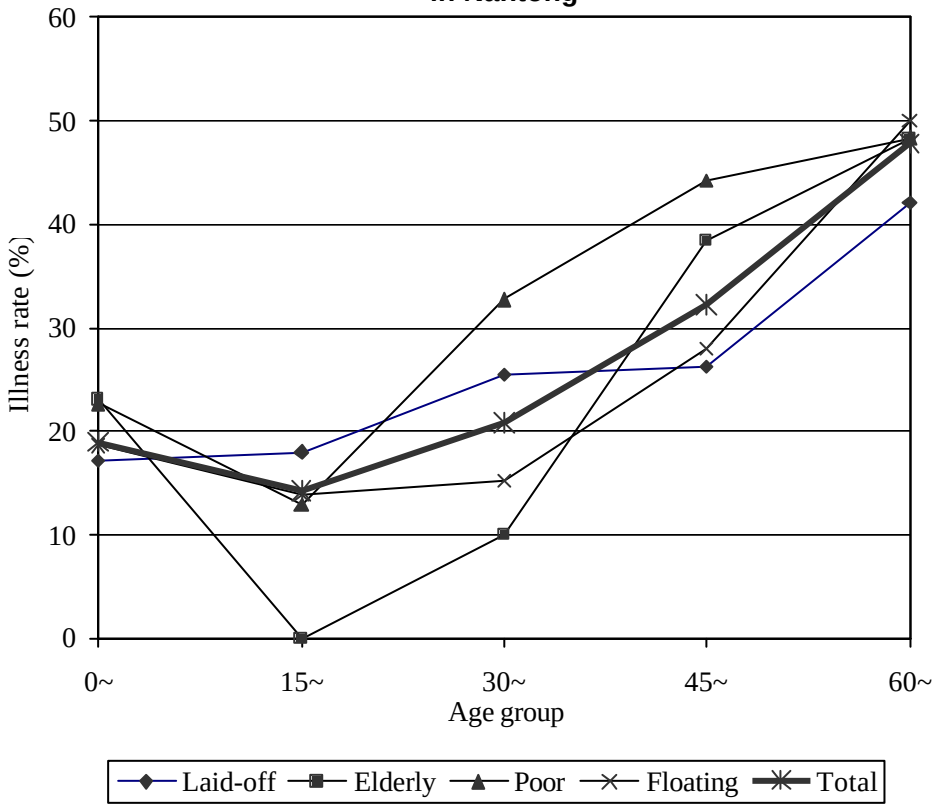
Table 6.1.2.4 shows acute illness rates, in terms of both the number of people reporting episodes and number of cases, within the two weeks prior to the survey. As might be expected, the rates are highest in elderly families. However, they are not much lower among members of poor households. This is at least partly explained by the prevalence of older people in designated poor households. The link between age and illness rates is also evident in the low rates for members of the floating population households.

Table 6.1.2.4 Reported illness incidence during two week period by household type

Type of Household	Household members	Patients		Illnesses	
		Number	%	Cases	per 100 members
Laid-off	356	89	25.0	104	29.2
Elderly	246	107	43.5	140	56.9
Poor	238	89	37.4	125	52.5
Floating	571	103	18.0	109	19.1

Figure 6.1.2.1 shows the incidence rates in different types of household by age group. This would appear to indicate somewhat higher values for 30-44 and 45-59 year olds in poor households and lower rates for these same age bands in floating population households. This would correspond to an assumption that the circumstances of those in poorer households tend to make them somewhat more prone to acute illnesses, while those who have decided to migrate in search of an improved standard of living are self-selected to be in more robust health. Apart from these specific sub-groups, rates are relatively similar, particularly with respect to the 0-14 and 60+ age bands.

Fig 6.1.2.1 Illness rates by household type and age group in Nantong



As in all studies based on self-reported ill health, it should be borne in mind that incidence rates will depend very much on a the subjective judgement of the respondents, for example in terms of their willingness to tolerate or even disregard some types of minor illness. It cannot be assumed that this will be unrelated to their general socio-economic situation or perceived access to care.

6.1.2.2.2 Chronic Illness

As indicated by table 6.1.2.5, members of elderly and poor households report very high chronic illness morbidity rates, with almost 50% of the former suffering from such an illness. Again, the rates for poor households primarily reflects their age structure. Overall, some 56% of those over sixty reported some form of chronic illness. The members of the floating population households, who tend to be relatively young, report the lowest illness rates, with a prevalence of less than 9%.

Table 6.1.2.5 Prevalence of chronic illness by household type

ype of Household	Household members	= 1 illness		=2 illnesses		=3 illnesses	
		Number	%	Number	%	Number	%
Laid-off	356	68	19.1	14	3.9		
Elderly	246	122	49.6	39	15.9	14	5.7
Poor	238	105	44.1	30	12.6	8	3.4
Floating	571	50	8.8	6	1.1	2	0.4

6.1.2.2.3 Hospital Referrals

A less subjective indicator of health care need is provided by the number of household members referred for inpatient treatment. Again, the corresponding rate is highly age related. More than half of all referrals are for those over 60. While members of poor and elderly households have considerably higher rates than the other household types, this is mainly explained by their age composition (table 6.1.2.6).

Table 6.1.2.6 Inpatient referrals by household type

Type of household	People		Patients referred				Referrals			
	Total	60+	Number	%	60+		Number	Per 100 members	60+	
					Number	%			Number	Per 100 members
Laid-off	356	38	19	5.3	4	10.5	22	6.2	5	13.1
Elderly	246	203	39	15.9	38	18.7	52	21.1	51	25.1
Poor	238	93	23	9.7	10	10.7	25	10.5	10	17.7
Floating	571	22	16	2.8	3	13.6	20	3.5	6	27.3

6.1.2.3 Health Scheme Coverage

In both Nantong and Zibo, GIS is implemented in only a few government institutions and covers a relatively small part of population. Even where GIS is implemented, the regulations are close to those in the new health insurance scheme (HIS), so they are here combined for analysis. Table 6.1.2.7 illustrates the reimbursement rates of the various schemes. Note that the rates are generally similar for acute episodes and inpatient treatment, while the LIS appears to provide less generously for chronic illness. 'Other' schemes, with lower reimbursements, include half-GIS and half-LIS, which mainly provide for pensioner household members; student insurance; and the co-operative medical system (CMS)[6].

[6] See annex

Table 6.1.2.7 Reimbursement rates for outpatient, chronic disease and inpatient care

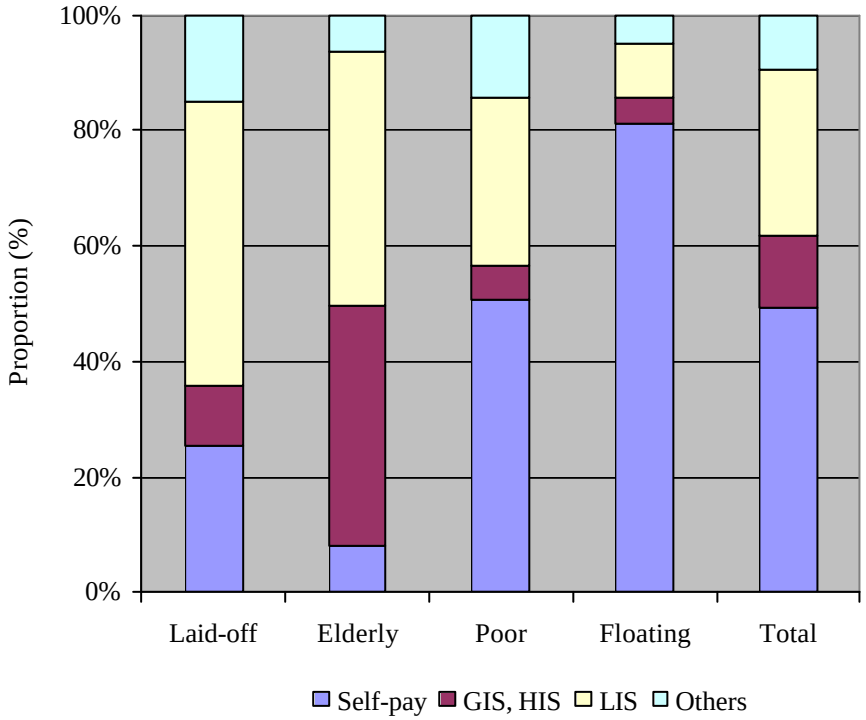
Health scheme	Illness in 2 Wks (%)		Chronic disease (%)		Inpatient (%)	
	Average	Median	Average	Median	Average	Median
GIS/HIS	73.7	100.0	95.6	100.0	86.4	91.7
LIS	80.5	85.0	69.7	80.0	83.4	88.8
Others	43.0	49.2	60.3	60.0	65.5	50.0
Total	77.4	80.0	80.3	85.0	84.3	88.8

Table 6.1.2.8 and figure 6.1.2.2 illustrate the great variation in health scheme coverage between the sampled household groups. In floating population and poor households, 81% and 50% of members have to meet health care costs from their own resources. This compares to 26% in laid-off households and just 8% in elderly households. On the other hand, 85% of members in elderly and 60% in laid-off households are covered by GIS, HIS or LIS.

Table 6.1.2.8 Health scheme coverage by household type (%)

Scheme	Laid-off	Elderly	Poor	Floating
Self-pay	25.5	8.1	50.6	81.1
GIS/HIS	10.2	41.5	5.9	4.4
LIS	49.3	43.9	29.1	9.4
Others	15.0	6.5	14.3	5.1

Fig 6.1.2.2 Health scheme coverage in different household groups in Nantong



From the above discussion, it can be seen that all measures of health need tend to be highest for members of the elderly and poor households, and lowest for those in the floating population households. This latter observation primarily reflects the relatively young age

structure of this group. On the other hand, only a small minority of these households are covered by any form of health care scheme and have to obtain care on a fee-for service basis. As indicated in table 6.1.2.3, the majority of these households are well above the poverty line and can probably afford basic health care costs. However, it should be noted, both that the poverty line is low by international standards (around US$0.7), and that some one third of floating population households have per capita incomes less than twice this level. High or frequent health care expenditures are thus likely to make a considerable impact on their ability to afford other essential goods and services.

6.1.2.4. Health Service Utilisation

6.1.2.4.1. Acute Illness

Table 6.1.2.9 shows the outpatient care utilisation rate for reported illnesses over a two week period. Members of the elderly households have by far the highest visit rate. This may reflect both the perceived severity of illness and the high health scheme coverage for this group. Other household types have very similar utilisation rates.

Table 6.1.2.9 Use of facility over a two week reference period by household type

Household	Patients			Visits		
	Illnesses	Visited	%	Visits	Visits/100 people	Visits per year
Laid-off	104	19	18.3	26	7.3	1.9
Elderly	140	45	32.1	48	19.5	5.1
Poor	125	18	14.4	20	8.4	2.2
Floating	109	20	18.3	24	4.2	1.1

Table 6.1.2.10 illustrates the overall utilisation by members of different health care schemes. Those covered by GIS/HIS have the highest visit rate (39%), almost twice that of those with LIS and at least three times the rate of those covered by 'other' schemes or paying out-of-pocket. This pattern is confirmed by analysis of those aged over 60. Of the 42 household members over 60 years old who were not covered by a scheme, just 3 sought care following a reported acute illness. This compares with the 31 who used health services out of the 83 reporting illness and covered by the GIS/HIS scheme. Those with this cover are estimated to make 6 visits per year to a provider, compared with 3 visits by those with LIS coverage and just 1 by those covered by 'other' schemes or by none.

Table 6.1.2.10 Use of facility over a two week reference period by scheme

Scheme	Visit rate						Visit times					
	Illnesses		Visited		%		Visits		Visits/100 people		Visits per year	
	All	60+	All	60+	All	60+	All	60+	All	60+	All	60+
Self-pay	169	42	22	3	13.0	7.1	27	3	3.9	3.5	1.0	0.9
GIS/HIS	95	83	37	31	38.9	37.3	41	34	23.2	30.9	6.0	8.0
LIS	170	84	39	20	22.9	23.8	46	21	11.4	15.9	3.0	4.1
Others	44	20	4	2	9.1	10.0	4	2	3.0	9.1	0.8	2.4
Total	478	229	102	56	21.3	24.5	118	60	8.4	16.9	2.2	4.4

As might be expected, the most frequently stated reason for not using services was that the illness was 'not serious' (table 6.1.2.11). Cost was the second reason given by all household members apart from those with GIS/HIS cover, only 3 of whom made this response. Among those without cover, 38% said that cost of treatment was the major factor in not seeking care.

Table 6.1.2.11 Non-use of facility over a two week reference period by reason by scheme

Health scheme	Not serious		Cost		No time		Others		Total
	Number	%	Number	%	Number	%	Number	%	
Self-pay	68	48.9	53	38.1	3	2.2	15	10.8	139
GIS/HIS	25	43.9	3	5.3			29	50.9	57
LIS	41	33.6	39	32.0	2	1.6	40	32.8	122
Others	21	52.5	11	27.5			8	20.0	40
Total	155	43.3	106	29.6	5	1.4	92	25.7	358

Finally in this section, table 6.1.2.12 illustrates the clear direct relationship between household income and health service utilisation for acute illness, with visit rates around three times as high for those in households with per capita incomes that are more than twice the poverty line.

Table 6.1.2.12 Visit for illness over two week reference period by income group

Income group	Visit rate			Number of visits		
	Illnesses	Visited	%	Visits	Visits/100 people	Visits per year
Under PL	86	9	10.5	9	4.0	1.0
1 PL~	129	17	13.2	18	4.0	1.0
2 PL~	108	29	26.9	35	10.7	2.8
3 PL~	155	47	30.3	56	13.9	3.6
Total	478	102	21.3	118	8.4	2.2

6.1.2.4.2. Chronic Illnesses

Diagnosis and treatment of chronic illness appears to be somewhat less likely among members of poor households. Table 6.1.2.13 shows that around 91% of those reporting chronic illness had been diagnosed by a doctor and 88% of these had been prescribed treatment. Of this sub-group, 87% had followed the prescription and 79% were continuing treatment. This last figure compares with 97% of members of laid-off households and 90% of elderly households.

Table 6.1.2.13 Diagnosis and treatment of chronic illness by household type

	Patients	Diagnosed (%)	Prescribed (% diagnosed)	Followed (% prescribed)	Taking treatment (% prescribed)
Laid-off	68	98.5	88.1	93.2	96.6
Elderly	122	97.5	95.8	97.4	89.5
Poor	105	91.4	87.5	86.9	78.6
Floating	50	94.0	83.0	94.9	84.6
All	345	95.4	90.0	93.2	87.2

Table 6.1.2.14 indicates that those who are not covered by a health care scheme are more reluctant both to follow their doctor's prescription (87%) and to continue with the prescribed treatment over an extended period (75%). These rates are considerably higher (over 90%) for all other groups. It should be remembered that the relatively healthy members of the floating population households make up a considerable proportion of those without coverage. The failure to follow treatment regimes may reflect the cost of treatment. However, it may also relate to the actual or perceived severity of the illness.

Table 6.1.2.14 Treatment of diagnosed chronic illnesses by scheme

Scheme	Patients	illnesses	Diagnosed		Prescribed among diagnosed			Taking treatment*	
			Number	%	Number	Following	%	Number	%
Self-pay	103	129	122	94.6	94	82	87.2	70	74.5
GIS/HIS	79	116	114	98.3	104	102	98.1	96	92.3
LIS	145	188	179	95.2	167	156	93.4	152	91.0
Other	18	25	23	92.0	20	20	100.0	18	90.0
Total	345	458	438	95.6	385	360	93.5	336	87.3

* Among those prescribed

Table 6.1.2.15 shows the referral rates for those with chronic illness and the corresponding rates of hospitalisation. While referral rates are very similar across the payment schemes a much lower proportion of those with GIS/HIS cover fail to enter hospital following referral. Not only are the rates of 'non-entry' higher among those without coverage but also for those with LIS. This may reflect lower reimbursement rates.

Table 6.1.2.15 Referral and hospitalisation for chronic illness

		Referred		No entry after referral	
Scheme	Patients	Number	%	Number	%
Self-pay	103	19	18.4	13	68.4
GIS/HIS	79	20	25.3	6	30.0
LIS	145	42	29.0	28	66.7
Others	18	4	22.2	1	25.0
Totals	345	85	24.6	48	56.5

6.1.2.4.3. Inpatient Care

Across all the sampled groups around one half of those referred to hospital sought inpatient care (table 6.1.2.16). Members of elderly households were most likely to go into hospital, probably reflecting the relatively greater seriousness of illness for older people. The admittance rates are lowest for members of laid-off and poor households but the numbers involved are probably too low to draw conclusions.

Table 6.1.2.16 Hospital referral and admittance by household type

Household	Referrals	Admittances	%
Laid-off	22	10	45.5
Elderly	52	34	65.4
Poor	25	12	48.0
Floating	20	11	55.0
Total	119	67	56.3

Analysis of hospital referrals and admittances by health scheme for those over 60 is shown in table 6.1.2.17 Again, the low numbers require caution in interpretation. However, it would seem that those with GIS/HIS mainly follow the referral advice, while those without cover are much more reluctant to do so. Admittance rates for household members with LIS cover falls between these two extremes.

Table 6.1.2.17 Hospital referral and admittance by scheme for elderly people (60+)

Scheme	Referrals	No. of admittances	%
Self-pay	7	1	14.3
GIS/HIS	32	25	78.1
LIS	28	13	46.4
Others	5	4	80.0
Total	72	43	59.7

6.1.2.4.4. Choice of Facility

Table 6.1.2.18 indicates the 'provider of first choice' as reported by household members. Overall, 'tertiary' and 'secondary' hospitals are heavily favoured, with at least 80% of members in all types of sampled household specifying one or the other. Primary care services were reported mainly by a small number of members in poor and floating population households. Very few people reported a preference for private facilities, which are relatively scarce in Nantong.

Table 6.1.2.18 Preferred health facility by type of household type (%)

Facility type	Laid-off	Elderly	Poor	Floating	Total
Tertiary	50.4	51.9	70.5	36.9	48.6
Secondary	40.6	33.6	9.1	49.4	37.7
Primary	0.6	0	5.0	7.1	3.8
Public	5.5	6.6	8.2	1.1	4.4
Private	0	0	0	2.2	0.9
Others*	2.9	7.9	7.3	3.2	4.6
Total	100.0	100.0	100.0	100.0	100.0

*Includes hospitals outside Nantong providing specialist treatment for specific conditions

The reasons given for the stated preferences are shown in table 6.1.2.19 A majority of the members of each household type reported that distance to the facility was the key determinant. Around 20% said that quality of service was most important, though the proportion was much less for members of elderly households, who were mainly influenced by contractual arrangements between the facility and their health care scheme. Less than 2% gave cost of services as their priority criterion. Interpretation of these findings may not be straightforward. Hospital outpatient services are so routinely used in Nantong that asking why they are preferred may not seem a sensible question. The focus on distance may simply imply that there is a hospital within easy reach.

Table 6.1.2.19 Main reason for health facility preference by type of household type (%)

Reasons	Laid-off	Elderly	Poor	Floating	Total
Near	51.2	50.0	54.6	66.4	57.6
Price	1.8	1.3	0.9	2.1	1.7
Quality	22.2	5.4	22.2	21.6	18.9
Contract	16.0	33.8	14.8	1.7	13.3
Friends	7.7	8.8	3.2	5.3	6.2
Other	1.2	0.8	4.2	3.0	2.3
Total	100.0	100.0	100.0	100.0	100.0

Table 6.1.2.20 shows the actual type of facility actually used at the first visit for illnesses during a two week reference period. The small numbers do not provide very strong evidence but the pattern of use is broadly in line with stated preferences, though the use of tertiary and

secondary facilities appears to be somewhat less than the previous table would have predicted.

Table 6.1.2.20 Health facility visited over two week reference period by household type

Health facilities	Laid-off		Elderly		Poor		Floating	
	Illnesses	%	Illnesses	%	Illnesses	%	Illnesses	%
Tertiary	6	31.6	21	46.7	9	50.0	6	31.6
Secondary	6	31.6	11	24.4	3	16.7	8	42.1
Primary	2	10.5			2	11.1	4	21.1
Public	2	10.5	5	11.1	1	5.6	1	5.3
Private	1	5.3						
Others	2	10.5	8	17.8	3	16.7		
Total	19	100.0	45	100.0	18	100.0	19	100.0

6.1.2.5. Health Expenditures

6.1.2.5.1. Health Care Costs

Table 6.1.2.21 shows the cost of care for acute illness within the two week reference period. As might be expected, the average cost per visit and per illness varies considerably, while the median cost, reflecting the 'typical' illness incident, is rather similar between facilities. Average costs are higher in tertiary and secondary hospitals, presumably reflecting the greater diversity and possibly seriousness of some of the conditions which they treat. The cost in 'other' facilities simply reflects expenditure by relatively few patients on treatment for chronic illnesses in out of town hospitals.

Table 6.1.2.21 Cost of visits for illness over two week reference period by facility type

Facility type	Illnesses	Visits	Cost per illness	Median	Cost per visit
Tertiary	40	48	138	83	115
Secondary	26	28	171	84	158
Primary	8	10	58	70	46
Public	9	9	75	52	75
Others	13	16	905	120	736

Hospitalisation costs in different types of facility are shown in table 6.1.2.22 Only tertiary and secondary hospitals have sufficient cases to make sensible comparisons. The cost at tertiary level appears to be considerably higher than at secondary, though this seems to be mainly a reflection of the relative length of stay. Again, the 'other' category includes out of town specialist hospitals where costs are very high. Overall, the average number of reported bed-days is very high. It is not clear if this reflects the actual situation or overstatement by respondents.

Table 6.1.2.22 Hospital cost and length of stay by facility type

Facility type	Periods	Cost per period	Median cost	Bed-days per period	Median
Tertiary	26	6,999	5,000	53	22
Secondary	29	5,909	3,000	35	15
Primary	2	2,750	2,750	15	15
Others	3	13,667	8,000	38	36
Total	60	6,664	3,600	43	20

6.1.2.5.2. Economic Burden of Health Services

The various health care schemes tend not to provide special reimbursement arrangements for most chronic illnesses. In the HIS, for example, just five chronic conditions are identified for special consideration. Patients claim for outpatient visits in the same way as for acute episodes. However, as chronic illnesses may require frequent outpatient visits and long-term treatment regimes, the cumulative expenditure can be very large and, even with apparently generous reimbursement, may entail considerable out-of-pocket payments.

Table 6.1.2.23 shows the expenditure for chronic illness by the members of the different household types. The average self-payment per illness is ¥808, or 12% of the annual per capita household income. Most chronic patients are in the elderly and poor households. While the cost per illness is higher for the former group, there out-of-pocket payments are much less, amounting to 6% of annual income as compared to nearly 45% for those in poor households. The floating population also self-pay around two thirds of the cost of treatment, though on average this amounts to just 8% of their relatively high incomes. However, as discussed above, it should be remembered that at least one third of the floating population members are in households with incomes less than twice the poverty line.

Table 6.1.2.23 Health expenditure for chronic illnesses by household

Household	Illnesses treated	Cost per illness	Self-paid per illness	% of income
Laid-off	66	957	499	11.3
Elderly	131	2960	555	6.3
Poor	90	2585	1,234	44.6
Floating	46	1422	1,094	8.2
Total	333	2249	808	11.7

Estimated annual health expenditure by the various household types is shown in table 6.1.2.24 Overall, the average costs of outpatient and inpatient care are respectively ¥424 and ¥283 per capita, with average self-payment expenditures of ¥148 and ¥85. However these averages mask the fact that much of this expenditure relates to the members of elderly and poor households, the latter primarily because they also tend to have a considerable proportion of elderly people. Those in elderly households have considerably higher inpatient costs, but these are off-set by the reimbursement that they receive. In terms of total expenditure, those in poor households have by far the highest economic burden, spending almost 17% of their income on health care, compared to the 6% for those in elderly households. Members of laid-off and floating population households have much lower total costs and spend less than 2% of their income on care.

Table 6.1.2.24 Estimated annual economic burden for health services by household type

Household	Outpatient cost /capita		Inpatient cost /capita		Total expenditure /capita		
	Total	Self-paid	Total	Self-paid	Total	Self-paid	Self-paid % income
Laid-off	119	55	64	28	182	83	1.9
Elderly	951	337	1,038	159	1,990	496	6.0
Poor	1,100	238	394	196	1,494	433	16.8
Floating	105	87	49	42	154	129	1.4
Total	424	148	283	85	707	233	3.4

6.1.3 Findings from Zibo City

6.1.3.1. Population Structure and Economic Status

Table 6.1.3.1 shows the breakdown of the sampled household members in Zibo by age and sex. Overall the distributions are similar to those in Nantong. The members of floating population households tend to be in the younger age bands, with around 45% being below 30 years and 17% below 15. An even smaller number, less than 2%, are over 60. Members of sampled poor households are more evenly distributed across the age bands, but with a considerable proportion of women over 60. The number of men of working age in elderly households is even greater than in Nantong, with around 16% in the 15-44 age group.

Table 6.1.3.1 Sample household members by age and sex (%)

	Laid-off		Elderly		Poor		Floating	
Age group	Male	Female	Male	Female	Male	Female	Male	Female
0~	16.1	17.4	6.5	2.6	13.0	11.7	16.1	17.1
15~	23.3	29.7	9.3	3.4	22.0	16.9	28.7	28.7
30~	40.9	30.8	6.5	3.4	26.8	19.5	46.7	45.0
45~	15.0	16.4	3.7	5.1	21.1	16.2	8.0	7.0
60~	4.7	5.6	73.8	85.5	17.1	35.7	0.4	2.3
Number	193	195	107	117	123	154	261	258

As in Nantong, the number of members varies considerably across the household types (table 6.1.3.2). In general, the distributions are similar but there is at least one major difference. In Zibo many fewer poverty households contain just one member, with some 60% having 3 or more. This is probably a reflection of the different approach to sampling in the two cities.

Table 6.1.3.2 Sampled households by size and type

Household type	1	2	3	4	=5
Laid-off	1.6	12.9	64.5	14.5	6.5
Elderly	14.6	67.0	8.7	6.8	2.9
Poverty	14.4	23.7	33.0	21.6	7.2
Floating	8.1	40.1	37.1	12.2	2.5
All	9.0	35.9	37.2	13.4	4.4

Table 6.1.3.3 describes the economic status of the different household groups, again with reference to the national poverty line. In general, the incomes of all household groups tend to be below those in Nantong. This is particularly true of the members of elderly households. Some 16% of these are in households with incomes below the poverty line, and 46% in households with incomes less than twice the poverty line. The poor households sampled in Zibo have very low incomes, with 54% of members being in households with incomes below the poverty line and less than 5% in households with incomes more than twice this value. Relatively few laid-off households fall below the poverty line, but a majority of members are in households which fall into the next income band. Again, the floating population households have somewhat higher incomes, with 53% of members in households with incomes more than twice the poverty line.

Table 6.1.3.3 Members by household type and household per capita income

Income group	Laid-off		Elderly		Poor		Floating	
	Number	%	Number	%	Number	%	Number	%
< PL	26	6.7	35	15.6	149	53.8	47	9.1
1 PL~	203	52.3	91	40.6	115	41.5	196	37.8
2 PL~	107	27.6	53	23.7	10	3.6	131	25.2
3 PL~	52	13.4	45	20.1	3	1.1	145	27.9
Total	388	100.0	224	100.0	277	100.0	519	100.0

6.1.3.2 Health Care Needs

6.1.3.2.1. Acute Illness

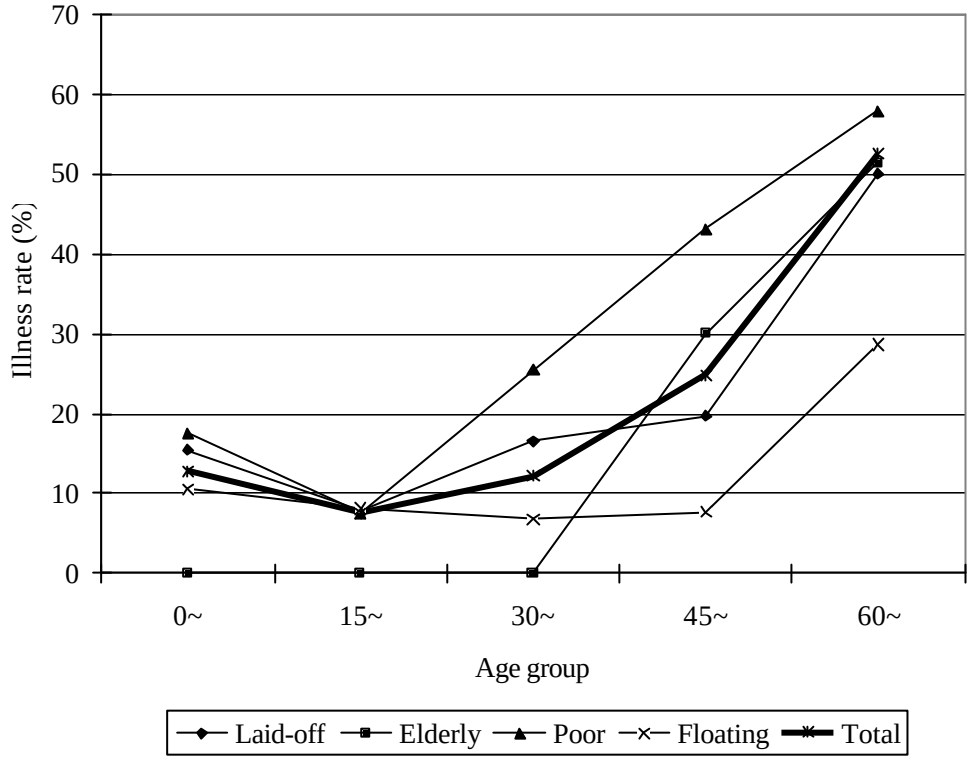
Table 6.1.3.4 shows reported acute illness rates during a two week period, in terms of both the number of people reporting episodes and the number of cases. In general, the rates are lower than in Nantong. However, this may be simply a reflection of the seasonal nature of some acute illnesses and the timing of the surveys, late November in Nantong and March in Zibo. As in Nantong, rates are highest in elderly families, with those for poor households not much lower. But in Zibo it is less possible to attribute the reported ill health of poor households simply to their. age structure, given that almost 60% of the members of these households are below 45. On the other hand, the link between age and illness rates is evident in the low rates for members of the floating population households.

Table 6.1.3.4 Reported illness incidence during a two week period by household type

Type of Household	Household members	Patients		Illnesses	
		Number	%	Cases	per 100 members
Laid-off	388	63	16.2	72	18.6
Elderly	224	95	42.4	113	50.4
Poor	277	92	33.2	112	40.4
Floating	519	42	8.1	45	8.7

Figure 6.1.3.1 clearly indicates higher reported illness rates for the members of poor households at all ages over 30. Members of floating population households have by far the lowest rates in these age bands. This confirms the pattern found in Nantong. Indeed, it may be that the floating population members in Zibo are on average even healthier, given that a substantial number were sampled in local markets where they were actively working.

Figure 6.1.3.1 Illness rates by household type and age group in Zibo



6.1.3.2.2 Chronic Disease

Table 6.1.3.5 indicates that around 50% members of the elderly households report very high chronic illness morbidity rates. This corresponds to the fact that 32% of those aged 45-59 and 60% of those over 60 reported at least one illness. A relatively small proportion of those under 44 report illness. As in Nantong, the rates for poor households are high at 34%, but here, given the age structure of poor households, this implies very high rates for those over 45. As with acute illness, the members of the floating population households in Zibo report very low chronic illness rates, with a prevalence of less than 4%.

Table 6.1.3.5 Prevalence of chronic illnesses by household type

Type of household	Household members	=1 illness		=2 illnesses		=3 illnesses	
		Number	%	Number	%	Number	%
Laid-off	388	40	10.3	3	0.8	2	0.5
Elderly	224	111	49.6	25	11.2	8	3.6
Poor	277	94	33.9	24	8.7	6	2.2
Floating	519	18	3.5	2	0.4		
Total	1408	263	18.7	54	3.8	16	1.1

6.1.3.2.3 Hospital Referrals

Table 6.1.3.6 shows health care need as indicated by the number of household members referred for inpatient treatment. As would be expected, rates for the members of elderly and poor households predominate. It is perhaps surprising , though the total numbers are small, that the rate for those over 60 in poor households is almost twice that for this age group in elderly households. This may reflect concern on the part of health providers as to the care available within poor households. Once again, this indicator would seem to suggest that the members of the sampled floating population households have minimal health care needs. However, it could also reflect the limited contact which these members have with health services.

Table 6.1.3.6 Inpatient referrals by type of household type

Type of household	People		Patients referred				Referrals			
	Total	60+	Number	%	60+		Number	%	60+	
					Number	%			Number	%
Laid-off	388	20	17	4.4	3	15.0	21	5.4	6	30.0
Elderly	224	179	27	12.1	25	14.0	32	14.3	30	16.8
Poor	277	76	39	14.1	21	27.6	49	17.7	28	36.8
Floating	519	7	11	2.1			11	2.1		

6.1.3.3 Health Scheme Coverage

Estimated reimbursement rates for acute illness, chronic illness and hospitalisation are shown in table 6.1.3.7 As described in the discussion of Nantong, the GIS and HIS are combined. In Zibo these schemes appear to provide comparatively low reimbursement rates, 16% for outpatient services, 81% for chronic illness and 64% for inpatient care. However, they cover very few sample household members (table 6.1.2.8) and the estimates are thus based on very small numbers. The traditional LIS in Zibo appears to provide comparable reimbursement to that in Nantong. The other schemes perform less well, with the majority of members receiving no reimbursement for acute illness. This partly reflect the failure of many 'half-LIS' schemes intended for elderly relatives of those with LIS entitlements.

Table 6.1.3.7 Reimbursement rates for outpatient, chronic disease and inpatient care

Health scheme	Illness in 2 WKs (%)		Chronic disease (%)		Inpatients (%)	
	Average	Median	Average	Median	Average	Median
GIS/HIS	16.2	0	81.4	100.0	64.4	60.0
LIS	65.0	53.6	79.7	90.0	82.7	83.8
Others	22.2	0	44.6	50.0	47.4	55.0
Total	40.0	0	77.4	90.0	73.4	72.5

Overall, members of the sampled 'vulnerable group' households in Zibo have a lower coverage of health scheme than in Nantong (table 6.32. and figure 6.4.). Over 70% of the total sample are not members of any health scheme. Whereas 80% of elderly household members are covered in Natong, here the corresponding proportion is just over 30%. Almost three quarters of poor households have to meet health care costs from their own resources. Even in laid-off families, half of the members had no entitlement to assistance with health care costs, and only 10% of floating population household members had any cover.

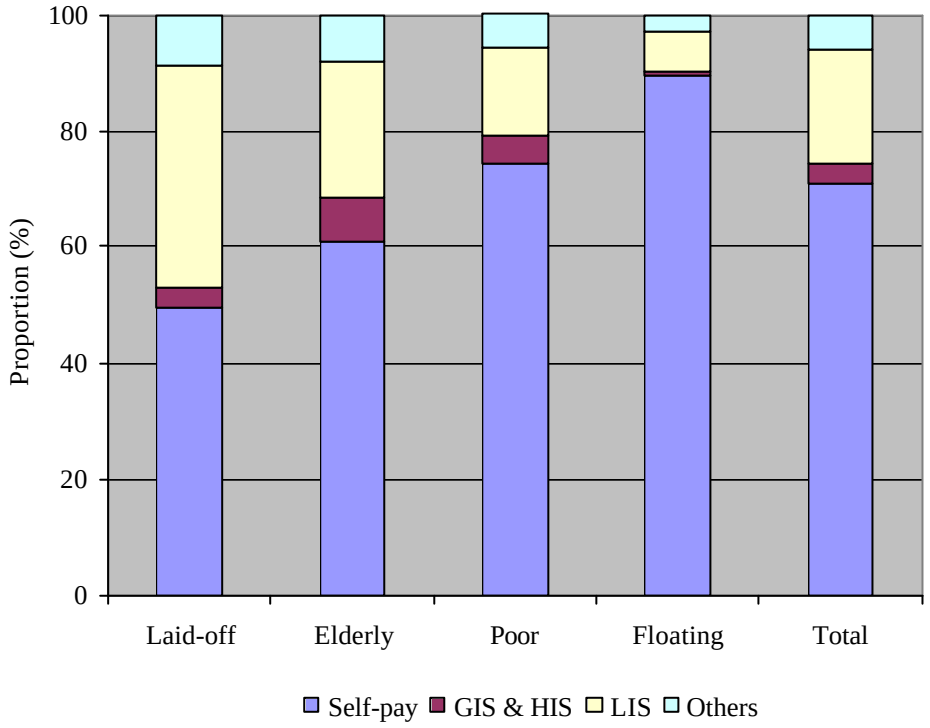
The explanation probably lies in the nature of the central area of Zibo where the sample was taken. Due to the rapid urbanisation of recent years, many of the selected households were

formerly rural, and worked for collective village or township enterprises. If laid-off or retired, they might receive some form of income support or pension from a local government agency or sub-district or neighbourhood committee. However, though would not receive any form of health care cover from this source.

Table 6.1.3.8 Health Scheme Coverage (%) by Type of Household

Scheme	Laid-off	Elderly	Poor	Floating	Total
Self-pay	49.4	60.8	74.4	89.4	70.8
GIS/HIS	3.6	7.7	4.7	0.8	3.4
LIS	38.2	23.4	15.2	7.0	19.9
Others	8.8	8.1	5.8	2.7	5.9
Total	100.0	100.0	100.0	100.0	100.0

Fig 6.1.3.2 Health scheme coverage in different household groups in Zibo



6.1.3.4. Health Services Utilisation

6.1.3.4.1 Acute Illness

Table 6.1.3.9 shows the utilisation of health facilities in terms of both the percentage of household members seeking care over a two week reference period and the number of visits to providers. Utilisation rates are clearly considerably higher than in Nantong and the distribution across the household types differs considerably. Surprisingly, members of the floating population households report the highest rates, 58% (whereas in Nantong they reported one of the lowest), and those in elderly households use facilities least. On the other hand the latter tend to make multiple visits and thus have the highest estimated number of visits per year.

Table 6.1.3.9 Visits for illnesses over two week reference period by household type

Household	Visit rate			Visits		
	Illnesses	Visits	%	Visits	Visits/100 people	Visits per year
Laid-off	72	25	34.7	26	6.7	1.7
Elderly	113	27	23.9	62	27.7	7.2
Poor	112	40	35.7	50	18.1	4.7
Floating	45	26	57.8	28	5.4	1.4
Total	342	118	34.5	166	11.8	3.1

Facility utilisation rates differ between health schemes as indicated in table 6.1.3.10 However, as described above, membership in schemes other than the LIS is so low that it is difficult to make reliable comparisons. It can be seen that the rates differ less than might be expected between those with LIS coverage, 36%, and those with no coverage, 33%. The former do, however, make more visits per illness, resulting in an estimated 4.7 visits per year as compared to 2.6 visits for those who self-pay.

Table 6.1.3.10 Use of facility over two week reference period by scheme

Scheme	Visit rate						Number of visits					
	Illnesses		Visits		%		Visits		Visits/100 people		Visits per year	
	All	60+	All	60+	All	60+	All	60+	All	60+	All	60+
Self-pay	215	114	71	31	33.0	27.2	99	58	10.0	33.9	2.6	8.8
GIS/HIS	19	15	5	3	26.3	20.0	5	3	10.4	14.3	2.7	3.7
LIS	86	45	31	14	36.0	31.1	50	32	18.0	46.4	4.7	12.1
Others	19	10	9	5	47.4	50.0	9	5	11.0	23.8	2.9	6.2
Total	339	184	116	53	34.2	28.8	163	98	11.7	34.8	3.0	9.0

Those without coverage do give cost as one of the main factors in deciding not to seek care, with around 32% of non-users citing this as the reason (table 6.1.3.11). Almost none of those who are covered by a scheme report cost as a determining factor.

Table 6.1.3.11 Non-use of facility over two week reference period by reason by scheme

Health scheme	Not serious		Cost		No time		Others		Total
	Number	%	Number	%	Number	%	Number	%	
Self-pay	55	41.4	42	31.6	3	2.3	33	24.8	133
GIS/HIS	7	53.8	1	7.7			5	38.5	13
LIS	23	51.1	2	4.4			20	44.4	45
Others	5	55.6					4	44.4	9
Total	90	45.0	45	22.5	3	1.5	62	31.0	200

The relationship between income and facility utilisation in Zibo appears more complex than in Nantong. Those in households with incomes below the poverty line do have a lower utilisation rate per person (table 6.1.3.12). However, the annual visit rates are lowest for members of households with incomes more than three times the poverty line. Part of the explanation is that many of the floating population households have reasonably high incomes and, as described above, they make very little use of outpatient services.

Table 6.1.3.12 Visit for illness over week reference period by income group

Income group	Visit rate			Number of visits		
	Illnesses	Visits	%	Visits	Visits/100 people	Visit per year
Under PL	91	22	24.2	30	11.7	3.0
1 PL~	128	52	40.6	64	10.6	2.8
2 PL~	81	30	37.0	55	18.3	4.8
3 PL~	42	14	33.3	17	6.9	1.8
Total	342	118	34.5	166	11.8	3.1

6.1.3.4.2 Chronic Illnesses

Diagnosis and treatment of chronic illness appears to be somewhat less likely among members of poor and, to a lesser extent, laid-off households. Table 6.1.3.13 shows that around 89% of poor household members reporting chronic illness had been diagnosed by a doctor and 89% of these had been prescribed treatment. Of this sub-group, 88% had followed the prescription and 87% were continuing treatment. This last figure compares with 98% of members of elderly households and 91% of laid-off households.

Table 6.1.3.13 Diagnosis and treatment of chronic illness by household type

	Patients	Diagnosed (%)	Prescribed (% diagnosed)	Followed (% prescribed)	Taking treatment (% prescribed)
Laid-off	40	95.0	86.8	93.9	90.9
Elderly	111	96.4	94.4	99.0	98.0
Poor	94	89.4	89.3	88.0	86.7
Floating	18	100.0	88.9	95.0	93.8
All	263	93.9	91.1	92.9	92.9

Table 6.1.3.14 indicates that those without coverage are somewhat less likely to be diagnosed by a doctor and less likely to follow a prescription given by that doctor. However, the main differences appear to lie between those who pay from their own resources and the relatively small number covered by the GIS/HIS. Comparisons with the LIS and other schemes are less marked.

Table 6.1.3.14 Treatment of diagnosed chronic illness by scheme

Scheme	Patients	Illnesses	Diagnosed		Prescribed among diagnosed			Taking treatment*	
			Number	%	Number	Following	%	Number	%
Self-pay	150	192	177	92.2	159	135	84.9	139	87.4
GIS/HIS	20	26	26	100.0	26	26	100.0	26	100.0
LIS	75	97	94	96.9	88	81	92.0	80	90.9
Other	17	17	16	94.1	14	13	92.9	11	78.6
Total	262	332	313	94.3	287	255	88.9	256	89.2

* Among those prescribed

Table 6.1.3.15 shows the referral rates for those with chronic illness and the corresponding rates of hospitalisation. Only self-payment and LIS have a sufficient number of patients to make comparisons. For these two groups referral rates are very similar (33% and 32%) but a considerably lower proportion of those with LIS cover fail to enter hospital following referral (67% compared to 46%).

Table 6.1.3.15 Referral and hospitalisation for chronic illness

		Referred		No entry after referral	
Scheme	Patients	Number	%	Number	%
Self-pay	150	49	32.7	33	67.3
GIS/HIS	20	4	20.0	3	75.0
LIS	75	24	32.0	11	45.8
Others	17	3	17.6	2	66.7
Totals	262	80	30.5	49	61.3

6.1.3.4.3 Inpatient Care

Some 60% of those referred to hospital were admitted (table 6.1.3.16). Contrary to the position in Nantong, over 90% of the members of laid-off households went into hospital following referral, though the total number of referrals is small. This admittance rate was twice that for members of poor households.

Table 6.1.3.16 Hospital Referral and Admittance by Household Type

Household	Referrals	Admittances	%
Laid-off	21	19	90.5
Elderly	32	22	68.8
Poor	49	22	44.9
Floating	11	8	72.7
Total	113	71	62.8

Table 6.1.3.17 considers admittance following referral by elderly people (60+). As above, it is only possible to compare those with LIS coverage to those without cover. While the rate is somewhat lower for the latter, the gap is relatively small, probably a reflection of the perceived seriousness of illness among the elderly and the importance of seeking care even if cost reimbursement is not available.

Table 6.1.3.17 Hospital referral and admittance by scheme for elderly people (60+)

Scheme	Referrals	Admittances	%
Self-pay	35	20	57.1
GIS, HIS	6	3	50.0
LIS	22	17	77.3
Others	1	1	100.0
Total	64	41	64.1

6.1.3.4.4 Choice of Facility

Table 6.1.3.18 shows the type of facility reported by household members as their preferred choice for initial contact. The proportion indicating a preference for tertiary and secondary hospitals is much lower than in Nantong and there is much greater use of other, particularly private health providers. Low health scheme coverage may be one of the determining factors. It is notable that nearly 30% of members of the floating population households specify private providers.

Table 6.1.3.18 Preferred health facility by household type (%)

Health facility	Laid-off	Elderly	Poor	Floating	Total
Tertiary	26.8	26.9	35.2	30.1	29.7
Secondary	14.5	21.3	13.6	12.7	14.8
Primary	22.3	13.4	7.2	1.3	10.4
Public	1.6	0.5	7.2	1.5	2.5
Private	14.7	22.7	18.2	25.8	20.6
Others	20.1	15.3	18.6	28.6	22.0
Total	100.0	100.0	100.0	100.0	100.0

The reasons for these preferences are shown in table 6.1.3.19. As in Nantong, distance to the facility is reported to be the primary consideration by a majority of the members of all household types. However, many more rate cost as their main concern, particularly among those in poor and laid-off households. Only in elderly households is price rarely indicated.

Table 6.1.3.19 Main reason for health facility preference by household type (%)

Reasons	Laid-off	Elderly	Poor	Floating	Total
Nearest	47.1	65.5	49.4	61.1	55.6
Price	14.3	2.3	19.9	12.0	12.6
Quality	18.3	10.9	20.2	21.2	18.5
Contract	15.6	16.4	5.6	1.3	8.7
Friends	3.4	2.7	0.4	0.4	1.6
Other	1.3	2.3	4.5	4.0	3.1
Total	100.0	100.0	100.0	100.0	100.0

Table 6.1.3.20 shows the actual distribution of initial facility visits by household type. Because of the small number of visits, it is difficult to make comparisons, but overall the distributions reflect those indicated in table 6.1.3.18.

Table 6.1.3.20 Health facility visited over two week reference period by household type

Health facilities	Laid-off		Elderly		Poor		Floating		Total	
	Illnesses	%	Illnesses	%	Illnesses	%	Illnesses	%	Illnesses	%
Tertiary	9	36.0	3	11.1	9	23.1	6	23.1	27	23.1
Secondary	1	4.0	12	44.4	5	12.8	2	7.7	20	17.1
Primary	5	20.0	5	18.5	5	12.8	2	7.7	17	14.5
Public					2	5.1	1	3.8	3	2.6
Private	6	24.0	4	14.8	10	25.6	8	30.8	28	23.9
Others	4	16.0	3	11.1	8	20.5	7	26.9	22	18.8
Total	25	100.0	27	100.0	39	100.0	26	100.0	117	100.0

6.1.3.5 Health Expenditures

6.1.3.5.1 Prices in Health Facilities

Table 6.1.3.21 shows the cost for visits to a health facility for acute illness. Because of the high variation in costs, the median is here used as the most representative indicator of facility prices. With the exception of tertiary hospitals, prices are much lower than in Nantong. Further, though secondary and primary hospital costs are a little higher than other facilities, the cost of care, other than at tertiary hospitals, does not vary greatly. This may partly explain the much more even distribution of facility preferences.

Table 6.1.3.21 Cost of visits for illness over two week reference period by facility type

Health facilities	Illnesses	Visits	Cost per illness	Median	Cost per visit
Tertiary	26	28	338	120	314
Secondary	19	30	135	45	86
Primary	15	31	109	50	53
Public	3	3	25	30	25
Private	28	31	139	38	125
Others	22	31	71	31	50
Total	113	154	164	45	120

The costs of in-patient care by type of facility are shown in table 6.1.3.22. As in Nantong, the number of cases is very limited, other than in secondary and tertiary hospitals. Contrary to the Nantong sample, in this case the price difference between these two categories is minimal and the median length of stay shorter in the latter.

Table 6.1.3.22 Hospital cost and length of stay by facility type

Facility type	Periods	Cost per period	Median	Bed-days per period	Median
Tertiary	37	2,993	2,700	12.8	10
Secondary	16	3,544	2,750	15.9	15
Primary	8	1,688	1,600	15.3	15
Public	2	2,500	2,500	30.0	30
Others	5	4,644	4,000	17.2	15
Total	68	3,076	2,500	14.7	14

6.1.3.5.2. Economic Burden of Health Services

Expenditure on health services for chronic illness are shown in table 6.1.3.23 Overall, the lower reimbursement rates in Zibo mean that the average expenditure for chronic illness as a proportion of household per capita income is almost twice that in Nantong. The pattern across household types is similar to that in Nantong. Chronically ill members of poor households self-pay the highest proportion, almost 48% of per capita income. Very little of the total cost is reimbursed. Laid-off workers have the highest reimbursement, but on average they also spend the largest amount per illness and have to find around 36% of per capita income.

Table 6.1.3.23 Health expenditure for chronic illnesses by household type

Household	Illnesses treated	Cost per illness	Self-paid per illness	Self-paid % income
Laid-off	31	3,314	1,712	35.9
Elderly	131	1,371	844	14.6
Poor	91	1,129	1,064	48.0
Floating	17	1,143	967	14.0
Total	270	1,498	1,028	22.7

Finally, table 6.1.3.24 shows the total estimated annual health expenditure by household type. Total out-of-pocket is around 8% of per capita income, but differs substantially between groups. Members of poor households spend around 28%; of elderly households people, 19.9%, laid-off households 5% and floating populations households just 2%. While total

expenditure, at ¥493 per capita per year, is much lower than in Nantong, self-payment is ¥399, which is considerably higher.

Table 6.1.3.24 Estimated annual economic burden for health services by household type

Household	Outpatient cost /capita		Inpatient cost /capita		Total cost /capita		
	Total	Self-paid	Total	Self-paid	Total cost	Self-paid	Self-paid % income
Laid-off	180.2	157.3	161	111	341	268	5.4
Elderly	1099.8	809.4	279	185	1379	994	19.9
Poor	414.4	381.9	253	232	667	614	27.8
Floating	104.8	104.8	27	21	132	126	1.9
Total	344.8	286.0	149	113	493	399	8.0

6.2 THE STUDY OF EMPLOYEES AND THEIR HOUSEHOLDS

6.2.1 Definition and selection of work units and employees

The target population for this study was the members of households in which at least one person had formal employment. The latter were cluster sampled based on their work unit. These were stratified under five broad headings: Government Agencies and Public Institutions; Profitable State-Owned Enterprises (SOEs); Loss-Making SOEs; Collective Enterprises; and Other enterprises.

Government Agencies and Public Institutions
These were covered by the Government Insurance Scheme (GIS) prior to the introduction of the health insurance reforms and both their funding sources and the health benefits their employees enjoyed differed significantly from those associated with SOEs. After the implementation of the reforms, benefits converged but sources of finance continued to differ.

Profitable and Loss-Making State-Owned Enterprises (SOEs)
All workers in SOEs are in principle covered by a Labour Insurance Scheme (LIS). However, the health benefits offered vary greatly, depending on the enterprise's financial situation. These were therefore divided into two sub-categories, profitable and loss-making.

Collective Enterprises
These belong to collective institutions, such as street administrative committees or public institutions with collective property. They are advised by government to implement the GIS, but many prefer to adopt a range of less generous alternatives.

Others
Other enterprises include those which are joint-venture, joint stock, foreign-investor, and privately run. Such enterprises are generally profitable and have usually developed their own health benefit packages. Some are implementing a version of LIS, and offer similar benefits to those provided by the SOEs. However, others provide very limited cover or none at all.

A total of 20 enterprises was to be selected: 2 government agencies/public institutions, 4 profitable SOEs, 6 loss-making SOEs, 4 collective enterprises and 4 others. 50 employees were then to be randomly sampled from each work unit, leading to a total sample of 1,000 households.

The criteria for selecting work units were as follows:

- Of the two Government Agencies and Public Institutions, one should be a government agency, such as a municipal health bureau, and the other should be a public institution such as a school, hospital, etc. This was on the basis that the latter typically have more rigid constraints on the funding available for health care schemes. In Nantong it was difficult to find a government agency with 50 employees and therefore two agencies were sampled.
- Four profitable SOEs should be selected from the most profitable in the city, of which two should be covered by the new health insurance scheme. It was assumed that these enterprises would have no financial constraints on the provision of generous health care cover.

- The six loss-making SOEs should be operating at a loss but operating normally. At least three of the six enterprises should be participants in the new health insurance scheme, if applicable.
- Of the four collective enterprises selected, half should be participants in the new health insurance scheme. It was also thought desirable to include profitable, non-profitable, and loss-making collective enterprises in the sample.
- Of the four other enterprises included, one was joint-ventured, one joint stock, one foreign-invested, and one privately owned. If possible, one or two of the enterprises should be covered by the new scheme.

6.2.3 Approach to the Analysis

The survey can be seen as generating two distinct though closely related samples – one consisting of the employees themselves and the other of all the members of their households, some of whom will be employed in other work units. For employees, the exact nature of their work unit and health care scheme are known. For the larger sample it is necessary to rely on reported information on employment and cover. Where the sample size allows, therefore, the analysis examines both the situation of the selected employees themselves and that of all household members.

One rationale for considering the various categories of work unit was an assumption that the nature of the benefits offered by the various health care schemes, HIS, GIS, LIS etc., could vary considerably between one work unit and another. Knowing that an employee was in principle covered by the LIS provided by a given enterprise was not sufficient to understand the benefits available in practice. Most obviously, a loss-making enterprise might provide far worse cover than one which was profitable. In the analysis, therefore, it has proved useful to look at schemes from three different perspectives: the type of scheme, the type of work unit and, perhaps most importantly, the perceived quality of the benefits provided. This latter characterisation was based on the perceptions of the selected employees, in the case of the specific work units sampled, and the total household sample when considering all the work units in which they were employed. The classification involved a simple question as to whether the work unit scheme provided: appropriate assistance in a timely fashion; appropriate assistance but with considerably delay; no assistance or assistance which was substantially below entitlements..

6.2.3 Findings from Nantong City

6.2.3.1 Age and sex distribution of employee and total sample.

Table 6.2.3.1 shows the age and sex distribution of the sampled employees in each work unit stratum. Perhaps the most interesting characteristic of this table is the high proportion (61%) of women and those under 30 (41%) in the ‘Other’ category – typically the newer, more private sector, export oriented enterprises. By comparison, only some 11-13% of the SOE employees are under 30. Apart from the ‘Other’ category, women and men are more or less equally represented in each type of work unit. Note that less than one percent of employees are over 60.

Table 6.2.3.1 Age and sex distribution by type of enterprise – employees (%)

	Government agency	Profitable SOE	Loss-making SOE	Collective	Other	All
Males						
15-29	9	15	11	19	42	18
30-44	41	45	47	55	47	48
45-59	50	40	40	25	10	33
60+	0	0	2	1	1	1
Total number	44	92	161	91	77	465
Females						
15-29	25	11	11	14	41	20
30-44	54	65	75	73	49	64
45-59	21	23	15	12	10	15
60+	0	1	0	1	0	0
Total number	57	94	130	100	122	503
All						
15-29	18	13	11	16	41	19
30-44	49	55	59	64	48	56
45-59	34	32	29	18	10	24
60+	0	1	1	1	1	1
Total number	101	186	291	191	199	968

Table 6.2.3.2 shows the age and sex distribution of all the members of the sampled households by the type of work unit employing their primary income earner. The younger employees in the 'Other' category is still evident, though to a much lesser extent. Apart from this the sample appears more or less evenly distributed across the work unit categories.

Table 6.2.3.2 Age and sex distribution by type of work unit – all (%)

	Government agency	Profitable SOE	Loss-making SOE	Collective	Others	All
Males						
0-14	14	19	20	20	15	18
15-29	19	18	13	17	24	18
30-44	36	33	37	38	31	35
45-59	28	24	24	19	22	23
60+	3	5	6	7	8	6
Total number	146	316	454	314	329	1559
Females						
0-14	18	13	16	16	16	16
15-29	22	21	18	17	28	21
30-44	35	35	37	39	26	34
45-59	20	23	21	18	22	21
60+	4	8	8	11	8	8
Total number	157	301	470	321	357	1606
All						
0-14	16	16	18	18	15	17
15-29	21	19	16	17	26	19
30-44	35	34	37	38	29	35
45-59	24	24	22	18	22	22
60+	4	7	7	9	8	7
Total number	303	617	924	635	686	3165

As might be expected, there is a clear relationship between household income status and the type of work unit of the sampled employee. Table 6.2.3.3 indicates that the households of employees in government agencies, profitable SOEs or other enterprises are much less likely to have incomes close to the poverty line than those of loss-making or collective enterprise employees.

6.2.3.3 Household poverty status of employees by type of work-unit (%)

Poverty status	Government agency	Profitable SOE	Loss-making SOE	Collective	Others
<PL		0.5	1.0		
1-2PL	4.0	13.2	25.9	35.9	8.0
2-3PL	20.8	44.7	47.1	41.0	27.6
>3PL	75.2	41.6	25.9	23.1	64.3
Total number	101	186	291	191	199

There is also a relationship between household poverty status and the type of health care scheme to which members belong. In table 6.2.3.4, around 50% of those in the HIS are in households with per capita incomes more than three time the poverty line.

6.2.3.4 Household poverty status of all members by scheme (%)

	Self payment	HIS	GIS	LIS	Half labour	Half GIS
<PL	0.9	0.2		0.5	0.6	
PL<2PL	34.4	15.7	19.0	19.2	26.9	14.2
2PL<3PL	37.4	35.2	38.1	43.6	47.5	47.2
>3PL	27.3	48.9	42.9	36.6	25.0	38.7
Total number	326	915	63	1228	480	106

Table 6.2.3.5 illustrates the tendency of household members to have similar health care coverage. Some 56% of the members of households of government agency employees have HIS coverage, almost twice the proportion for those of an employee of a SOE or other enterprise and almost four times that of collective employee households.

6.2.3.5 Health scheme coverage of household members by employee work-unit (%)

	Government agency	Profitable SOE	Loss-making SOE	Collective	Others
Self payment	8.3	7.8	8.8	9.8	16.1
HIS	56.4	27.1	30.4	15.3	29.4
GIS	3.0	2.0	2.5	1.6	1.3
LIS	13.2	42.3	39.0	50.7	36.3
Half labour	8.3	19.7	12.7	21.1	12.2
Half GIS	10.6	1.0	6.1	1.3	0.6
CMS	0.3	0.0	0.1	0.2	0.9
Other	0.0	0.2	0.4	0.2	3.2
Total number	303	613	921	635	683

6.2.3.2 Reported assessment of health care schemes

As discussed above, the underlying assumption of the work unit study was that the quality of health care scheme would vary considerably. Table 6.2.3.6 shows the assessments of their work unit scheme by the sampled employees. Clearly in Nantong, government agencies and public institutions are perceived to be performing extremely well – none of their employees had any complaints. 'other' enterprises perform almost as well, with just two employees alleging delayed payments. Profitable SOEs also score highly. Only one employee claimed that due reimbursement had not been paid and just 10 out of 175 complained of delays. The picture becomes much more varied for loss-making SOEs and collectives. Three of the former gain a perfect rating, while the other three are clearly seen as providing highly unsatisfactory benefits. In the worst case, 65% of employees say that payments are no longer paid and two of the three are living up to the expectation of less than ten percent of their employees. Similarly, three of the collectives are performing extremely well but 64% of the employees of the fourth claim that payments are not being made.

Table 6.2.3.6 Assessment of schemes – employees

	Enterprise	timely	delays	unpaid	timely %	delays %	unpaid %
Government		99	0	0	100	0	0
	111	27	0	0	100	0	0
	112	23	0	0	100	0	0
	121	49	0	0	100	0	0
Profitable SOE		175	10	1	94	5	1
	211	46	3	0	94	6	0
	212	38	2	0	95	5	0
	221	51	0	0	100	0	0
	222	40	5	1	87	11	2
Loss-making SOE		170	77	41	59	27	14
	311	50	0	0	100	0	0
	312	45	0	0	100	0	0
	313	50	0	0	100	0	0
	321	18	32	3	34	60	6
	322	4	11	28	9	26	65
	323	3	34	10	6	72	21
Collective		143	16	32	75	8	17
	411	49	0	0	100	0	0
	421	49	1	0	98	2	0
	422	3	15	32	6	30	64
	423	42	0	0	100	0	0
Other		195	2	0	99	1	0
	511	46	0	0	100	0	0
	521	48	1	0	98	2	0
	531	52	0	0	100	0	0
	541	49	1	0	98	2	0

This pattern is confirmed by the recorded assessments of the total sample of employee household members as seen in table 6.2.3.7. (Note that the description of their work unit here relies on the judgment of the respondent). Loss-making SOEs are regarded as performing well by around 65% of their employees while 13% claim that they are not providing assistance. The corresponding figures for collective enterprises is around 74% and 15%. As might be expected, given the greater number of work units covered, a small but substantial

proportion, around 10% of employees of profitable and 'other' enterprises have some complaint. However, government agencies and public institutions retain an almost perfect rating, with just 7 complaints of delay and one of non-payment.

Table 6.2.3.7 Assessment of insurance schemes - all

	timely	delays	unpaid	timely %	delays %	unpaid %
Government	266	7	1	97	3	0
Profitable SOE	488	45	27	87	8	5
Loss-making SOE	543	181	110	65	22	13
Collective	424	62	86	74	11	15
Others	522	30	19	91	5	3

6.2.3.3 Heath Care Needs

6.2.3.3.1 Acute illness

Table 6.2.3.8 shows self-reported acute illness episodes by age and sex for both the employee and overall sample. As might be expected, for both groups adult illness rates increase with age, with those for the 45-59 year age bands being at least twice those of those aged 15-29. This trend continues with the overall sample, where rates for those over 60 are around 70 episides/100 persons. Interestingly, reported illness rates are generally substantially higher for women in all age bands except for those under 15. The fact that rates for the employee sample are considerably higher than those for the overall probably reflects the central role taken by the employee in the study, though it is not clear if this has resulted in an over-reporting of their own sickness or an under-reporting of the illness episodes of other household members.

Table 6.2.3.8 Acute illness episodes in two week reference period by age (/100 persons)

	Employees			Total sample		
	male	female	all	male	female	all
0-14				43	35	39
15-29	30	47	39	21	35	29
30-44	47	60	55	36	49	42
45-59	79	96	85	60	64	62
60+				72	63	67
All	55	63	59	42	48	45

6.2.3.4 Health Service Utilisation

6.2.3.4.1 Acute illness

From table 6.2.3.9, type of work unit would appear to have little impact on the decision to seek health care for an acute illness. Though government agencies are seen as providing good health care schemes, both the employee and overall samples for this category make the lowest use of health care services. Otherwise the rates vary little, though the proportions for loss-making SOEs are also somewhat lower than for other categories.

Table 6.2.3.9 Visited doctor when sick in two week reference period by work unit (%)

	0-14	15-29	30-44	45-59	60+	All
Employees						
Government agency		33	22	37		31
Profitable SOE		35	52	40		45
Loss-making SOE		75	33	46		39
Collective		41	47	67		51
Others		66	76	80		73
All		52	47	49		48
Total Sample						
Government agency	35	20	21	33	17	27
Profitable SOE	57	43	49	43	38	46
Loss-making SOE	39	54	28	42	23	36
Collective	42	42	48	43	46	45
Others	39	59	59	42	21	48
All	43	48	42	41	30	42

Again, though those who have to meet their own health care costs are much less likely to seek care, the type of scheme to which they belong seems to have very limited impact (table 6.2.3.10).

Table 6.2.3.10 Visited doctor when sick in two week reference period by scheme (%)

	0-14	15-29	30-44	45-59	60+	All
Employees						
GIS&HIS		43	48	42		45
LIS		58	44	57		50
Other		100	88	50		83
All		52	47	49		48
Total sample						
GIS&HIS	33	38	43	43	33	41
LIS	63	57	41	43	32	43
Other	42	61	88	0	50	47
Self Pay	38	26	25	27	6	24
All	43	48	42	41	30	42

There does appear to be some limited effect of belonging to a failing health care scheme. Table 6.2.3.11 compares those in satisfactory (Timely reimbursement) schemes to all others. In general the latter seem to have utilisation rates which are some 20-40% lower.

Table 6.2.3.11 Visited doctor when sick in two week reference period by coverage (%)

	0-14	15-29	30-44	45-59	60+	All
Employees						
Timely		53	50	49		50
Other		43	29	49		41
All		53	50	49		48
Total sample						
Timely	42	56	46	46	36	46
Other	50	29	28	34	22	32
All	43	52	43	43	34	43

6.2.3.4.2 Chronic illness

Table 6.2.3.12 considers expenditure on the treatment of chronic conditions by employees and the overall sample. For employees in government agencies and profitable SOEs, the overall median reimbursement rate and overall expenditure are higher than those for unprofitable enterprises. However, the differences are limited and inconsistent for men and women. For the overall sample, there is clearly little variation across the range of work unit categories. The median expenditure for loss-making enterprises is reported to be the same as that for loss-making enterprises even though the reimbursement rate for the latter is much lower. Overall it would seem that employees and their households generally meet the cost of care for chronic illness even if the support they receive is limited.

Table 6.2.3.12 Expenditure over pervious year on chronic illness by work unit

	Male			Female			All		
	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases
Employees									
Government agency	600	67	5	200	100	11	340	75	16
Profitable SOE	300	87	30	500	80	37	450	85	67
Loss-making SOE	325	57	34	300	70	28	300	67	62
Collective	350	0	23	300	80	21	325	70	44
Others	220	90	12	500	86	19	270	90	31
All	325	77	104	400	80	116	390	80	220
Total sample									
Government agency	525	80	18	365	75	28	500	75	46
Profitable SOE	500	77	81	455	80	98	500	80	179
Loss-making SOE	400	50	73	500	56	99	500	55	172
Collective	500	32	61	500	40	73	500	36	134
Others	450	90	46	450	70	55	450	83	101
All	500	70	279	500	70	353	500	70	632

This is confirmed in table 6.2.3.13. Though reimbursement rates are seen to vary considerably by scheme, this seems in general to have very little relationship to health care expenditures.

Table 6.2.3.13 Expenditure over pervious year on chronic illness by scheme

	Male			Female			All		
	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases
Employees									
GIS & HIS	300	85	54	265	90	62	300	87	116
LIS	500	58	49	600	70	51	500	70	100
Other	200	100	1	500	0	3	350	8	4
All	325	77	104	400	80	116	390	80	220
Total sample									
GIS & HIS	500	80	114	400	90	115	400	85	229
LIS	500	72	139	500	70	180	500	70	319
Other	700	59	15	600	50	23	600	53	38
Self Pay	500	0	11	350	0	35	375	0	46
All	500	70	279	500	70	353	500	70	632

Table 6.2.3.14 considers the same issue, but focuses on the quality of the health care scheme provided. Again, even where no reimbursement is forthcoming the median expenditure on care is clearly maintained.

Table 6.2.3.14 Expenditure over pervious year on chronic illness by coverage

	Male			Female			All		
	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases
Employees									
Timely	350	87	76	300	83	93	300	85	169
Other	300	0	28	800	50	23	484	0	51
All	325	77	104	400	80	116	390	80	220
Total sample									
Timely	500	85	204	480	80	234	500	80	438
Other	492	0	64	600	0	82	500	0	146
All	500	74	268	500	75	316	500	75	584

6.2.3.4.3 Hospitalisation

While the cost of treatment for acute and even chronic illness may be relatively manageable for those in households where at least one members is formally employed, the costs of hospitalisation are typically of a different order of magnitude. The tables in this section examine the proportion of those referred by a doctor who enter hospital. Note that given that the number of employees referred to hospital was very low, only the overall sample is considered.

Table 6.2.3.15 provides the somewhat surprising finding that the proportion entering hospital is considerably higher for those in households with an employee in a loss-making SOE than for all other categories apart from 'other' enterprises.

Table 6.2.3.15 Entered hospital when referred by work unit – total sample(%)

	yes	cases
Government agency	50	10
Profitable SOE	50	48
Loss-making SOE	73	44
Collective	44	43
Other	78	46
All	61	191

Table 6.2.3.16 on the other hand, would appear to support the hypothesis that membership of the 'improved' HIS (or GIS - as indicated above, the GIS and HIS provide similar benefits) does encourage a greater willingness to accept such a referral. Around 75% of those covered by the HIS or GIS enter hospital compared with 50% of those covered by an LIS. (Note that, contrary to expectations, a similar proportion of those paying the full cost of care enter hospital, though the numbers are very small.).

Table 6.2.3.16 Entered hospital when referred by scheme – total sample (%)

	yes	cases
GIS & HIS	73	77
LIS	50	82
Other	50	18
Self Pay	71	14
All	61	191

Finally, table 6.2.3.17 provide limited supporting evidence that belonging to a failing scheme will tend to discourage admittance, with the proportion of those in such schemes apparently much less likely to enter hospital. However, the numbers are again very small.

Table 6.2.3.17 Entered hospital when referred – total sample (%)

	yes	cases
Timely	64	150
Other	35	26
All	60	176

6.2.4 Findings from Zibo City

6.2.4.1 Age and sex distribution of employee and total samples

Table 6.2.4.1 shows the age and sex distribution of the sampled employees in each work unit stratum. As in Nantong, the main feature is the high proportion of those under 30 (49%) in the 'Other' category. However, probably reflecting the nature of the specific enterprises, women are here greatly outnumbered by men (36% as compared to 64%). The proportion of the younger age band in other categories is somewhat higher than in Nantong, at 15-21%. Again, apart from the 'Other' category, women and men are more or less equally represented in each type of work unit and there are almost no employees over 60.

Table 6.2.4.1 Age and sex distribution by type of work unit – employees (%)

	Government agency	Profitable SOE	Loss-making SOE	Collective	Other	All
Males						
15-29	15	15	16	14	50	23
30-44	64	67	54	59	44	56
45-59	22	18	29	26	6	21
60+	0	1	0	1	0	0
Total number	55	96	150	125	119	545
Females						
15-29	15	27	21	21	46	25
30-44	68	54	72	70	49	64
45-59	17	19	8	9	6	11
60+	0	0	0	0	0	0
Total number	47	102	170	90	68	477
All						
15-29	15	21	18	17	49	24
30-44	66	60	63	64	45	60
45-59	20	18	18	19	6	16
60+	0	1	0	0	0	0
Total number	102	198	320	215	187	1022

Table 6.2.4.2 shows the age and sex distribution of all the members of the sampled households by the type of work unit employing their primary income earner. Apart from the expected greater proportion in the 15-29 year age band, the breakdowns by both age and sex are very similar across the work unit categories.

Table 6.2.4.2 Age and sex distribution by type of enterprise – overall sample (%)

	Government agency	Profitable SOE	Loss-making SOE	Collective	Others	All
Males						
0-14	19	20	21	19	18	20
15-29	13	18	19	20	34	21
30-44	46	43	42	42	31	40
45-59	21	17	16	17	14	17
60+	0	1	2	2	4	2
Total number	134	281	485	321	284	1505
Females						
0-14	20	21	17	19	16	19
15-29	21	21	22	22	36	24
30-44	45	39	42	39	27	39
45-59	14	16	16	15	16	16
60+	0	3	2	6	4	3
Total number	147	287	443	342	243	1462
All						
0-14	20	21	19	19	17	19
15-29	17	20	20	21	35	23
30-44	46	41	42	40	29	39
45-59	17	16	16	16	15	16
60+	0	2	2	4	4	3
Total number	281	568	928	663	527	2967

As in Nantong, household income status is strongly related the type of work unit of the sampled employee. Indeed, as shown in table 6.2.4.3., there is a more marked contrast in Zibo between households of employees in government agencies, profitable SOEs or other enterprises and those of loss-making or collective enterprise employees, with considerably more than 40% of the latter having per capita incomes less than twice the poverty line.

6.2.4.3 Household poverty status of employees by type of work-unit (%)

Poverty status	Government agency	Profitable SOE	Loss-making SOE	Collective	Others
<PL	1.0	0.5	2.5	12.1	3.2
1-2PL		13.7	43.9	48.4	25.7
2-3PL	36.3	38.1	40.8	30.2	30.5
>3PL	62.7	47.7	12.9	9.3	40.6
Total number	102	197	319	215	187

Given the above, it is not surprising that household poverty status is closely related to the type of health care scheme to which members belong. Around 56% of those in the HIS are in households with per capita incomes more than three time the poverty line (table 6.2.4.4), while a third of those with LIS coverage are in households with incomes just above this line. As in Nantong, a large proportion of those without coverage (37%) are also in this group.

6.2.4.4 Household poverty status of all members by type of scheme (%)

	Self payment	HIS	GIS	LIS	Half labour
<PL	8.7	0.4		3.0	3.7
PL<2PL	37.3	5.0	7.4	32.3	46.5
2PL<3PL	31.7	38.4	59.3	36.4	43.6
>3PL	22.3	56.2	33.3	28.3	6.2
Total number	678	281	27	1513	24

In Zibo, there is again high correlation between sampled employee work unit and the health care coverage of household members. 67% of the members of households of government agency employees have HIS coverage and 60% of those of an employee of a SOE or other enterprise are covered by the LIS. In contrary to the position in Nantong, a substantial proportion (20-30%) of family members have no coverage, irrespective of the employees type of work unit.

6.2.4.5 Health scheme of household members by employee work unit (%)

	Government agency	Profitable SOE	Loss-making SOE	Collective	Others
Self payment	23.6	22.5	17.0	23.5	33.7
HIS	67.3	2.0	3.9	3.1	5.5
GIS	1.5	1.8	1.0	0.3	0.4
LIS	6.5	63.6	61.6	39.6	60.1
Half LIS	0.7	9.6	16.4	5.1	0.2
CMS	0.0	0.0	0.0	28.3	0.0
Other	0.4	0.5	0.1	0.2	0.2
Total number	275	561	921	647	526

6.2.4.2 Reported assessment of health care schemes

Table 6.2.4.6 shows the assessments of their work unit scheme by the sampled employees. Unlike the situation in Nantong, one of the two selected government agencies and public institutions is perceived by around one third of its employees to be delaying reimbursements. 'Other' enterprises perform almost as well, with just two employees alleging delayed payments. Profitable SOEs again score highly. Only 3 employees claimed that due reimbursement had not been paid and just 5 out of 186 complained of delays. Four of the six the Loss-making SOEs are assessed as performing poorly. One scheme appears to be no longer meeting its obligations, while 80-90% of employees in two others complain of delayed payments. The Collective enterprises fare better, though one scheme here is assessed by 43% of employees as failing. Similarly, while 'Other' enterprises score very highly, all the employees of one scheme agree that it is no longer providing assistance with health care costs.

Table 6.2.4.6 Assessment of insurance schemes - employees

	Enterprise	timely	delays	unpaid	timely %	delays %	unpaid %
Government		87	15	0	85	15	0
	101	34	13	0	72	28	0
	102	53	2	0	96	4	0
Profitable SOE		186	5	3	96	3	2
	201	50	2	1	94	4	2
	202	45	0	0	100	0	0
	203	45	3	2	90	6	4
	204	46	0	0	100	0	0
Loss-making SOE		140	104	73	44	33	23
	301	7	44	0	14	86	0
	302	53	0	0	100	0	0
	303	32	5	21	55	9	36
	304	1	0	48	2	0	98
	305	1	51	3	2	93	5
	306	46	4	1	90	8	2
Collective		193	3	19	90	1	9
	401	24	0	18	57	0	43
	402	59	2	0	97	3	0
	403	55	0	0	100	0	0
	404	55	1	1	96	2	2
Others		131	3	51	71	2	28
	501	36	2	0	95	5	0
	502	0	0	51	0	0	100
	503	49	0	0	100	0	0
	504	46	1	0	98	2	0

Looking at the broader range of work units employing household members in general appears to indicate that problems are mainly confined to the unprofitable SOEs and 'Other' enterprises.

Table 6.2.4.7 Assessment of schemes – overall sample

	timely	delays	not paid	timely %	delays %	unpaid%
Government	175	31	3	84	15	1
Profitable SOE	399	18	14	93	4	3
Loss-making SOE	402	221	138	53	29	18
Collective	430	12	53	87	2	11
Others	245	20	85	70	6	24

6.2.4.3 Heath Care Needs

6.2.4.3.1 Acute illness

Table 6.2.4.8 shows self-reported acute illness episodes by age and sex for both the employee and overall sample. Again, adult illness rates increase with age, with those for the 45-59 year age bands being at least twice those of those aged 15-29. Rates for those over 60 are less than in Nantong, at around 55 episides/100 persons. Reported illness rates for women are again higher than those for men except for those under 15 or over 60. As in Nantong, rates for the employee sample are higher than those for the overall, but in this case the differences are considerably less.

Table 6.2.4.8 Acute illness episodes in two week reference period by age (%)

	Employees			Total sample		
	male	female	all	male	female	all
0-14	0	0	0	27	27	27
15-29	27	19	23	18	13	16
30-44	31	44	37	26	36	30
45-59	34	42	37	28	33	30
60+	50	0	50	55	56	56
All	31	38	34	25	29	27

6.2.4.4 Health Service Utilisation

6.2.4.4.1 Acute illness

Table 6.2.4.9 shows the impact of type of work unit on the decision to seek health care for an acute illness. For both the employee and overall sample this does appear to indicate that both have higher utilisation rates for profitable SOEs. However, though government agencies are also generally perceived as providing good health care schemes, both the employee and overall samples for this category make the lowest use of health care services. In general, the rates do not vary dramatically.

Table 6.2.4.9 Visited doctor when sick in two week reference period by work unit (%)

	0-14	15-29	30-44	45-59	60+	All
Employees						
Government agency		50	38	40		39
Profitable SOE		73	69	41		64
Loss-making SOE		41	54	36		49
Collective		67	55	33		54
Others		43	38	67		42
Total		54	55	39		52
Total sample						
Government agency	50	40	35	47	0	42
Profitable SOE	55	52	67	42	38	58
Loss-making SOE	61	45	49	43	44	50
Collective	69	63	52	33	67	55
Others	79	50	39	40	0	48
Total	62	51	52	42	44	52

Table 6.2.4.10 shows, as in Nantong, that the type of scheme to which individuals belong seems to have very limited impact on the decision to use services. Unlike the findings in Nantong, even where payment for services is out of pocket the utilisation rate is much the same.

Table 6.2.4.10 Visited doctor when sick in two week reference period by scheme (%)

	0-14	15-29	30-44	45-59	60+	All
Employees						
GIS&HIS		50	38	40		39
LIS		51	57	35		52
Other		100	75	100		88
All		54	55	37		53
Total sample						
GIS&HIS	0	60	40	50	50	45
LIS	100	49	54	34	30	49
Other	62	78	75	60	100	66
Self Pay	61	53	50	57	50	57
All	62	52	52	41	43	52

Table 6.2.4.11 compares those in satisfactory (Timely reimbursement) schemes to all others. Again, there seems little effect and no consistent pattern for either sample.

Table 6.2.4.11 Visited doctor when sick in two week reference period by coverage (%)

	0-14	15-29	30-44	45-59	60+	All
Employees						
Timely		59	56	31		53
Other		27	49	50		47
All		53	55	37		51
Total sample						
Timely	61	55	55	33	35	51
Other	67	38	46	50	40	48
All	63	51	53	39	36	50

6.2.4.4.3 Chronic illness

Table 6.2.3.12 considers expenditure on the treatment of chronic conditions by employees and the overall sample. As in Nantong, overall there are considerable variations in reimbursement rates between different work units but this appears to have little impact on overall expenditures. Reimbursement rates are markedly lower than in Nantong, apart from those for government agencies. Expenditures for the latter are substantially higher, though the low numbers limit the significance of this finding.

Table 6.2.4.12 Expenditure over pervious year on chronic illness by work unit (%)

	Male			Female			All		
	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases
Employees									
Government agency	2000	80	7	1000	80	7	1500	80	14
Profitable SOE	600	50	21	625	25	14	600	50	35
Loss-making SOE	600	0	21	500	0	24	500	0	45
Collective	350	0	12	700	0	13	600	0	25
Others	1200	8	3	500	0	6	700	0	9
All	600	4	64	675	0	64	625	0	128
Total sample									
Government agency	1100	80	13	1350	10	12	1200	50	25
Profitable SOE	475	30	32	500	0	47	500	0	79
Loss-making SOE	870	0	46	500	0	60	600	0	106
Collective	500	0	21	750	0	35	675	0	56
Others	660	0	16	700	0	17	700	0	33
All	700	0	128	600	0	171	600	0	299

Table 6.2.4.13 seems to confirm the high reimbursements and expenditures associated with the GIS and HIS schemes. For both samples, only a minority with LIS coverage received any reimbursement and this is reflected in the total expenditure. Again, those paying out of pocket tend to contradict this finding, reportedly a similar expenditure. However, the number are small and it is possible that this group may be especially prone to overstatement.

Table 6.2.4.13 Expenditure over pervious year on chronic illness by scheme (%)

	Male			Female			All		
	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases
Employees									
GIS & HIS	1000	80	9	1000	50	9	1000	80	18
LIS	600	0	55	625	0	54	600	0	109
All	600	4	64	675	0	63	63	0	127
Total sample									
GIS & HIS	1000	80	19	1000	60	17	1000	75	36
LIS	600	0	98	500	0	112	600	0	210
Other	4500	20	1	600	0	5	600	0	6
Self Pay	1000	0	10	800	0	37	1000	0	47
All	700	0	128	600	0	171	600	0	299

Table 6.2.4.14 focuses on the quality of the health care scheme provided. As in Zibo, this classification seems to have little relationship to expenditures.

Table 6.2.4.14 Expenditure over pervious year on chronic illness by coverage (%)

	Male			Female			All		
	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases	Median Spent	Median Repaid (%)	Cases
Employees									
Timely	600	21	46	625	0	48	600	0	94
Other	900	0	18	700	0	15	700	0	33
All	600	4	64	650	0	63	600	0	127
Total sample									
Timely	600	33	89	600	0	89	600	0	178
Other	900	0	29	500	0	45	800	0	74
All	625	0	118	600	0	134	600	0	252

6.2.4.4.4 Hospitalisation

Given the limited employee sample size, only the overall sample is considered in this section. Table 6.2.4.15 suggests that the proportion entering hospital is higher for those in households with an employee in a profitable SOE than for all other categories apart from 'other' enterprises. However, with the small number of hospitalisations, interpretation is problematic.

Table 6.2.4.15 Entered hospital when referred by work unit – overall sample (%)

	yes	cases
Government agency	50	10
Profitable SOE	84	19
Loss-making SOE	63	35
Collective	50	22
Others	90	21
All	68	107

Table 6.2.4.16 suggests that membership of the new HIS (or GIS - the GIS and HIS provide similar benefits) does not necessarily increase the admittance rate, though the numbers are small. Around 65% of those covered by the LIS enter hospital compared with 50% of those covered by the GIS/HIS. As in Nantong, the admittance rate for those paying the full cost of hospital care is remarkably high.

Table 6.2.4.16 Entered hospital when referred by scheme – all (%)

	yes	cases
GIS & HIS	50	10
LIS	65	65
Self Pay	78	27
All	68	107

Finally, table 6.2.4.17 considers the effect of failing health care schemes. Once again there seems to be no indication that this has an effect on the decision to enter hospital.

Table 6.2.4.17 Entered hospital when referred by coverage – overall sample (%)

	yes	cases
Timely	67	51
Other	63	30
All	65	81

Annex: Description of Health Schemes

Health scheme	Nantong	Zibo
GIS **Population** **Finance** **Reimbursement**	Small number of government agencies and public institutions Government budget Most agencies provide part reimbursement for out- and in-patient services. In some profitable agencies or institutions or some special groups, the reimbursement rate is high, even full reimbursed.	Small number of government agencies and public institutions Government budget Most agencies provide part reimbursement for out- and in-patient services. In some profitable agencies or institutions or some special groups, the reimbursement rate is high, even full reimbursed.
HIS **Population** **Finance** **Reimbursement**	Government agencies and public institutions, all enterprises of their own accord Government agency budgets, enterprises and employees The funding split into two parts, individual account and risk-sharing fund. Outpatient costs paid from individual account until used up, then out of pocket. The reimbursement rates for inpatient care vary with age. All members pay a fixed amount for every hospitalisation according to the level of hospital, and can then claim for reimbursement.	Government agencies and public institutions Government agency budgets and employees. The funding is split into two parts, individual account and risk-sharing fund. All expenditures are met from the individual account first. When this is depleted, members pay out of pocket for amounts up to 5% of annual salary, and can then get reimbursement from the risk-sharing fund. Reimbursement rates differ for outpatient and inpatient care, and vary with age.
LIS **Population** **Finance** **Reimbursement**	All SOEs, most collective enterprises and parts of other enterprises. Enterprise profit. Many enterprises adopted some HIS regulations even though they did not join, and established funds with individual and risk-sharing components. Reimbursement is similar to the Zibo HIS, but the rate is higher. Some enterprises established similar insurance schemes for their employees based on the industrial system. Some others are still running traditional schemes, but reimbursement rates are lower. If an enterprise has its own hospital or clinic, reimbursement rates for out- and in-patient services vary depending on use of this facility.	All SOEs, most collective enterprises and part of other enterprises Enterprise profit. Outpatient: Many enterprises provide a fixed amount of money for outpatient service. Some profitable enterprises give part reimbursement. Very few provide full payment. Inpatient: Most enterprises provide part reimbursement. The rate varies with profitability and employee's age (or work years). A few special people get full reimbursement. If the enterprise has own hospital or clinic, reimbursement rates for out- and in-patient services vary depending use of this facility.

H-GIS & H-LIS	**H-GIS** in government agencies and institutions, **H-LIS** in enterprises.	**H-GIS** in government agencies and institutions, **H-LIS** in enterprises.
Population	**H-GIS:** Under 18 children of employees, **H-LIS:** all pensioners	Retired parents, spouse and children of employees covered by GIS or LIS.
Finance	Work units and employees.	Work units.
Reimbursement	**H-GIS:** 50%~80% of all health expenditures, alternately by father's and mother's unit every other year. Some profitable units provide higher rates of reimbursement. **H-LIS:** Most units provide 50% reimbursement for health expenses for out- and in-patient services. Some loss-making enterprises pay partial pensions and/or reimburse part of health expenditure (only medicine and/or expensive tests). Some loss making units have nominal schemes but give no reimbursement.	Most units provide 50% reimbursement for health expenses for out- and in-patient services. Some loss-making enterprises pay partial pensions and/or reimburse part of health expenditure (just medicine and/or expensive tests). Some loss making units have nominal scheme but give no reimbursement
Others	Commercial insurance, student insurance and rural cooperative medial system (CMS)	Commercial insurance, student insurance and rural cooperative medial system (CMS)
Population	CMS is mainly for peasants. Commercial insurance has no special target population. Student insurance is commercial insurance targeted at students.	CMS is mainly for peasants. Commercial insurance has no special target population. Student insurance is commercial insurance targeted at students.
Finance	Mainly from participants. CMS may get some support from collectives.	Mainly from participants. CMS may get some support from collectives.
Reimbursement	Commercial insurance pays reimbursement according to the premium and insurance contract. The focus is typically on large expenditures or specified items. CMS reimburses both outpatient and inpatient services, but usually at low rates.	Commercial insurance pays reimbursement according to the premium and insurance contract. The focus is typically on large expenditures or specified items. CMS reimburses both outpatient and inpatient services, but usually at low rates.

Chapter 7

HEALTH AND VULNERABILITY

7.1. Introduction

Various attempts at reforming municipal health maintenance and insurance, intended to establish a general health insurance for all Chinese citizens and to control supply and demand, were implemented at the beginning of the nineties in the form of model projects (for example, in Zhenjiang and in Jiujiang). These have been scientifically evaluated in part (Cai 1995; Liu et al. 1999). Furthermore, a landmark decision was taken in 1997, the 'Decision on Health Reform and Development', by the Central Party Committee and State Council. This established a preliminary framework for a new health system, covering such issues as health service supply, comprehensive health protection and legal monitoring. In early 1999 a nationwide healthcare reform plan was launched. At the beginning of 2000 the Ministry of Labour and Social Security (MOLSS) announced that medical insurance would be expanded to 70 percent of Chinese cities and by the end of 2000 would cover around 50 million people. By the end of 2001, approximately 80 million people were to be brought into the medical insurance programme. Even though the reform packages differ among China's towns and regions, the scheme is, in principle, the same. The new health insurance institutions, the pay mechanism and the role of employers, employees, and the participation of governmental institutions are nationwide. It is obligatory for all private and state-owned firms to join the plan.

However, specific difficulties and potential limits to the success of these reform attempts arose as a result of changes in society:

- Millions of people losing the security of their former Danweis.
- Millions of people moving from the country to the towns and cities (migrant workers or "floating population).
- The ageing of society.
- The rapid and continual increase of health costs.

Moreover, a long list of factors within the public health service itself drew attention to the necessity for reform, the most important being: health organisations' lack of stable financial resources and an effective fund collecting mechanism; the increasing misuse and misallocation of health resources; the low utilisation ratio of health resources of hospitals; costly and excessive prescribing of medicine, as well as production and distribution of said medicines; insufficient and poor staff management; and finally the overall lack of market orientation caused by little or no competition and non-existent incentive systems.

7.2. Changing Patterns of Vulnerability

This specific mixture of general societal developments in China, as well as the dysfunction of various parts of the system (such as the health system), jeopardises the security of the entire population; however, not every strata of society is affected equally. The increasing dissolution of state and publicly funded health-care has placed certain population groups in an especially precarious position, leading eventually to the escalating impoverishment of wide sections of the population.

This problem came immediately to the fore when normal day-to-day living was aggravated by illness or loss of a source of income. The interdependence of illness and the social system was

often evident in these cases. The well-known vicious circle of illness and poverty - illness can cause poverty and vice versa - hit the poor particularly hard, when, as with a large portion of the unemployed or with the "floating" population, no health insurance protection was available. GIS and LIS had not been effective in addressing the issue of equity in access to health services for these groups. It is estimated that approximately 40% of the entire urban population of China is uninsured (MoH 1998: 18).

However, health insurance was of no use when employees were unable to foot the insurance bills – as in the case of poorly-managed or money-losing enterprises. Looking back, it was a mistake not to establish some kind of risk pooling across enterprises or across local and regional governments. Amongst people whose lifestyle was already limited, unemployment or a further deterioration in health could lead to a life-threatening crisis. Chronic illness or a physical disabled resulted in constant monetary difficulties due to the costs of medicine and treatment which ran parallel with a diminished ability to work.

The new health insurance programmes are (comparable to LIS and GIS) strongly oriented towards the average urban employee. Businesses and their staff are in the front line of the state's attempt at insurance reform (Ensor 1999). The widening of health insurance to cover the unemployed and the large proportion of migrant workers is either planned or under discussion.

It was therefore assumed that not all segments of the population would profit from the health reforms evenly; specifically: it was accepted that there would be certain segments of society whose entry into the health service plan would be limited due to different and varying reasons. The recognition of the life situations of these segments of society would seem to suggest the concept of 'Vulnerability'.[7] Cook (2000) describes the new forms of vulnerability as an expression of the economical and social revolutions in the Chinese society: 'While many have benefited from new economical opportunities and higher incomes, new forms of risk and vulnerability now face certain population groups, particularly those falling outside the urban employment-welfare system. At the same time, a significant number of people remain in chronic and absolute poverty, marginalized from the processes of growth and market development'. (Cook 2000: 3)

After examination of the literature and discussion with official representatives from politics, administration and health-care institutions, it was possible to identify population groups which were particularly vulnerable with regard to adequate health-care provision. This applies in particular to the following five urban population groups:

- The unemployed and so-called laid-off workers
- The disabled
- The old-age pensioners
- The Chinese work-related immigrants
- The poor (recipients of social support financed by the Ministry of Social Affairs)

[7] The concept of Vulnerability corresponds to the sociological concept of "social situation in life" (Lebenslage), which attempts to encompass inequity as a complex "happening" or "event" in which the quasi-natural characteristics like sex, age, ethnic group are combined with economic determining factors and opportunities of participation. The aim of the concept is to depict an actual situation in life and to uncover the factors that contribute to a deprived social situation.

With the reforming of many systems, especially enterprises, social welfare system, the gap between the health need and utilization of the vulnerable becomes greater. While the number of the vulnerable gradually increased, the largest increase is the elderly, the poor and handicap are respectable, the laid-off and migrant are becoming more. The income of the vulnerable is very low, the increase of their incomes is slower than that of the average income. But the current medical cost is so high. Excessive poor and leads to sick, sick leads to poor is a serious problem.

There are only a small number of studies on the living conditions and health of these groups. Liu and MacKellar (2001) looked at the challenges faced in the areas of old-age pensions, health care and disability services. From their point of view, the demographic change make some increases in spending inevitable, althought they do not suggst how to finance such needs. Others (Liu et. al. 1999; Li 1999) tried to evaluate the pilot reform in Zhengjiang City with regard to its effect on certain groups of the population. Krieg and Schädler (1995) described the framework and conditions of the new social security system (shehui baozhang), and the situation of underprivileged groups.

With the recent health-insurance reforms at the end of the nineties the situation of these segments of society did not noticeably improve. As with migrant workers or the poor, they were not covered, or were not the aim of the reforms. Plus, many improvements have remained only 'on paper'. The realisation and execution of the new reforms often led to the problem of certain groups not being able to filter through to official health claims. Even though the new scheme provides some protection for the elderly, the degree of protection is often marginal and rarely more than modest.

The aim of the qualitative in-depth study was to identify life situations and health opportunities for those with or without limited insurance coverage, and to describe to what extent existing institutions and health services are used by these groups.

7.3. How Vulnerable Households Cope with Health Problems

This section presents the results of the studies of the vulnerable families from the two cities, first NanTong and then Zibo. We focus on the complete group in one town and the complete group in the other; differentiation of the individual groups within the complete group is only given if there is a special quality in the difference.

7.3.1. Findings from Nantong

7.3.1.1. Socio-Economic Situation of the Sample

General Characteristics of the Interviewees

33 samples were interviewed in Nantong: 6 from both the floating and the disabled groups (12 in all), and 7 from the aged, laid-off/unemployed, and poor groups (21 in total). About half of the interviewees were female. Ages ranged from 60 to 80 in the aged group, 33-68 in the floating group, 21-58 in the disabled group, 31-47 in the laid-off/unemployed group, and 43-88 in the poor group. The number of household members ranged from 1 to 6, with most households having 2-3 members. Two interviewees lived alone, and two households had large families of 6 people.

Income and its Main Sources

The monthly family income ranged from 96 to 40000 yuan among 33 households, the lowest income was that of a poor household, and the highest was that of a floating family with a

printing business. The average monthly income for every family member ranged from 92 to 8000 yuan.

Among the five vulnerable groups, the income of the floating families was the highest, the elderly families second, the laid-off/ unemployed families third, and the poor families the lowest.

The family monthly income in the floating group ranged from 700 to 40000 yuan, 350-8000 yuan per capita; the average per capita income was 3025 yuan. Work is the main source of income. Four of the six floating respondents have their own businesses selling glasses or other commodities, or offering printing or construction services. One old man moved to Nantong several years ago to join his wife and is now doing casual cleaning work. Another had retired from Shanghai and returned with a pension to live in his hometown of Nantong.

The family monthly income in the aged group ranged from 490 to 2050 yuan, 245-1000 yuan per capita; the average per capita income was 754 yuan. Pensions are the main source of income. Most couples both have pensions. 5 of the 7 aged respondents plus his/her spouse have a monthly pension of 1010 to 2000 yuan. One old man has a pension of only 490 yuan per month, with his wife depending on him; they have no children. Only one old widow did not have a formal job in her younger days, and instead repaired alnico utensils by herself; nowdays she is mainly supported by her younger son and also receives help from daughter.

The family monthly income in the laid-off/unemployed group ranged from 360 to 1800 yuan, 130-650 yuan per capita; the average per capita income was 360 yuan. For some the main source of income is the Labor Department subsidy, (over half receive subsidies), with additional income coming from a small business or from casual work. For others a small business or casual work is the main source of income and they do not receive subsidies. Four respondents stay at home and don't work, but are trying to find a job. Two have a small business (commodity vendor, small restaurant) and make a monthly income of 5-600 yuan. One works in a supermarket on a casual basis and brings in 4-500 yuan per month.

The family monthly income in the disabled group ranged from 552 to 1700 yuan, 92-850 yuan per capita; the average per capita income was 248 yuan. Of the six disabled samples, one is a blind couple living with their 15-year-old daughter, who makes a little money from performing massage and who receives relief of 468 yuan monthly (156 per person) from the civil affairs department. One is an epileptic who cannot take care of himself and gets relief of 156 yuan per month from the civil affairs department. He lives with his elderly mother, who receives a pension of 600 yuan per month, and a younger mentally retarded sister. Another is handicapped both mentally and physically (disabled limb), cannot work and is taken care of by his family. He receives relief of 50 yuan from the street committee. His family's monthly income is 500 yuan. Three other samples have a disabled limb: one of three is retired because of a leg problem and has a pension of 500 yuan; another cleans clothes in a unit on a casual basis and has an income of about 400 yuan; and the other cannot work and relies on her parents who have a family income of 1300 yuan.

The monthly family income in the poor group ranged from 96 to 760 yuan, 96-276 yuan per capita; the average per capita income was 187 yuan. 6 of the 7 samples receive relief, ranging from 96 to 200 yuan per month, from the civil department, street committee, former unit, or spouse's unit. One receives relief of 600 yuan yearly. Three families have other income, ranging from 300 to 600 yuan, from other family members or from a pension or casual work

Expenditure and its Structure
The monthly family expenditure ranged from 96 to 15,000 yuan. As with income, the poor group had the lowest and the floating population group the highest expenditure. The amount of expenditure is related to the amount of income; more income equals more expenditure. The biggest proportion of expenditure is for food, the next largest is for utilities. There are medical costs in the expenditure of most families. Most young or middle-age people have children's education costs. Some families have irregular large amounts of expenditure, such as an expensive gift, payment for buying a flat, or the cost of buying new facilities. Some families have not bought clothes for several years because of their bleak economic situation.

Housing and Other Facilities
Six of the seven elderly respondents live with their spouse in a one or two bedroom flat. One old widow lives in a two bedroom flat with her younger son. Four of the six floating respondents live in one to three bedroom flats, and two of them live in very simple conditions in their small shops. The blind couple live in two simple old style rooms, and the other disabled people live in 2-3 bedroomed flats with their family. The housing condition of the laid-off/unemployed samples ranges from a one to a three bedroom flat. Six of the seven poor samples live in one to two bedroom flats, and one respondent lives in two simple old style rooms.

There are significant differences in housing size amongst the groups. Some floating people have a business and live in the same small room in harsh conditions, and some of them rent a flat. There are some differences in decoration, furniture, and electrical equipment between groups. The facilities are very simple in most poor households and in some of the disabled family homes. They do not have any good furniture or electrical equipment, and some facilitis have been donated by other people. Some elderly people also live in austere conditions. The living conditions of the laid-off/unemployed group are fairish, maybe because of there accommodation was assigned by their unit as part of a welfare package.

7.3.1.2. Extent and Type of Health Insurance, and Forms of Payment
One third of respondents and their family members do not have any health insurance, and must pay for health care out of pocket. In one quarter of cases, respondents and all family members have some kind of health insurance coverage. In another one third, respondents and only some family members have some kind of coverage.

Generally, most elderly respondents and their family members enjoy medical care coverage. 10-20 yuan monthly is given as a subsidy for the medical costs of laid-off people, and some laid-off people can obtain a reimbursement from their former unit. Most poor and floating people pay out of pocket for medical costs. Most disabled people also pay out of pocket for medical costs, but some of their family members have types of health insurance coverage.

In the aged group, only one old woman with cataracts does not enjoy any health insurance scheme and she has not seen a doctor for this problem. Now she is almost blind in her right eye, although fortunately besides this problem she is healthy. Occasionally she has the common cold, and her daughter buys medicines for her sometimes. One old man has Labour Insurance, but his wife has no insurance. If his medicine belongs to the scope of insurance, he can get 2000 yuan reimbursement a year; if it is not he can only get 600 yuan reimbursement a year. With regard to the other five couples in the aged group, both have insurance, although the health insurance scheme varies: fixed amounts a year, eg. 240 yuan a year for medical costs; a percentage, eg. 90% reimbursement for an outpatient visit; or the same as the new city

scheme with a personal insurance account. The medical costs of special retirees are entirely covered by the health insurance.

Most floating people and their family members pay out of pocket for medical costs. Only one retired couple from another city enjoys the health insurance scheme for elderly people. Another respondent's wife can obtain 80-90% reimbursement.

Just one disabled person can himself obtain reimbursements from his unit for inpatient medical costs. The others all pay out of pocket themselves. All members pay out of pocket in one family. The family members of some of the disabled respondents have some kind of insurance, eg: 90 yuan a year, 300 or 400 yuan a year, 80% reimbursement, etc.
The 10-20 yuan monthly medical cost subsidy referred to earlier is given to all laid-off people by the Labour Bureau. One respondent obtains a 70% reimbursement from a former unit, and most respondents' spouses have kinds of insurance. A few couples are both laid-off and both get medical cost subsidy from the Labor Bureau both.

Almost all of the respondents in the poor group pay medical cost themselves. Only one respondent can get 80% off if she goes to her former unit clinic. Another's wife can obtain 90% reimbursement.

7.3.1.3. Use of Health Services

Health Status and Perceived Health Problems
Two-thirds of the 33 respondents have chronic diseases with varying degrees of severity. Of these, more than half suffer from two and above chronic diseases. Two respondents, who are not part of the disabled group, cannot deal with their daily life and need help from other people. One third of respondents' family members have chronic diseases. The situation in the community base is that 50% of aged people, 44% of poor, 19% of laid-off and 9% of floating people have chronic diseases. We purposely selected more samples with chronic diseases, in order to better understand how they cope with health problems.

Six of seven aged samples have at least one chronic disease with varying degrees of severity. These diseases are hypertension, bronchitis, stomach ulcer, cataract, cervical spondylosis, renal cancer, and Parkinson's disease. One old man just had an injury on his finger which had happened one month ago.

Half of the floating respondents suffered chronic diseases. These included back-ache, gallbladder stones, and women's problems.

Of the six disabled samples, three have disabled limbs, one has a disabled limb and mental retardation, and another two are, respectively, blind and epileptic. Two of them require daily care from family members: one is the man who suffers from epilepsy and is living with his old mother and younger mentally retarded sister; the other is the respondent with the disabled and mental retardation and who lives with his family members. The blind woman has chronic nephritis, and lives with her blind husband and their 15-year-old daughter.

Three laid-off respondents suffered from chronic diseases: gallbladder inflammation, hypertension, heart disease, headache, and uterine cyst.

Five of the poor respondents have chronic diseases, including hypertension, bronchitis, cervical spondylosis, hysteromyoma (tumor of the uterus), stomach inflammation or ulcers,

and erysipelas. One respondent's son has mental retardation as a result of contracting meningitis in childhood.

Besides chronic disease, most respondents have some acute minor health problems such as the common cold or dizziness. Some of them do not know the name of the disease because they have not visited a doctor.

Access to Health Services

Hospitalisation

Few respondents have been hospitalised in the past year. Only two elderly respondents required hopitalisation. One was hospitalized for two weeks because of hypertension, vomiting and the suspicion that he had suffered from a stroke. He has medical insurance with 90% coverage. The other respondent has been staying in hospital for many years due to a functional disorder of the kidney. He is a special retiree and his medical costs are all covered by insurance; he only needs to pay for a nursing assistant.

Outpatient Visits

The respondents who have good medical insurance often visit a doctor when they are sick and insist on having medicine. For instance, with regard to the elderly samples, in 5 of 7 cases, both members of the couple are retired with a pension and can get some percentage of reimbursement for medical costs; hence, generally, they visit the doctor when they are sick.

Many respondents visit the hospital just when they feel seriously ill. If they feel it is not so serious they just buy some medicine from a pharmacy or clinic, or take the medicine they have at home, eg: for the common cold, they go to the clinic in their unit to obtain medicine.

Between different groups, the aged group seeks health care more often. This is because, on the one hand, they have more health problems, and on the other hand, most of them have pensions and health insurance.

Choice of Health Institution

The samples with health insurance usually go to the hospital stated by the insurance policy to see doctor so that they can get reimbursed. Usually, there are several stated hospitals at different levels. If there is a unit clinic and the health problem is a minor one, the respondent prefers to go to the clinic to obtain medicine as it is more convenient. If the health problem is severe, the respondent will go to a high level general hospital or specialised hospital. For instance, the respondent with woman’s health problems will go to the maternity hospital.

The hospital selected to visit also depends on individual preference. For instance, a respondent with two identical level hospitals near his home, prefers to go to the smaller, further away one, because he feels that the doctors there are more kind and it is also not so crowded. Some respondents choose a hospital because they have relatives or acquaintances working there, eg. When Ms. Bai, a respondent from the poor group, has bronchitis attacks or other problems she usually goes to medical college affiliated hospital where her sister works. Some respondents visit a Chinese Medical Doctor whether in a public or private practice, because they believe in the efficacy of the treatment.

Coping with Sickness - Unmet Health Needs

More than half of the respondents had unmet health needs, this applied especially to the poor and disabled group, but also to the elderly and laid-off respondents without health insurance

or low reimbursement rates, and to a few of the floating group. Most unmet health needs were of a minor nature; those with colds, dizziness, or backache would not go to a hospital. However, sometimes failed to attend hospital in the case of a serious disease. Although the disease was still there, some respondents would not visit hospital again or would not take the necessary medicine at the required time or dosage. Very few respondents admitted that they were advised to be hospitalised by a doctor but did not comply.

Ms. Gu (handicap group), couple are both blind, has a daughter and whole family depends on the relief from civil affair department, she said: "when we had cold, usually we did not see doctor, we just have more boiling water." She has chronic nephritis for about 8 years, sometimes she went to hospital to take urine test and get some medicine when she has some obvious symptoms, otherwise just let it goes .

Ms. Zhou (laid-off group), couple are both laid-off, husband was hurt on his leg because of car accident two years ago, husband said: "I was asked to go to hospital, but I did not comply. Doctor asked me to have surgery to withdraw the armor plate there, it will cost 3000 yuan. It is impossible for me to spend such a lot of money "

1) *Out of Pocket Medical Expenses/Low Reimbursement Rates.* Quite a few respondents did not visit the doctor when they were sick because they had no health insurance and would have to pay medical costs themselves. Some low income families cannot afford to pay any medical costs.

Mr. Yi (poverty group) suffers fester on his feet and has limitation for activity and he has no health insurance. He said: "My feet could not be radically cured. The medical cost is so expensive, I can not afford, so I just buy some liniment embrocate on my feet sometimes ."

Others did not visit a doctor because their health insurance package had a limited percentage of reimbursement or a fixed amount a month, (laid-off workers receive subsidies of 10-20 yuan a month; some respondents receive 30 yuan a month or 200 yuan a year), or because their unit is a a loss-making enterprise and delays in reimbursing.

2) *Fear of Unreasonable Hospital Costs.* Some respondents said, "We are afraid to go to hospital, because hospitals now want more benefits. If we go there the doctor may prescribe this test and that examination which may not be necessary for us. The higher the level of hospital, the more examination items."

3) *Minor Illnesses*. Many respondents said, "We would not go to see a doctor when we have a minor illness. As long as we can stand it we just stand it, or as long as we can prolong visiting a doctor, we do so."

4) *Having No Time to See a Doctor*. Some floating respondents did not visit a doctor when they were ill not because of money, but because of the time wasted waiting in line to see a doctor. Instead, some of them just buy medicine from a pharmacy.

5) *Visiting a Doctor or Taking Medicine According to the State of an Illness.* A number of respondents said, "If my illness was not serious I would not go to hospital. If my illness was serious, and I have money, I would go to hospital." Some respondents with chronic diseases take medicines when symptoms are acute. However, if the symptoms were not serious they would not take medicine, because the cost is high and they simply can't afford it.

Mr. Zhong (aged group, suffers Parkinson's disease), his wife said: "His medicine has to be saved to take, because he just has 50 yuan a month be reimbursed. If his disease goes stable, no attack, he would not go to hospital and I go to hospital to get medicine for him. Because if he went to hospital he would be asked to be hospitalized and he would not comply it. He took MEI DUO BA three tablets one time and three times a day when he was hospitalized before. After discharge he just took one or two tablets a day usually, when he shivered seriously he took bit more tablets, he begrudges the use of the medicine because of the cost." In addition, Mr. Zhong could not relieve nature (stool) well for several years and depended on tablet, but he just took tablet every five days and to relieve nature. His wife said: "He relieve nature depending on tablet for three years, it is called BIAN SHAI TING, how can we afford the cost if he took it every day, he just took it every five days. "

6) Buying Medicine from a Pharmacy. Many respondents prefer to buy medicine from pharmacy instead of visiting hospital. They said: "It is convenient to buy medicine from a pharmacy and it also saves money since we don't need pay the registration fee."

7) *Asking Insured Family Members to Obtain Medicine from a Doctor*. Some respondents without health insurance ask family member who are covered to obtain medicine for them when they are ill.

8) *Obtaining Assistance from Others.* Other family members, such as children or siblings, may pay the medical cost for respondents without health insurance. At other times, relatives, friends or neighbours give medicine to them.

9) *Using Local/Natural Remedies.* Some respondents ate ginger soup when they got a cold, or drank more hot water and had more sleep. Some respondents just sat down or lay down when they were dizzy.

7.3.1.4. Medical Costs and their Financing

The average total outpatient medical expenses for a family was around 600 yuan a year. The highest was 3400 yuan a year (disabled group). There are some differences between groups.

Most elderly families spent 200-900 yuan a year, except one family which spent 3000 yuan. Three of the poor families spent less than 100 yuan a year. The outpatient medical expenses of other families in this group ranged between 100-1000 yuan. Most disabled families spent less than 500 yuan a year on outpatient medical care, although one family spent 3400 yuan a year. Laid-off families spent between 200-1600 yuan a year. Most floating families spent 500 yuan a year. Very few families spent more than 1000 yuan a year on outpatient medical costs and very few had no costs.

Regarding the two elderly hospitalised respondents, one spent about 4000 yuan in total and paid 300 yuan himself. The other one did not know the amount of total medical costs covered by the health insurance, since he only paid the fee for nursing assistance.

As for out of pocket medical costs, generally, the respondents and their families paid dozens of yuan a month on seeing doctors or buying medicines from the pharmacy. More than one paid in excess of 100 yuan a month. Very few families had no medical costs. Usually the medical costs paid out of pocket accounted for below 5% of family income; in less than 1/5 families it accounted for over 10%, and in very few family it accounted for 40% of income.

There are differences between groups. In the poor group, out of pocket medical expenses are low, but they absorb a higher percentage of this group's income. In three out of seven families medical costs accounted for 20-30% of income. In the floating group, medical expenses accounted for 2-4% of income. In most elderly families, medical costs accounted for less than 5% of income; in just one family they accounted for 40%, the highest percentage in the whole sample. In most disabled families, medical expenses accounted for 3-7% of income, and in one family it accounted for 20%. In most laid-off samples, 2-5% of income was spent on medical costs; two families spent around 11%.

Most respondents think medical costs are high, although the general medical costs for non-serious illnesses are affordable and do not impact life a great deal. However, they worry about what would happen if they contracted a serious disease because they cannot afford to see a doctor. In some families, medical costs have had a substantial impact on daily life.

Ways to Finance Medical Costs

1) *Paid by Health Insurance.* In spite of the kind of health insurance or the percentage of reimbursement, respondents who have health insurance will receive reimbursement, and the remainder will be paid out of pocket. As previously mentioned, some respondents have to wait a period to obtain reimbursement because their unit's profit margin was not so good.

2) *Via Family Members' Health Insurance* In some families, the member who has health insurance obtained medicine from a hospital or clinic and gave it to the member without health insurance.

3) *Getting Help from Others*. Some respondents said their medicine was donated by children, relatives or friends.

There are differences between groups. In the elderly group, five couples both have health insurance and get some percentage of reimbursement. If they had difficulties paying their children would help, so they do not have a problem. One old lady does not have a job and depends on her son and daughter. She has a cataract but did not see the doctor, so her right eye is now almost blind. Fortunately besides this she is healthy, and only occasionally has the common cold for which her daughter sometimes buys medicine. One old man suffers from Parkinson's disease and cannot take care of himself. The medicine costs 3000 yuan a year, and although he can get some reimbursement it amounts to only 600 yuan a year. His pension brings in 490 yuan a month, but his wife has no job and they do not have a child who could give financial assistance. A niece sometimes gives them some help, but she lives in the countryside and is not well-off herself. Hence, this couple have a harsh life.

The poor group tend to spend little on medical costs because they simply live with the illness or cope with it in other ways. The medical cost are low in comparison to those of other groups, around 200-1000 yuan a year, but it is actually a large expenditure for them and impacts a great deal on their daily lives. Some ask for help from relatives, friends, neighbours or neighborhood or street committees in the form of medicine or loans.

In the disabled group, the condition of some families is not bad because they have some income and health insurance. For other families, medical costs are a very large expenditure, so they ask other family members to donate medicine or lend money.

The laid-off group normally receive a subsidy of 10-20 yuan towards medical costs, but this is not enough to pay for health serivices. They use savings, or obtain medicine from family members who have insurance.

All floating respondents pay medical costs out of pocket. Now, generally, they can afford it.

7.3.1.5. Social Support

Most of the 33 respondents and their families received help both economically and otherwise from family, relatives, friends, neighbours, the government and society. Some help was periodical and some irregular or one-offs. Most support came from family members. About half of the respondents received periodical relief from the Labor Bureau, Civil Affairs Bureau, or street committee. Usually, the relief given by the Civil Affairs Bureau amounts to 156 yuan a month for the disabled, and 180 yuan a month for the registered poor. Some respondents obtained relief from their local street committee, which may be less than the relief from the Civil Affairs Bureau. The Labour Bureau gives a subsidy of 195 yuan a month to the laid-off, and they may also get 10-20 yuan a month for medical costs.

Nearly half of the respondents received economic support, one quarter received substances for daily life like food, and more than half received other types of help, like doing something. Few respondents had not received or asked for help from others.

There are different characteristics between groups. More disabled and poor people received relief or other support from the Civil Affairs Bureau. 3 of 6 disabled people and 6 of 7 poorpeople got monthly relief. Mr. Ji's (disabled group) mother said: "The Neighbourhood Committee often gives us many kinds of help, eg, relief, medicine etc." Some respondents got irregular or one-off help from some units in society. For example, one respondent received 200 yuan in a Spring Festival from some bank staff. Ms. Gu's (disabled) daughter's received a deduction from the Educational Bureau for her tuition fees, as well as support from the Youth Union. Some respondents received food from society during festivals. Some respondents received help from relatives and neighbours, eg, used facilities, clothes, etc.

The respondents who did not get relief from government were dependent on family. For example, Ms. Lu (disabled) is living with her parents and depends on her parents' salary. Family members hope that the government can support disabled people's daily life.

Most laid-off people receive a monthly subsidy from the Labour Bureau. Some laid-off people keep in contact with the service centres of the Labor Bureau in order to find a new job. Some of them looked for a job by themselves, eg, running a small shop or a booth, or casual work for others. Most of them hope to obtain a job from the service centre.

Few floating people asked for help from local government; they just submitted tax documents and paid administration fees. Most of them asked help from relatives or friends.

Elderly people mainly rely on children's help but ask for as little assistance as possible from children - a reflection of Chinese tradition. The help required is more often physical in nature, rather than economical. Only Ms. Tang depended on her son for everything, and three elderly respondents received small or irregular amounts of money from their children. This might be because most elderly people have a pension - also a reflection of our new culture.

7.3.1.6. Main Fears and Desires Concerning Health Insurance and Services in the Future

Almost all respondents worry about health care costs in the future, especially the elderly and poor groups. They said that, with regard to food and clothes, they can always eat and dress simply, but they would have no way of covering the expenses needed to treat a severe disease. Hence, they sincerely hope that the government will propose a special health insurance scheme for them. The laid-off group worry about their status now as well, and anticipate securing a steady job with some welfare benefits. Most families in the disabled group worry about the future life of the disabled people: who will take care of them when their parents get old? Floating people hope their businesses will be successful so they can have enough money to live well. Most respondents hope one day to be covered by a good health insurance scheme, with a high percentage of reimbursement. They complain about the high cost of health: expensive medicine, expensive examinations, and sometimes lengthy prescriptions from the doctor. Some of them had heard about the commercial insurance programme, but do not know the details and, anyway, feel that they don't have enough money to pay the premium. Concerns were also dependent on age: young and middle-aged people were more concerned with their children's education and with buying a flat. Elderly people were more concerned with health issues.

7.3.2. Findings from Zibo

7.3.2.1. Socio-economic Situation of the Sample

General Characteristics of the Interviewees

32 households (including a number of pilot interviews) were interviewed in Zibo. According to the division of the interviewees into five groups of vulnerable households, the interviewees consist of the following groups: the laid-off workers / unemployed, the disabled, the poor, the old age pensioners and the migrant workers. The transitions between these groups were fluid and permeable: Several unemployed households could also be assigned to the poor. So the segments into which the groups have been divided are meant for analytical purposes.

Six households belonged to the migrant workers group, six to the physically disabled group and six to the laid-off / unemployed group[8]. Seven households were from the poor and/or old-age pensioners. 15 of the interviewed were men while 17 were women. The average age of the interviewees was 56.5. The migrant workers were the youngest in comparison to the other groups: here the average age was 38.5.

The size of the household varied between one and six people, whereby the poor at 2.1 was the smallest and the disabledped group had the largest average at 4.5 members. Four of the interviewees lived alone and in six households there were five or six members.

Income and its main Sources

The households included in the survey were predominantly poor, i.e., the average income was around the lower tier of Chinese per household incomes. The definition of poverty varies from city to city; According to Mr. Shen (Director of Social Security of the Municipal Worker's Union on 10 August, 2000) 143 CNY are paid as relief per person in Zibo, whereas in Yuan this lies between 130 CNY and 180 CNY. This situation is mirrored in the selection of the sample and poverty was a significant selection criterion.

[8] It was estimated by the Zibo Municipal Government that the number of laid-off workers was around 30.000. Representatives from the Women´s Federation reported the (estimated) number of roughly 100.000 laid-off workers. The official unemployment rate in 2000 is 3,4%.

The monthly family income ranged from 120 to 2,300 CNY, whereby the migrant group at 384 CNY/month per person was on average the highest, and the poor at 178 CNY/month per person was the lowest. Between that the income range of the disabled was at 186 CNY/month per person, the old-age pensioners at 323 CNY/month per person and the laid-off/unemployed at 355 CNY/month per person.

The main sources of incomes were salaried jobs, pensions, business, and various types of social relief.

Income sources were specific to the different groups: while, according to their status, elderly people live from their pensions (mostly paid by companies) and migrant workers are almost entirely dependent on "work on the move" – construction sites, etc. - , the other three groups of society receive their incomes from a mixture of sources. Laid-off/unemployed workers as well as the disabled support themselves from a mixed bag of pensions, social relief, work on the side and other small jobs. The poor were above all dependent on state support.

Apart from the migrant workers, whose members generally send money to their relatives in the countryside, almost all the other groups could only afford special expenditures by receiving money from relatives. Such expenditures could be necessary due as much to illness as to a family celebration, for example, a wedding.

A further characteristic was the irregularity of the household income. Alongside the relatively stable income, additional sources would become available which were restricted time wise. These included, listed here in level of importance, support from relatives, occasional work and one-off payments from firms, institutions and administrative authorities. Furthermore, in the case of self-employment it sometimes occurred that income was seasonally affected. The amount of orders for small service industries and the turnover of convenience stores was also bound together with seasons or particular festivities such as the Spring Festival. Income fluctuations of up to 30% were not uncommon.

Expenditure and its Structure

How was the income used? The largest expenditure (50% of the total income) was for food, followed by health at 30%, with the remaining 20% covering such costs as rent, services such as electricity, gas and water, telephone and housing. This division of the income into the different areas of expense was comparatively inflexible, that is, there was hardly any space to alter the expenditures. Correspondingly – apart from the Migrant households very few households were able to save for special occasions or later purchases.

These proportions do not give any indication of the actual level of expenditure. The fact that 50% of the income is spent on food reflex the poverty of these people in this area: meat and fish hardly ever appear on the menu, which predominantly consists of rice, oil and vegetables. Also these basic nutritional needs are not always sufficient. So this is the reason that gifts from the stores of the local authorities on special occasions, e.g. the spring-festival, consists of rice and oil.

Expenditure for clothing is not significant, as many family go for many years without buying new clothes. Rather, they wear hand-me-downs from relatives or neighbours.

Broadly speaking, the monthly level of expenditure for most of the families was matched by the income. The income of the poor, some unemployed and the old-age pensioners was not sufficient to cover all the normal costs, and so these groups had to depend on loans from friends and relatives. Although repayment was promised, the families of very limited means

simply could not do so. Borrowing money actually means asking for a contribution which everybody knows cannot be paid back.

Only the migrant worker families were able to save money. The saving quota was normally 10-15% of the net income. This money was saved mainly in order to support realtives, who live in the countryside, or to buy a house near their place of work (in this case Zibo).

Housing and other Facilities

A large proportion of the families interviewed by us live in their own flat or house; renting was not that common. Not having to pay rent is a considerable relief for many households on the hand whilst on the other the purchase of a flat or house is an expense that leads to voluntary debt. Money can be borrowed from relatives, and – not so commonly – from firms and under no circumstance from private lenders such as banks.

The average number of rooms (excluding kitchen, which often was not in a seperate roo, but including bedrooms) was 3. The average flat size was 54 m^2 for an average household with 3 members. This results in an average 20 square metre per person. There was a correlation between the income and the fixtures and fittings within the flats. A lower standard would commonly include no electrical appliances apart (e.g.) from an old, second hand black and white TV, further there would be nowhere for visitors to sit and to store clothes in plastic bags rather than wardrobes. It was comparatively bad space-wise for members of the floating population since they tended to live in a small area that was corner off from the shop. A higher standard would include a colour TV, fridge, washing machine, telephone and air-conditioning. The description and self-evaluation of their living conditions was based extensively on the existence of the technical equipment described above.

All in all the existing housing conditions of those interviewed as part of this study were no reason for concern or particular problems. While some families – in the first line from the group of the migrants - were planning to purchase of a house or flat, others did not regard it necessary since they had come from another area where they owned a house to which they would return in due course.

However, it must be pointed out that the circumstances related to the families we interviewed does not necessarily cover the entire spectrum of possible conditions of life. It is certain that extreme conditions are only portrayed as an exception. Due to the form of the sampling, certain groups were not covered, among others a not inconsiderable population of migrants who work illegally and have no permanent place of residence. Such people often drift from construction site to construction site, using the sites as sleeping areas as well, sheltered by cardboards. The word “residence” cannot be used in this context.

7.3.2.2. Extent and kind of Health Insurance, and Forms of Payment

Exactly half of the interviewed persons and their families had absolutely no health-care coverage. In 14 further households only one member was covered, in one household two members had insurance (of three). In only one household (two pensioners) were both members completely covered.

There was a tendency for the pensioners and the laid-off and unemployed workers to be better covered than the migrants, the disabled and the poor. It must be said that many of the insured were forced to wait for a long time until their claims were accepted and reimbursed, and there was often uncertainty whether the company responsible at the time was even able to cover the claim placed. Often business refused to pay their contributions to the system, arguing that

they were having financial problems of their own and so could not afford to pay.[9] Some of the interviewees faulted the uncertainties of the law and claiming to reimbursement in this area.

The security of these "insured" households was mostly limited – at the very best – to in-patient treatment and in-patient care or it was limited by percentage of coverage or an absolute upper limit of reimbursement. In addition, in a lot of cases there were special regulations and uncertainties. It is evident that such households which had no possibility to save money for such situations found themselves in a serious financial predicament due to the delay in reimbursements from the companies. In very few cases did the health insurance protection completely cover all costs. Almost all the interviewees had to pay the additional costs on their own. According to their general exclusion from most of the benefits which town dwellers receive, migrants and the poor had to pay all medical expenses from their own pockets; it was usual that they asked the providers (hospitals, doctors) for a discount. In many cases the payments and the contributions of the Labour Bureau for Unemployed took on the character of charity, which appeared to depend on the "good will" of the then participating authorities.

All in all, calculating the expenditure for health is not possible for the households. Attempts at saving money by cutting down on personal expenditures for health will always be undermined by repeatedly occuring states of crises in their health situation.

Possible savings will be exhausted by stationary treatment very quickly. If the financial resources of a household are not sufficient, money will be borrowed from relatives or friends (Migrants) to cover costs.

7.3.2.3. Use of Health Services

Health Status and Perceived Health Problems

Nearly 70% of the interviewees suffered seriously from at least one chronic illness which made it necessary to have a constant supply of medicine. The following illnesses were noted among the interviewees (listed in the order of their occurrence, from the most to the least): Bronchitis, stomach problems, high or low blood pressure, diabetes and various kinds of heart ailments.

Some of the interviewees attributed their illness and the difficulty of being cured to their circumstances, for example, the condition of their apartment. Above all lung diseases, which could be attributed to air pollution and problems in heating could become chronic.

A closer view of the underinsured households shows that the worsenings of the health situation is especially explosive if the following situation should arise: in-patient treatment and unavoidable expenditures for pharmaceuticals on an unexpected scale. In these cases the ability of the families to pay was exceeded very quickly. In this situation they tried to move the boundary between illness and ailment in favour of ailment. This gives the opportunity to substitute expensive drugs by curing their sickness on the basis of self-treatment and household remedies, e.g. relatively cheap herbs and traditional medicine.

Drugs, which were prescribed in combination with or after out-patient or in-patient treatment, were sometimes not bought and not taken by the patients, because the prices were not

[9] There was some evidence for this argument. Zibo with it`s old heavy industries was faced by an economic depression and for an increasing number of (especially state owned) enterprises it was getting more and more difficult to cover health costs of their employees and retirees.

acceptable for the families. Especially Pharmacies, which were integrated parts of hospitals, were not popular because of their high price policies.

The utilisation of health services is definitely correlated with the financial well-being of the interviewees, i.e. treatment or purchase of medication only occurs only if insurance exists or a significant reimbursement can be expected.

Access to Health Services

Hospitalization

Hospital care was avoided as much as possible, for admission was mostly bound up with costs which the interviewees could not afford. The registration fee[10] alone prevented a visit, according to statements by some interviewees. Hospitals in Zibo reported that the number of in-patients who suffered from mild diseases decreases relatively.

Despite considerable health problems very few of the interviewees had been admitted to the hospitals in the past few years. The people who were self-financed specifically avoided out-patient care and in-patient treatment, as the registration fee was charged regardless of the severity of the illness, and prescription drugs were rather expensive in the hospital. Most of the patients wanted to leave a hospital as soon as possible and they asked the doctors for discharging them.[11]

An exception to the rule is the pensioners, who are in possession of a medical card which guarantees them free care. This group frequents medical clinics of all types (and at all levels) considerably more often than all the other Interviewees, even in the case of mild illness; moreover, a visist to the doctor is more usual and with less concern about payment.

Outpatient Visits

Out-patient care through hospitals and clinics was used more often by people who carried insurance than the non-insured. However, here also possible costs of a treatment by a doctor were weighed off against the possibility of self-treatment through the advice of a pharmacist and buying the medicine themselves.

On the basis of their multi-morbidity as well as their relatively good health-insurance coverage, old-age pensioners were over-represented in doctor visits. They frequented the out-patient clinics often or regularly. Migrants who were self employed at least visited the doctors. As a group they were comparatively healthy and at the same time shrank from spending money for medicine. The time spent at the doctor plays an important role with Migrants. Several of the Interviewees said, they would not be able to close their business temporarely or let somebody run it while there were away, without being afraid of loosing money. Contract workers feared loosing their job.

It wasn´t said directly, but some of the interviewees gave the impression that sometimes the insurance of a single member of a family is used to acquire treatment or drugs for other family members. Appointments with doctors or clinics were made under the name of that family insured member.

[10] Which is with the exception of emergency cases, around 1,000 CNY in some hospitals in Zibo.

[11] In order to minimize costs, over 80% of the in-patients of the Zibo Central Hospital in 2000 wanted to be discharged as early as possible.

Choice of Health Institution

The choice of a hospital or clinic depended on the type of insurance owned by the person. The insurance given through their workplace mostly bound the people to specific institutions. According to the type of illness the interviewees were referred to a specialist or to a better equipped hospital.

If a specific hospital or clinic was not written into the insurance policy, the insured person could chose a clinic in his area or according to personal contacts. Perhaps a relative worked in a hospital as a nurse, a neighbour was a doorman in a clinic, etc. This eased entry into a hospital and the care considerably. The medical equipment and the specialisation of the hospital or clinic was as a rule no concern to the interviewees and so was not a criterion in their choice.

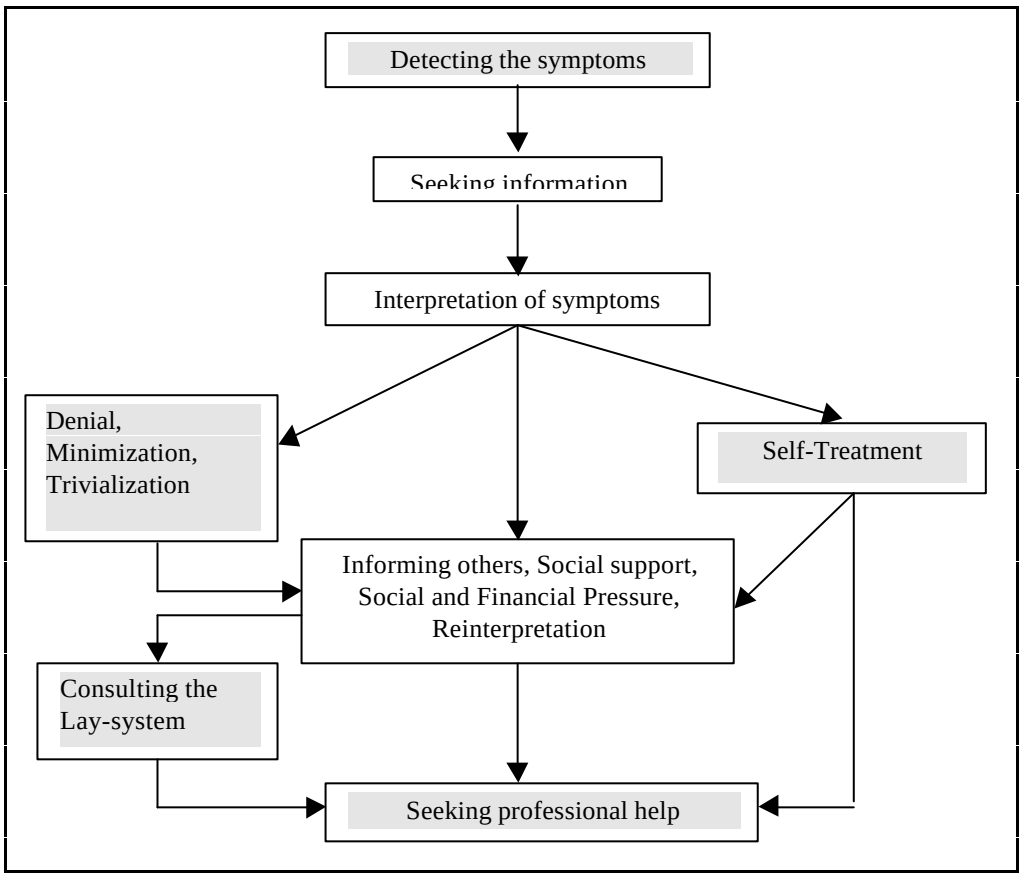
Coping with Sickness - the unmet Health Services

Health conduct always goes hand in hand with lifestyle, which is determined by a slew of factors, such as socialisation, work and living conditions. Social relationships and the local structure of health services and what they offer.

Nearly all interviewees differentiated between ailment, which does not require a visit to a doctor or can be cured with OTC [12] medicine, and illness. The impression was that the division varied depending on wealth and the perceived severity of the illness. If illness made treatment or a hospital stay necessary, the perception of the illness as well as compliance depended directly on the financial situation of the patients. As a result symptoms were re-interpreted and therapies very often left unfinished; the result being the disease becoming chronic.

[12] „Over-the-Counter“.

Health seeking behavior



The decision-making algorithm from the perceiving of the symptoms to self-treatment, help through the lay system or the use of professional medical treatment was determined in many ways by the personal situation and the interpretation through the at that time social climate.

Influencing factors included: Type and range of expected costs, size of the expected reimbursement, coverage of the health insurance, financial possibilities, support from friends and relatives, experience with the illness as well as basic knowledge of possibilities of cures. With this background the severity of the disease was determined and a decision made whether and which help was needed.

It is possible to identify in principle 3 solutions für coping with illness: Firstly, the families can decide to do nothing and wait. Secondly there is a possibility for self-treatment for example to take home medicine. Thirdly, to get professional help.
How the families decides is above all dependent on whether they have insurance or not.
If the person ill is insured or at least a person in the family is insured, then mostly they choose to go to a hospital. If there is no health insurance, then the decision is not only dependent on the financial capability of the family whether to wait-and-see or to start self-treatment, but it is also dependent on the social environment and the personal disposition of the person involved.
On the basis of the influence of the social context it can lead to reinterpretation of the illness.
Within this is also the so-called lay-system, in which the non-professional experience is sought. Decision making processes are established in which self-treatment, lay-system and professional help will be given again and again different position of importance.

7.3.2.4. Medical Costs - Total Medical Cost and Out of Pocket Payment

The average expense for the treatment of illness varied from 50 CNY to 4,000 CNY per year. The absolute limit of expenditure was determined by whether in-patient care was needed or not. Chronic or acute illnesses had a bit more influence on the decision. Between the individual segments of society there were considerable differences. Above all, the families of the old-age pensioners had to pay.

More important than the absolute limit of expenditures was the share of the health costs which had to be paid out of pocket from the household income. In extreme cases almost 50% of the total income of a poor family had to be used. On average the poor families paid the absolute smallest amounts, but the share of these costs on their total household was higher than any other group (25-40%). The migrants had to spend on average a somewhat higher sum, but the share of the household income was merely approx. 6%.

7.3.2.5. Social Support

The interviewed families relied on a wide range of social support; comparable to results which were reported in the literature (Cook 2000) the interviewed families primarely relied on safety nets which were provided by closed people. Informal support was predominantly given by relatives not neighbours, (former) colleagues or friends. The floating population are again an exception. Their relatives still lived in the countryside and therefore they relied on help from other groups and friends. Support mostly came in form of specific items, money that was needed for unexpected expenses. Purchasing a flat or house was one example and treatment in hospitals (operations) or the purchase of medication. Guaranteed repayment was hardly given and was not really expected in the foreseeable future.

It is not sure if families in the future will be able to maintain their function within the social networks, because there is a tendency towards the core family. More and more the younger people wish to live separate from the old generation – an aspect of modernity China is faced like other countries.

Depending on the competence different institutions could be consulted as part of formal, governmentally regulated social support. Many applications for support were refused if there was any indication of other subsidiarity e.g. from relatives. The authorities seemed to have considerable flexibility in their management and a lot of freedom in their decision making processes. The Zibo Municipal Health Bureau agreed with health service providers a small discount (around 10% minus) for the medical care of the poor. It was up to the health facilities to apply for this discount in behalf of the patients.

7.3.2.6. Main Fears and Desires concerning Health Insurance and Services in the Future

The main concerns and fears regarding future problems and difficulties seemed to vary depending on age. Among the younger interviewees the economically tense situation lead predominantly to depression and fatalism („we will wait and see“ or „one shouldn‘t really waste too many thoughts about this“), whilst among the middle aged wishes and worries were more related to children‘s education and their house and home. The older population, however, clearly feared that they would no longer be able to manage and maintain the fragile balance of their every-day life. This balance and the future wishes of the middle-aged are mostly threatened by possible illnesses or the worsening of existing illnesses and the therefore resulting costs for treatment and medication .

This prospect was so threatening because – as mentioned above – the cost of health insurance was usually not affordable.

7.4 Comparison between two cities:

Similarities between Zibo and Nantong:

The initial key finding was the comparatively low quality of life in the selected households. The average income of a vulnerable household was significantly below the average income of the population of NanTong and Zibo (which is ca. 447 CNY for the urban in Zibo, ca. 222 for the rural population) and also below the average income of the Chinese urban population.

However, there were also considerable differences between the individual groups in this study. Migrants had the highest income within this group followed by old-age pensioners. The poor were on the bottom rung of the ladder.

Income between groups, the highest both are floating group, the lowest both are poverty group. In both cities there are some support from Civil Affair Bureau, Labor Bureau, Street committee, neighbor committee, family, relatives, friends, neighbors to vulnerable people. Family is the most common support for most people. Health condition of the sample in two cities is similar. The diseases the sample suffer have no big differences.

Both samples with good health insurance visited doctor in time and took medicine as they need. The samples without health insurance usually visited doctor just when the illness was serious. The reasons and the ways they coping with the health problem for unusing health services are similar.

Both samples worry about the medical cost in future, especially if they suffer severe disease.

Differences between Zibo and Nantong:

Last not least there were obvious differences beetwen the income of the groups in NanTong and Zibo.

Generally, the income in Nantong was sicnificantly higher than in Zibo. There was only little difference on income range within the groups. From highest to lowest, in Nantong: floating, aged, laid-off, handicap, and poverty. In Zibo, floating, laid-off, aged, handicap, and poverty.

Housing in Zibo looks better than in Nantong, bigger and newer in Zibo. Even poor family they have a big new flat. Because the urbanization most people were transferred from peasants to city residents and their own old house were changed to flat in Zibo.

Less laid-off people has relation with labor bureau in Zibo, the subsidy in Zibo (130 yuan a month) is lower than in Nantong (195 yuan a month). Of course the living standard looks lower than Nantong too. There is medical cost subsidy (10 yuan a month) to laid-off people in Nantong. Unknown in Zibo.

More handicap and poverty people got relief from Civil Affair Bureau in Nantong (3/6 handicap, 6 of 7 poverty people) than in Zibo (2/6 of handicap, 4/7 of poverty people). The relief from Civil Affair Bureau is more in Nantong than in Zibo. Nantong, 156 yuan a month for handicap people, 180 yuan a month for poverty people. Zibo, 143 yuan a month for handicap and poverty people. More help from society to vulnerable people in Nantong than in Zibo. There are some units like bank, youth union, etc. donate some money or substance to poverty or handicap people.

The aged people get help from children in Zibo mostly was from son, parents usually do not ask help from daughter.

People in Zibo more visited community clinic or health station, while people in Nantong more visited hospital or unit clinic.

More people in Zibo have experiences for not using health services when they were sick.

The percentage of medical cost account for income in Zibo is bit higher than in Nantong.

7.4. Existing Provisions to Support Vulnerable Households

The two cities have had some policies, regulations and spontaneous actions for supporting vulnerable people. For instance:

- Providing the so called “five items ensurances” (food, clothes, living, medical services, and funeral /beravement) for the elderly without any income and child.
- Providing monthly relief to the people without any income, without people be dependented on, and without working ability, and to the people who are the old handicap soldier, old veteran, and old martyr family member.
- Setting up a lowest living stardard line, and giving monthly relief to the peole under that line.
- Donating some part of the fund from lottery as social welfare fund to support the services to the elderly.
- Support from society, for instance, donation from some enterprises, public agency, private company or individual, daily help from neighborhood and community volunteer.
- Several polit community health services stations provided the environment for enhancing the vulnerable accessing health services.

The five household groups investigated can receive many different forms of support; one must first differenciate between the individual groups:

The unemployed and so-called laid-off workers are as a group heterogenious. Comparably favorable is the situation of laid-off workers, whose companies are still in the black. They can count on support by these companies; as a rule they are reimbursed on avarage 55% of their health costs. The remaining out-of-pocket-costs are 30 to 80%.

The situation of the unemployed is similar. Their situation is too dependent on the financial position of their former employers. The disabled receive support from different sources when they are ill.

In comparison to the other groups old age pensioners are in the most favorable position. With luck they can receive a reimbursement of more than 90%. So-called Honoured retirees and veterans often do not have to pay anything or they receive 100% reimbursement.

Migrants (floating population) consists – in the eyes of the law – principally of two groups: those, who have a work permit and a residence permit and those, who have not. The people of the latter group have in principle no claim to state support; they are also not bound to an employer. Many work on a day-to-day basis or, put nicely, as contract workers at market places, in restaurants or in contruction business. They often receive their money black at the end of day or end of the week. Mostly there isn´t any health insurance.

The legally employed migrants are – in principle - subject to the same protection regulations as permanent workers. With the new general Health Insurance System they profite in the

same way from indiviual medical savings account (MSA) and the general social or collective fund.

The poor receive (financial or other) support from local or regional or state authorities (e.g. Ministry of Social Affairs), as long as they not receiving support from former employers. The support is often not sufficient to cover their daily needs. The poor are almost always dependend on additional support from friends and relatives.

7.5. Conclusions and Policy Recommendations

Good Health for the urban population is not unified. Certain groups are considerably more disadvantaged and have less chance of good health care than the average citizen.

Good health over the long run (health opportunities / Gesundheitschancen) is to be understood as a combination of environmental conditions, e.g., conditions of work and living situation, the individual health habits, as for example exercise and tobacco use as well as the ability to take advantage of the health care system.
The sub-study presented here aims to bring into focus several of these conditions.

The time period during which this study was executed marks concurrent fundamental changes in the social security system in China. In this connection the investigation of especially vulnerable households played a considerable role in the reform of health insurance (that is, the transition from the GIS and LIS system to the new System of General Health Insurance (Jiben Yilao Boaxian). Officially, that means the system gives a new string of advantages to pensioners, the disabled and legal migrants. Other groups, such as the poor and illegal migrants will not take part or will only be given a very small role in the reform; specific additional reforms, e.g., the setting up of a medical help fund for the poor, are only being planned or are currently under discussion.

At the time of the implementation of this study the reforms had not yet had any effect on the interviewees of the vulnerable households. The entry of the interviewees into the health services was for various reason extremely limited and it is assumed that this situation will also continue, as an expansion of state maintenance of the health care system is not intended.
Reasons for the perpetuation of the extremely desolate situation lies above all in the very limited financial means of the individual households which cease urgently needed treatment, mainly in-patient hospital care, because they cannot afford the registration fees.

In the face of this financial shortfall, serious diseases are reinterpreted so that the families rationalise self-treatment or waiting in the hope of spontaneous healing. This often results in the disease becoming chronic and the suffering not only weighs down the individual household, but also the health-care management system with further and higher costs.

Starting programmes to work against this development lie on one hand in improved health-care education (above all for migrants) and on the other hand in additional state or municipal programmes for the coverage of health costs, especially for the poor. For example, can learn from Shanghai, which issued a new regulation, a kind of medicaid program, giving a certain amount of money a year as medical cost reimbursement to the poor or the people with severe chronic disease who might becoming poor. Or health institutes provide some discount health services to the vulnerable with special ID. For example, Shanghai Labor Union set up a special hospital for the poor (pauper hospital). Finally, a creation of strong competition between the health care providers could also lead to an easing of the situation. This would

demand a policy which would make economic reserves of the existing system available to the vulnerable households. Community health service is good for all residents, particularlly for vulnerable people because of its lower cost, easier access and other characteristics. Developing community health services would increase the availability and accessibility for the vulnerable, and decrease the gap between the health need and utilization of the vulnerable.

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Chapter 8

ACCESS TO HEALTH CARE IN THE CONTEXT OF ECONOMIC LIBERALISATION IN URBAN CHINA: A GENDER ANALYSIS[13]

8.1. Introduction: What are the Implications of Economic Liberalisation in Urban China for Women and Men's Access to Health Care?

Amongst concerns about increasing inequity in access to health care, among other social services there has been little research into how gender influences the processes and outcomes of access to health care for women and men. This study aimed to describe and analyse the probable impact of the economic liberalisation and changes to health care finance on access to health care by different groups of women and men.

This section will outline several aspects of economic liberalisation that are of particular relevance to access to health care in urban China: changes in the employment system and the health benefits system, and the rising cost of health care. It will examine the implications of these changes for women and men and discuss how these changes may intersect with other societal shifts in urban China to produce specific gendered vulnerabilities.

8.1.1 The Differential Impact of Economic Liberalisation on Women's and Men's Position/Opportunities in the Workforce

Significant gains were made in the PRC since 1949 in terms of gender equality in the workforce through legislation to protect women's rights and propaganda campaigns promoting women's role in production. However, some areas of production retained a high degree of gender segregation (with consequent lower pay and benefits for those enterprises which employed predominantly women such as collectives, or for work perceived as particularly suitable for women) and there were continuing debates about women's and men's capacity and suitability for different kinds of work and about women's roles in production and reproduction (Druschel, 1999). Das Gupta et al (2000) argue that 'efforts to protect women workers have been double edged weapons' (pg 10) because 'they have been used to justify lower wages for women and they run the risk of reinforcing the stereotype that a woman's primary role is reproduction'. In addition, the provision in the law for women being excluded from 'unsuitable work' may allow for discrimination because the specific types of work which are 'unsuitable' are not specified, leaving a loophole for discrimination. These problems notwithstanding, significant attempts were made to protect women against discrimination.

Economic liberalisation, amongst other changes, has led to a number of policy changes to increase competitiveness of state-owned enterprises. For example work unit managers have been given increased control over recruitment, contracts and redundancy, creating a labour market, and subsidies to state-owned enterprises have been reduced increasing the pressure on work units to be cost efficient and maximise profits. This was driven by the new government

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policy of 1997, which advocated that the number of employees in the state-owned enterprises should be reduced in order to increase economic efficiency. Work unit managers have been able to use redundancies, 'early retirement', transfers and leave with basic pay to meet the new demands on enterprises (Howell, 1997). The development of new types of enterprise, including 'joint venture' (foreign investment) enterprises and the market reorientation of older enterprises has led to the demand for new skills amongst workers (such as marketing, sales, accounting, and computer skills), and an increased preference for particular types of workers.

There is mounting evidence that managers making human resources decisions in this new market environment refer to gender and age stereotypes in deciding what kind of workers to hire and fire. There is evidence that there is a female bias in redundancy. The State Statistical Bureau's survey of 15,600 households in 1997 showed that 62.8% of laid-off workers were women. Early retirement is also permissible earlier for women than men (as early as 35 in some cases). There is also some evidence that women find it more difficult to get reemployed than men. An ACWF (All China Women's Federation) study in Shenzhen found that 67% of the unemployed were women, rising to 73% of those unemployed for more than a year (ACWF Women's Research Centre). Government retraining schemes for women are often focused on getting them into occupations such as domestic service or child care, which are low security and low paying jobs with no benefits attached (China Rights Forum, 1999). Young, unmarried women are likely to be the preferred employees of foreign-investment enterprises, but older married women are increasingly discriminated against because enterprises wish to avoid the costs of providing women's health benefits such as maternity leave and insurance coverage, and breast-feeding time. Almost 70% of enterprise managers interviewed in Shenyang and Nantong indicated a preference for employing men and 30% of leaders stated that they wished to recruit only men (Howell, 1997). This discrimination extends to professional women (Davin, 1990). A fact-finding mission of the National People's Congress found in 1995 that employers were discriminating against female college graduates by setting age limits and higher requirements for female applicants, contrary to the law (Druschel, 1999).

As in many countries in both the developing and industrialised world, there is a continuing wage gap between women and men, which varies between different economic sectors. One study found that women working as factory directors or managers were paid 89.5% of what men in similar positions received, whilst for female chief engineers, chief economists or chief accountants in factories, the corresponding figure was only 64.2% (China Rights Forum, 1999). Since urban pension levels are determined by years of service, lower retirement ages for women also mean that they receive lower salaries and sometimes reduced benefits, such as pensions. Das Gupta et al. (2000) argue that for some women, increasing gender gaps in wages have cause a marked drop in family and social status. In addition, anecdotal evidence suggests that the increasing pay gap has led to changes in bargaining positions and decision-making power in some households. Studies conducted in urban China in the 1980s and 1990s suggest that households have generally pooled resources and that whilst there has been some variation in decision making norms amongst urban Chinese couples/households, in the majority of cases the woman has been responsible for the day to day management of resources, with the male 'head of household' being responsible only for occasional 'major' decisions such as investments. However anecdotal evidence suggests that decision making in some households is shifting towards men where their earning capacity advantage over women is increasing.

8.1.2 The Impact of Economic Liberalisation on the Social Benefits System

Urban China is currently in transition from a social benefits system based on the individual work unit to a municipal benefits system. The values underpinning the work-unit – employee relationship are shifting from one of paternalistic provision and responsibility on the part of the employer to a contractual relationship. Under the system built up since 1949 there were few biases against female employees, although collective enterprises, which employed a disproportionate number of women, tended to offer less comprehensive benefits than state-owned enterprises or public institutions (Druschel, 1999). Detailed and relatively comprehensive legislation and provincial regulations were drafted to protect women from discrimination related to pregnancy, childbirth and breastfeeding and to protect them from sex specific occupational health hazards. Benefits for dependents of workers appear to have been quite complex, but the majority of dependents received some benefits. However, this benefits system is being eroded; the social benefits to which workers are officially entitled are decreasing and the ability of many struggling work units to finance those benefits that are officially available is also declining. In addition, a growing proportion of the urban population, such as the unemployed and economic migrants without city residence permits, are not eligible for any employment related benefits, or are entitled to further reduced benefits, such as those on short term or temporary contracts and those who have been laid off or 'early retired'. Even the reduced benefits offered to laid off or 'early retired' workers may not be paid. According to the State Statistical Bureau, only half of the total number of laid off workers receive the stipends they are promised (China Rights Forum, 1999). This process does not directly discriminate against women – there is no evidence that there is any difference between the benefits given to women and men within enterprises. However, if women over-represented in those groups which are vulnerable to benefits cuts or losses, such as those working in loss making enterprises, those laid-off or 'early retired' or those unemployed, this constitutes an indirect bias against women in the distribution of benefits. Additionally women are more likely to be dependents due to their child-rearing and care-taking roles, so the erosion of benefits for dependents will also disproportionately affect them.

8.1.3 Other Changes

The above major changes in the labour and benefits systems have been developing at the same time as other major changes in the structure of urban Chinese society, and trends in health and health care. Firstly, there had been a rapid escalation of costs of health care. This trend has coincided with reduced benefits coverage to threaten the affordability of health care for a number of groups. Secondly, China is undergoing a demographic transition to an 'aging society' as a result of a decreasing rate of population growth due to the one child policy and an increase in life expectancy. Thirdly, China is passing through a 'health transition' from an epidemiological profile in which communicable diseases featured prominently to one in which the main burden of ill health is due to non-communicable diseases. Fourthly, the liberalisation of the media in China has also changed public discourse on the roles of women. Since 1949 state social engineering projects used mass communication to espouse the emancipation of women, laying emphasis on women's social and intellectual equality with men and their importance as workers to the success of the task of socialist construction. However, since the 1980s the multiple sources of images of women in society in various forms of media have been more contradictory, with portrayals of housewives and stereotypical manipulative sirens co-existing with representations of career women (Das Gupta et al, 2000). The latter three changes are intersecting with changes in employment and benefits to produce a different environment for women both within and outside the family. The combination of the demographic shift to an ageing population and the epidemiological transition to non-communicable diseases will produce an increasingly heavy burden of chronic diseases, particularly amongst the elderly, with an increasing ratio of elderly

dependents with chronic diseases to younger workers and carers. This dependency ratio will increasingly raise questions about how health care for the elderly will be financed. In the current environment women are likely to face increasing pressures from both societal and familial expectations that they will take on the majority of the care associated with this disease burden. This in turn raises questions about the implications for the status and social security entitlements of carers, which will have particular relevance for women and their position in the family and society.

8.1.4 Gender, Health and Health Care in China

There is very little literature examining gender and health or access to and financing of health care in China. Within existing literature the focus has been on the threat to the female child posed by son preference in the context of the one child population policy. Gender issues in health amongst adults raised in the literature include gender differences in suicide rates and women's reproductive health and access to reproductive health care. The latter is discussed below.

The emphasis on population health and population control by the Chinese state have historically led to concerted efforts to provide for and protect women's reproductive health (Das Gupta et al, 2000). Although China has had remarkable success in reducing its maternal mortality rate, large regional variations remain For example, whilst the coastal province Zhejiang had maternal mortality rate of around 23.74 per 100,000 live births, that of the inland province Qinghai was 215.37 per 100,000 (Huang and Li, 1995). Most of the available literature on women's health and health care services in China focuses on rural areas. For example, a qualitative study in Yunnan Province for the Women's Reproductive Health and Development Programme found that women's heavy labour burdens reduced their ability to protect their health and that they were unlikely to seek health care unless they became incapacitated, because of the lack of concern by their families for their health, the distance to health facilities, the prohibitive cost of care, the low quality of care, fear of negative attitudes of health staff, and the lack of female doctors. They also commented that doctors were only concerned about women's health when they were pregnant, but there is little care available for other women's health problems (Wong, G. et al, 1995). Another study conducted in rural Yunnan Province in 1994/5 found that some types of reproductive morbidity such as reproductive tract infections, contraceptive problems (such as discharge and abdominal pain) and delivery problems (mainly vaginal tearing) were extremely common. However, use of reproductive health services in general was extremely low. The reasons for this were found to be low awareness of the need for such services, poor perception of service quality, distance from facilities and cost (especially for delivery). Providers were constrained in providing preventive and educational services because of the greater incentives to provide curative care, which generates fees. They also lacked equipment, supervision and time. (Kaufman, 1998) A pre-payment scheme for MCH care was instituted in some areas but did not cover delivery care. The pre-payment scheme was found to improve existing MCH services, but a lack of perception of the need for preventive care continued to restrict use of services and 80% of women said that they would pay more to get more information from providers (Zhang, 1998). Health care provision for women's reproductive health is the subject of regulation. For example, the Female Workers Health Care Regulations state that women approaching menopause should receive gynaecological check-ups every one to two years (Article 13) and that all female workers should have fixed check-ups for gynaecological or breast conditions (Article 14). Suitable work should be arranged for women diagnosed with perimenopausal syndrome where treatment is not effective (Article 13).

8.2. Objectives

The research project funded by the Ford Foundation had the following objectives:

1 To describe and analyse the probable impact of the economic liberalisation and changes to health care finance on access to health care by different groups of women and men

2 To contribute to the development of gender sensitive national policy guidelines on urban health finance that ensure access to essential services for different groups of men and women.

3 To strengthen the capacity of Chinese researchers to evaluate the impact of economic reforms on health services with a gender perspective, and provide realistic advice to policy-makers and health service managers.

4 To generate knowledge for and contributing to international debates on strategies for improving gender equity in the provision of health care.

8.3. Research questions

The following research questions were addressed by the study:

1. How does gender influence access to health care for those households and individuals with and without employment-related social benefits?

2. Are there any differences between specific groups of women and men in terms of the potential advantages of different systems of health care financing?

3. Do different groups of women have access to services to meet their specific needs at all stages of their life cycle?

4. Have changes in the financing of health care systems reduced the range and quality of services provided to meet the specific health care needs of women and men throughout their life cycles? What are the major barriers to providing necessary and good quality services?

As the study progressed, the model of health care entitlements appeared to be a useful way of conceptualising the influences on access to health care and their possible gendered implications. To incorporate the concept of entitlements into the study design, question 1 was reformulated in the following terms:

1. How are changes in the labour market affecting social security entitlements for health care for women and men?

a) What sources of entitlements do women and men have?
b) How do women and men build up an 'entitlements package' over time, and how is this changing?
c) How does this affect access to care for women and men in different types of households?

8.4. Methodology

8.4.1 Methods Used

- Key informant interviews with managers from various types of enterprises
- Critical incidence interviews with women and men from different enterprise types and of different ages, who have recently suffered from an acute illness.
- Life/ work history interviews with women and men of different ages and from different enterprises, who suffer from a severe chronic illness (i.e. one which requires ongoing medical treatment).
- Key informant interviews with enterprise managers and health facility managers
- Interviews with low-income women of different ages and working in different enterprises who have given birth in the last two years.
- Interviews with women of different ages and working in different enterprises who have recently suffered from an acute reproductive health problem.
- Focus group discussions with women workers on women's health and health care
- Focus group discussions with male and female workers on changes in health insurance and their effect on health seeking behaviour.

8.4.2. Data Collected

During the pilot study in Nantong, researchers carried out four focus group discussions at work units – two including both women and men, and two with women workers only. Five individual interviews were held with 'vulnerable groups'– one classified as poor, one laid off, one elderly, one disabled and one migrant. All interviewees were women. Key informant interviews were held with the Nantong Women's Federation, two Street Committee Representatives (the Cadre responsible for Women's Affairs, Cadre for Civil Affairs) and an MCH centre representative.

In the first phase of data collection in Nantong, twenty three individual interviews were carried out with women and men selected from household survey data (enterprise sample). These included seven men and twelve women who reported illness in the last two weeks or chronic illness (those reporting above average bed rest or incapacity were selected), including women's health problems, and four women from low income groups who had given birth in the last two years. Six key informant interviews were held with enterprise managers. One focus group discussion with women workers about women's health issues and one key informant interview was held with the a representative of the MCH department of the Health Bureau.

In the second phase of data collection in Zibo, twenty six individual interviews were carried out with women and men selected from household survey data (enterprise sample). These included seven men and fifteen women who reported illness in the last two weeks or chronic illness (those reporting above average bed rest or incapacity were selected), including women's health problems, three parents of children who had reported illness as above, and three women from low income groups who had given birth in the last two years. Five key informant interviews were held with enterprise managers. One focus group discussion was held with women workers about women's health issues and one key informant interview was carried out with representatives of the Zibo Women's Federation.

For further details about recruitment, data analysis and study limitations, see the full report.

8.5. Findings

This section will present the main findings of the Ford Foundation funded study, which will be supported where relevant by findings from the EU/DFID funded study. First, the

characteristics of the qualitative sample are outlined. The situation and perspectives of the individuals and enterprises interviewed with respect to employment and health care benefits, and the factors affecting these are then discussed. The health seeking behaviour and experiences of health care use by the interviewees in response to specific health problems, and the factors affecting their health seeking behaviour are then described and analysed. A number of case studies illustrating the influence of gender on health seeking behaviour and the experience of seeking health care are then presented. Finally conclusions are drawn from these findings about the current influence of gender on the accumulation of health care entitlements, the potential influence of broader societal changes on women's accumulation of health care entitlements and the implications for women's and men's access to health care.

8.5.1. Qualitative Sample Characteristics

Table 8.1. Sex and Age of Individuals Interviewed

	Nantong		Zibo	
Age	Male	Female	Male	Female
0-19	0	0	1	1
20-29	0	3	1	2
30-39	2	6	0	3
40-49	1	2	2	7
50-59	3	4	2	3
60-69	0	1	0	2
70-79	1	0	2	2
Total adults	7	16	7	20
Adults interviewed about a child's illness	0	0	1	2

Table 8.2. Type of Enterprise Individual Interviewees Worked For, By Sex

	Nantong		Zibo	
Type	Male	Female	Male	Female
Govt. institute	2	4	2	2
SOE (Profit making)		5	2	4
SOE (Loss making)	1	4	2	4
Collective	3	1	0	4
'Other'	1	2	0	2
No work unit*	0	0	1	6

*housewife, unemployed or self-employed

8.5.2. Employment and Health Care Benefits

8.5.2.1. Employer's Attitudes Towards Male and Female Employees

In interviews with enterprise managers, attitudes to redundancy for male and female workers were explored. Those who had laid off a greater proportion of men than women gave their reasons for this: the manager of a textiles factory employing mainly female workers, who were the majority of frontline workers, said that he would not want to lose the skills of a production worker which take some time to learn. In the other, where 35 workers (5% of the workforce) had been laid off and among these 65% were men, the manager explained that it was easier for men to make money elsewhere so they are more willing to be laid off.

There were clear gender divisions of labour, and decision-making power within enterprises and gender stereotypes clearly influenced recruitment practices. Two of the enterprises that employed a majority of women both stated that they would like to recruit more men. One

manager said this was because women were not able to work as well during their childbearing period, were unable to carry out physical labour, and didn't work as hard because they were less concerned about promotion. The other said that male workers were more efficient and there was no reason why they shouldn't work in the workshops traditionally dominated by women.

In the enterprises with slightly more and significantly more male workers, it was male workers who were the main production workers, doing what is described as 'heavy' work (hard physical labour) or 'high workloads' (jobs with long hours - in the enterprise where this phrase was used, this included sales and contracts). Women in these enterprises were concentrated in 'light work' such as electronics and assembly or in administration and accounting. In two of these enterprises, managers said that recruitment depended on the type of work position, regardless of sex. However, one of them expressed a preference for male workers if the job would 'suit' either sex, because female workers may get pregnant or have reproductive responsibilities, which cause them to work shorter hours. Another (a woman) said that there were no special preferences for either sex, but added that recently the enterprise has been recruiting specialists in law and economics and has preferred to hire men because these positions require a lot of travel, which is "not convenient for women".

In interviews with enterprise managers it emerged that in most enterprises women were under-represented at both middle and senior levels of management, particularly at the senior level. Enterprises that employed a majority of women did not give decision-making power to a similar proportion.

8.5.2.2. Employees' Perspectives on Changes in Health Insurance

Workers complained about a number of aspects of health care costs and changes to health care benefits in the focus groups held in Nantong. The high costs of medical care were a major grievance for the workers. Workers said that they are facing increasing problems in meeting the costs of care due to the new ceilings on the amount of reimbursement that can be obtained for in-patient care and the amount of allocations for outpatient care. They argued that the changes particularly lead to problems for people with chronic or terminal illnesses. A number of people felt that special provision should be made for such cases. The exclusion of some drugs from reimbursement and the loss of salary due to sick leave at the same time as a worker faces high health care costs add to the problems. A number of participants felt that the new scheme (the Municipal scheme) was inequitable and disadvantaged certain groups of workers. For example, they felt new system unfairly disadvantages the older workers and those with lower salaries.

Now the account is proportionate to our salary. We have very low salaries in this factory – roughly 600 yuan per month for cadres. Ordinary workers' salaries are lower. For example, comrades in this factory workshop can get 600 yuan including extra pay for night shifts. On the basis of this salary level the health insurance fund is very low. But for enterprises with higher salaries –for example 2 or 3000 yuan per moth, their workers will enjoy a high level of medical care. For this problem I think there should be a system of social security so workers with low salaries can get a relatively high level of benefits and those with high salaries may have their benefits reduced. (Male FGD participant)

It's good to implement the health insurance scheme, but it's too late for middle-aged people, because we can accumulate only very few funds. On the other hand it's good for young people – they can accumulate funds for a long time. Without enough accumulated funds, you have to pay almost all medical expenditure out of your own pocket. The scheme should provide benefits according to age' like the pension scheme, which is good. (Female FGD participant)

They therefore felt it was unfair that benefits are no longer based on length of service to the employer and some suggested that they should be differentiated by age: *When the government collects contributions from individuals it should be proportionate to workers' salaries. But when it puts the funds into individuals' accounts, it should be done according to age…my personal view is that young people, between 20 and 30, seldom become ill. People aged between 30 and 40 are more likely to become ill, especially women over 40…So by collecting on the basis of salary and distributing the fund on the basis of age, the government may adjust the funds between different individuals.* (Male FGD participant)

Workers particularly complained that the new system left older workers with few entitlements and there was a strong feeling of betrayal at this. In individual interviews several people said that due to changes in health insurance they would only visit health care services for problems like a high fever. One factory leader said that unless people perceive an illness as really serious, "they are not willing to go to see a doctor. If they are ill, they insist on continuing working unless they cannot do so. So everyone who comes to our factory clinic has a severe illness".

8.5.2.3. Female Employees in the Labour Market and their Health Care Benefits

This study used women's health check-ups organised by their employers as an indicator of the provision of reproductive health services for women because it is a key service for the primary prevention of reproductive health related diseases. The survey data from both the enterprise samples[14] shows significant differences between different types of institution in the likelihood of organising reproductive health screening for women. For example, in Nantong women working for government agencies or public institutions were significantly more likely to have had a women's health check-up organised by their employer in the last two years than those working for Joint Venture companies (85%, 63% and 29% respectively). In Zibo, women working for SOEs or public institutions were significantly more likely to have had a women's health check-up organised by their enterprise in the last two years than those working for collectives or joint venture companies (81%, as opposed to 57.8% and 61.7% respectively).

The Nantong Municipal Centre for Maternal and Child Health were concerned about the decline in provision of women's health check-ups. The centre estimated that only 50% of married women were screened every two years and that the coverage had dropped over the last 3 to 4 years as a result of the worsening economic situation for many enterprises. In 1998 the MCH centre and the Division of Women Workers raised funding for a number of loss-making enterprises to provide screening for women workers. A higher than average rate of reproductive health problems were diagnosed, which was attributed to the fact that most of the women had not recently been screened, some of them for up to 8 years. A key informant at the MCH centre also commented that there was low awareness of women's health problems amongst women who are eligible for screening, which leads to some women not taking advantage of the service when it is offered.

Interviews with enterprise managers revealed that the special benefits actually provided for women's health and health care differ from one enterprise to another, although most enterprise managers interviewed referred to the Women' Health Protection Law, or protection for the 'four stages' of women's health. Enterprise managers implement the law as far as production capacity allows them to. In all of the enterprises where managers were interviewed workers were paid their basic salary during these periods, but in some cases workers were

[14] The household survey conducted by EU/DFID project partners.

given their bonuses and in others they were not. The length of maternity leave granted varied from the mandatory three months to a total of a year.

8.5.2.4. 'Entitlements packages' for Women and Men

The concept of entitlements is a complex one, which will not be discussed in detail here. The use of the term in this report is drawn from Sen's discussion of intra-household 'co-operative conflicts' (Sen, 1987) and refers to all benefits and assets to which an individual has access through both their labour and social relations. Gender influences the entitlements of individuals because of the differing degree of visibility of women's and men's labour and the different values which are often attached to it, as well as their relative social status in the household and community.

Individual entitlements to meet the cost of health care acquired through work include formal health insurance entitlements, salaries or pensions, and savings that can be used to meet the cost of health care. The main way in which health insurance entitlements are acquired is through permanent (or long term contracted) service for a solvent or profit making enterprise with a health insurance scheme. In addition the spouses of those covered by the LIS, are in theory entitled to partial medical benefits, which are known as "half-LIS"[15]. Conversely, individuals can experience a series of events or processes that reduce their capacity to accumulate employment based entitlements over their lifetimes. These include discontinuous employment (for example in short term or temporary contracts), redundancy, early retirement, and ill-health, (for example through incapacity to work due to chronic illness, or through depleted savings due to a high cost episode or chronic illness.) Therefore the main ways in which men and women might differ in their ability to accumulate work based entitlements are in the length of time they work (both in total and for a single enterprise), the kind of contracts they have (permanent, long term or temporary), and their level of wages which influence their ability to save.

In the individual interviews a number of the men interviewed had particularly good benefits as a result of having been in the army – a career choice historically less open to women – or had special benefits related to their service to the party before the foundation of the People's Republic in 1949. With these exceptions, there were few clear gender differences in the career histories given which might affect access to health care benefits. However, the clear benefits disadvantages experienced by those women workers who had short term contracts and who were laid off (see the case studies in Section 5.3.5.) points to a potentially increasing source of disadvantage for women to the extent that they are over-represented in these groups.

The household survey found significant differences in the health insurance coverage of women and men in the community based samples and in the enterprise based samples, although the difference in the Nantong enterprise sample was so small as to call into question the practical significance of the difference. It is likely that these differences reflect the proportion of women and men in employment versus housework or retirement rather than differences in access to benefits within employment.

[15] Since the establishment of basic health insurance schemes (bringing GIS and LIS together at the municipal level), the half-LIS should in theory still exist, according to the directives of the Ministry of Labour and Social Security. However, the implementation of the half-LIS varied a great deal between different places and between different enterprises.

Table 8.3. Percentage of Individuals with No Health Insurance by Sex in the DFID/EU Survey

	M	F	M %	F %
Nantong Enterprise. Sample	117	161	9.17	11.9
Nantong Community Sample	244	307	43.7	48
Zibo Enterprise Sample	132	226	10.9	19.1
Zibo Community Sample	362	464	61.6	74.4

The national health services survey also found that a greater proportion of urban women than urban men had no insurance coverage, although the gender gap decreased between 1993 and 1998, suggesting that a greater proportion of men than women lost their insurance coverage during this period.

Table 8.4. Percentage of individuals with different types of health insurance by sex in 1993 and 1998, in the National Health Services Survey.

	Government	Commercial	No insurance	Other
1993 m	57.2	0.3	25.1	17.4
1993 w	49.8	0.2	29.5	20.5
1998 m	41.6	3.6	41.9	12.9
1998 w	36.4	3.0	46.3	14.4

A clear source of inequality in terms of the individual's ability to pay out of pocket for health care or to accumulate savings was the discrepancy in pay packets between women and men. In interviews with enterprise managers, all interviewees said that women and men were rewarded equally for the same work. However this clearly referred to the same wages for the same job and since there was a clear gender division of labour, and in some cases a clear hierarchy of decision making, it is possible and in some cases probable, that these differences attracted different remuneration. For example, 'heavy' work receives more remuneration than 'light' work. Several managers stated that there were no work positions specifically reserved for women or men, but that women were not able to do 'heavy' work. It therefore seems that men are concentrated in the work positions that attract the highest salaries. Additionally, whilst basic salary levels may be the same, a significant proportion of many workers' salaries in China are made up of 'bonuses'. In some cases bonuses are calculated on the basis of work output. It is not clear how gender may affect bonus awards.

In the household survey data, average female earnings range from 66.6% to 75.5% of male earnings across the four samples. In all occupational groups (students and people who work at home are not included in this analysis) women earn less than men. In the Zibo community sample women's earnings almost reach men's amongst those working and the unemployed, but in all other samples women's earnings are between 41% and 84% of men's across all employment categories.

8.5.3. Health Seeking Behaviour and Access to Services

8.5.3.1. Access To and Use of Health Care Services Use for Minor to Moderate Acute Problems

No respondents had major difficulties meeting the costs of treating relatively minor, acute health problems. These kind of problems included a bad cold (a man of 37) tonsillitis (a woman of 54), acute respiratory infections (a woman of 31 and her son, 2) and bronchitic asthma (a girl of 6). The costs of treating these episodes to the respondents (out of pocket) ranged from 100 to 1000 yuan. Even in the case of the most expensive the respondent felt that the care was affordable because it was an isolated incident.

Difficulties were not severe in meeting the costs of treating acute problems from which the person made a full recovery. These problems included appendicitis (two women of 27 and 57) a broken bone in the back (a man of 46) an intestinal tumour (a man of 36), and myocarditis (a girl of 6). Most of these cases received some reimbursement. Two of these cases (one man and one woman) had delayed seeking treatment for their condition until it worsened, but this did not appear to be due to financial considerations. The ability to pay for health care for acute illness was in several cases explicitly related to the 'one off' nature of the payment. Although some delays in seeking care may have been partly related to concerns about the cost, once the illness was perceived as being severe enough no hesitation in seeking care was described. This is in keeping with general statements made by most respondents that in the case of severe illness episodes it is necessary to seek care regardless of the cost. It appears that most families had sufficient combined income or savings to meet these single expenditures, whether at the nuclear level of husband and wife, or at the extended level, such as the case of a man who received money as a gift from his parents in law. None of the respondents reported any reluctance on the part of their families, nuclear or extended, to contribute their income to this expenditure, although in a number of cases other family members were present at the time of interview.

8.5.3.2. Access To and Use of Health Care for Minor to Moderate Chronic Problems

The costs of care for chronic illnesses were found to deplete household savings and affect standard of living. A number of respondents reported using savings to pay for the cost of care, with varying degrees of effect on the household. Conditions included fatty liver, hydronephrosis and pancreasitis (a woman of 48), ovarian tumour and irritable bowel syndrome (a woman of 35), and chronic allergic asthma (a boy of 4). Two of these cases worked for loss making enterprises (one was 'internally retired') and the child had no insurance coverage. The expenditure led to relatively simple lifestyles and in some cases tension in the family.

A 48-year-old woman, who suffered from a fatty liver, hydronephrosis and pancreasitis, was 'internally retired'[16] from a loss making SOE. She had spent around 1000 yuan a year since 1998 in lump sums and was currently spending around 300 yuan a month (her entire retirement pay) on medicines. She said that she was using up her savings on this treatment and would stop seeking treatment once they were used up. She did not want to borrow money from her daughter (who also earned 300 yuan a month) because she would need it to set up her own home. The workers union (gong hui) she was associated with were unable to help her. She said that this expenditure led to a simple lifestyle for the family – they were currently buying food at a cheap market and weren't buying furniture. (Case 2306003, Zibo)

A number of respondents with chronic problems described how the cost of treatment affected their care seeking behaviour. Two women had bought machines advertised for the self-treatment of their problems rather than paying the costs of seeking care at a facility. Three other respondents said that the frequency with which they sought care or bought medicine was affected by the cost and the amount of money they had available.

A 51-year-old man with heart disease said he used to visit the doctor twice a year before 1995 when his insurance scheme changed and required him to pay 20% of his costs. The situation worsened in 1998 when his factory became unable to give him any form of reimbursement, and he had currently stopped seeking care altogether except when he suffers from " a high fever, or something like that". He gave an example of the kind of problem he meant: the previous April he got a cold, diarrhoea, and vomiting so he went to hospital, despite the fact that he couldn't get any reimbursement. However, he said he did not regularly seek care for his heart problem but used drugs left over from a prescription made in 1993; these drugs were prescribed to be taken three times a day, but he just took them when he didn't feel well. (Case 1422003, Nantong)

[16] The term "internally retired" was used to indicate those who have de facto retired, but have not yet completed legal procedures required for their retirement.

In some cases, modification of regular drug consumption is related to the efficacy of the drugs as experience by the user, and also to changes in financial situation that are additional to insurance changes.

Some of these respondents had health insurance and some had no insurance or limited insurance, but in all cases the costs of drugs/treatment exceeded any insurance coverage.

Chronic illnesses that require ongoing treatment also require borrowing from family members, friends and work units and affect standards of living. Three women with chronic illness had to borrow money or received money from relatives and friends.

8.5.3.3. Access To/Use of Health Care for Severe Acute, Chronic and Terminal Illnesses

Severe acute, chronic and terminal illnesses require patients to borrow money, or costs are paid by relatives. The costs of treatment and consequences for these individuals and households were influenced by their insurance scheme, employers' solvency, salary levels, and support structures.

Some patients only needed to borrow money until they received reimbursement for high bills. A number of respondents either had to borrow money or had the costs of their treatment paid for by family members (children). Several elderly respondents with severe illnesses received some reimbursement and the remaining costs were paid by family members. The family members in these cases did not perceive the costs of treatment as a problem. The fact that two of these were terminal illnesses is probably relevant in these cases.

A 71 year old man suffering from chronic lung disease and cancer was hospitalised for a total of 3 months, at a total cost of 60 000 yuan. He was covered by a special scheme for li xiu (people who have been working for the party since before 1949) which reimbursed 80% of the costs of his first stay and 75% of his second, leaving 14,000 to be paid. His three daughters paid the majority of this. His own pension was relatively high (1300 yuan a month) although his wife was not working and had no pension. His daughter said they were able to afford the continuing costs of medicine (around 4-500 yuan a month) between them. (Case 1511001, Nantong)

One relatively young woman suffered from a severe acute illness episode followed by chronic ill-health which placed a particularly heavy strain on the family, both in financial terms because her inability to work led to reduced income at the same time as medical costs were high, and in terms of the care burden on her mother in law.

A 32-year-old woman suffered from spinal haemorrhage and consequent paralysis and spent several months in hospital. She received full reimbursement for her in-patient costs, through her factory's labour insurance scheme, but after being discharged from hospital, she continued to receive visits from hospital staff for rehabilitation and acupuncture, at a cost 3-400 of a month, which was met by her whole household (her husband and mother-in-law, with whom the couple lived). She continued to receive 60% of her salary from her factory and her household was also contributing to the cost of her medicine (this did not appear to be prescription medicine so did not attract any reimbursement and cost several thousand yuan for one course). She was cared for mainly by her retired mother-in-law, who also looked after her 4-year-old child, whilst her husband was the household's only full time breadwinner. The household had a combined income of 1050 yuan a month. Although they said this represented a significant burden for the household, her mother-in-law said it would be "too shameful (bu hao yisi)" to borrow money. (Case 1222041, Nantong)

Where support is not forthcoming from relatives or friends, hospital bills followed by ongoing drug costs can become a heavy burden. In extreme cases, an acute episode followed by chronic ill-health can impoverish a family to the extent that care seeking is affected.

8.5.3.4. Patterns of Health Care Seeking Behaviour in the Household Survey

In the Nantong enterprise sample, the only significant difference between women's and men's care seeking for an illness reported in the two weeks prior to the survey was in the 15-44 age group where 48.8% of women as opposed to 36.6% of men sought care. In both the Zibo enterprise and community samples there were no significant differences between women and men's care seeking behaviour. In the Nantong community sample 34% of men over 60 sought care whilst only 19% of women did. The main reason for not visiting a health facility given by both women and men across all four samples is that the illness was not serious. These figures, which may only be indicative, suggest that, in general there are few significant gender differences between women and men in urban China, but that older women in the 'vulnerable groups' (the unemployed, migrants, those classified as 'poor', the elderly, and those households with a disabled member) may be less likely to seek care than their male counterparts (see 5.6).

8.5.3.5. Access to Ante-Natal, Delivery and Post-Natal Care

8.5.3.5.1. Delivery Coverage

Since each municipal government is responsible for developing the regulation for its administrative areas, there are variations in terms of which services are covered by its basic health insurance schemes among different cities.

In Nantong, all those factories whose directors were interviewed, which employed women of reproductive age, offered some form of delivery cover, in accordance with legislation. In Zibo three provided antenatal, post-natal and delivery care in the enterprise hospital with the same coverage as other health care. Another provided delivery coverage 'according to the LIS scheme' and another provided 100% coverage for delivery care.

In Nantong, out of four low-income women interviewed, three had received some reimbursement for their delivery care. These three working women paid between 2000 and 3000 yuan, between of which 65 and 75% was reimbursed. They felt that these costs were affordable. However one woman who had been laid off was not able to receive reimbursement, despite the fact that she would have been entitled to 100% reimbursement had she been working. Her factory was able to give her a gift of 1000 yuan towards the 3000-yuan cost of her delivery and she was able to pay for the rest with savings, but felt bitter about having to do this. However she still saw a hospital delivery as a necessary expense, saying: "*Of course there was some [economic] pressure, but I had no choice, I had to go"*. She said that she and her husband were able to bear the cost because, having a baby relatively late, they had savings. Other enterprise managers said that they were able to provide delivery insurance for laid off women workers.

In Zibo, none of the women interviewed who had given birth in the last two years were entitled to any maternity benefits. None of these women had formal sector jobs or benefits. One of these women (28) was a migrant worker in the city without permanent residence, who had worked as a self-employed worker with her husband for the past 5 years. The two other women had never had permanent jobs and both were currently unemployed. One (29) had not been re-hired by the clothes factory where she had worked for two years three months after she became pregnant. The third woman (27) had quit her temporary job in a private enterprise when she became pregnant because there were no maternity benefits available to temporary workers. For two of the women, the delivery costs did not pose a problem. One woman said her mother in law had given around half the cost. However, the costs of delivery did pose a problem for the third woman, partly due to the ill health of her mother-in-law.

A woman (29) had not been re-hired by the clothes factory where she had worked for two years, three months after she became pregnant. At around the same time her mother-in-law, who lived with the couple, developed myocarditis, and had a cerebral haemorrhage. Due to her consequent half paralysis she needed care, so her daughter-in-law did not look for another job. She was offered antenatal care for 50 yuan by a family planning worker and made 4 visits to the District Family Planning Station (according to the regulations). Her husband earned 5-600 a month, which had to support the whole household, including her mother-in-law. The costs of care for her mother-in-law's illness were 2000 (4000 with 50% reimbursement). These were paid by the family (and the woman's sister in law) so they were unable to save any money for the baby. Delivery care cost 2000 yuan in her husband's enterprise hospital. She chose not to stay in the hospital, to save money, and the doctor agreed since the house was very close to the enterprise clinic, so he was able to pay 3 or 4 home visits to check on the mother and baby after they returned home. They had to borrow about 1000 yuan from colleagues and friends to cover the delivery expenses, and later borrowed some more money for other expenses. They had managed to return some of the money, but were still 1000 yuan in debt and planned to repay this when their situation improved. (Zibo)

In the household survey the majority of women in the enterprise-based sample had received some reimbursement for the cost of their delivery, although there was a clear difference in the rate of reimbursement in the two cities (87% and 61% in Nantong and Zibo respectively). However in the community based samples only a minority of women received some reimbursement (27% and 11% in Nantong and Zibo respectively).

8.5.3.5.2. Ante-Natal and Post-Natal Care

In Nantong all of the women made antenatal care visits. Two of the women interviewed did not go for antenatal care until the seventh month of pregnancy. One of these women (who knew she would not receive any reimbursement) said she had delayed going partly due to the cost, and the other said that she had not gone earlier because everything seemed fine and she was busy at work. Once they entered the system, all of the women went for a large number of visits, with the standard procedure being one visit a month until the last two months and two visits a month thereafter. All of the women interviewed in Zibo made ante natal care visits. Only one of them received a post-natal care visit. The other two were not aware that this was usual practice. Both said that they would have appreciated post-natal care visits, although they didn't have any specific problems.

Post-natal care visits were in theory pre-paid for under the new delivery scheme. However, only two of the four women received post-natal visits. One woman said that she was aware that she should get a visit but no one came and another said that she would really have appreciated a visit because *"There were lots of things I didn't know, especially about the baby."* The head of the MCH department of the Nantong Health Bureau said that the bureau was aware of the problem of low post-natal care coverage, which was attributed to delays by delivery hospitals in passing on women's cards to the health stations which provide post-natal visits, a shortage of human resources at the health stations and changes of address by women between the first ante-natal visit and the first post-natal visit. Steps being taken were reminding hospitals to pass on women's cards quickly and to check addresses when women are discharged after delivery, and sending a letter to women who have delivered explaining their entitlement to a post-natal visit, with the aim of creating greater accountability by health stations. The health bureau claimed that these measures had already raised the rate of visits.

The household survey found that just under half of the women in the community based samples who had given birth in the last two years had received at least one post-natal care visit (15 out of 35 or 43%) whilst just over half of the women in the enterprise samples had received at least one visit (61 out of 115, or 53%).

8.5.3.6. Access to and Use of Services for Women's Reproductive Health Problems

8.5.3.6.1. Women's Perceptions of their Health and Need for Women's Health Services

Women in the focus groups mentioned a number of women's health problems which they felt were common: breast cancer, benign uterus tumours (hysteromyoma), ovarian tumours, cervical elusion, tubal inflammation and pelvic inflammatory disease. Individual women were also interviewed about their experience of suffering from a woman's health problem. Three of the women interviewed in Nantong and all of the women interviewed in Zibo had their problems identified in a women's health check-up. Individual opinions on the check-ups were varied. The general consensus of the focus group in Nantong was that they were useful.

Other health problems mentioned by women in the Nantong focus group discussion were cardiovascular problems, diabetes, neurasthenia (*shenjing shuairuo*), and tinitus. The last two were related to the work place; workers agreed that the noise of the workshops and irregularity of shift work often led to tinitus and sleeplessness amongst workers (workers work in the morning for 2 days, then in the afternoon for two days, then start at midnight for two days and finally have two days off). The ability to take time off due to health problems was apparently constrained due to the need to fulfil production quotas. In Zibo, other health problems mentioned by the women in the focus group were: the common cold, hearing problems (one woman said she couldn't hear very clearly from over two meters), back ache, periarthritis in the shoulders, abnormal (irregular) periods, and cardiovascular diseases. Diabetes and asthma were also mentioned as common diseases in Zibo. The women also mentioned that shift work and the noise in the factory were difficult, but didn't mention the specific problems discussed by women workers in Nantong. Women in the Nantong focus group also spoke of the pressure on them from their work and their household responsibilities: *"Now the pressure on women workers is great…the work is quite hard, but if you don't do it, jobs are hard to find…towards the family, one's own life and feelings, the pressure is great…we have housework and looking after children. It's not like men. It's a heavy burden.'*

The need for more preventive health programmes was stressed by the Nantong group. For example they felt that general health check-ups that used to be organised by the work unit should be reinstated. They said that ideally these check-ups should be free, but if this was not possible, the factory clinic should provide these check-ups at a lower cost than hospitals. The Zibo group said that when doctors give a diagnosis they provide some information, but they would like to be told more – for example about the prognosis of the condition. They felt that more lectures and face-to-face counselling about health problems and care would be useful. After health check-ups, results were not provided to the employees. If there were a problem, they would be called for treatment at the same time as others. Some of the younger women in particular said that they would prefer to get their results. One younger woman said that she felt that different age groups have different needs and she would like to be given information in a group of her peers and have somewhere she could go to ask any questions she might have.

Factors mentioned as particularly important in good quality care for women's health problems were the attitudes of staff, specialism and experience, and in some cases, the sex of the care provider. Some women said that *'There's no difference between women and men [as health care providers for women's health problems]. It's the technical level which is important'* but others said that if the technical level were the same they would prefer a female doctor: *'In the end it's embarrassing to have a male doctor'*. However, they said that they would still seek care if the doctor were male.

8.5.3.6.2. Access to and Use of Women's Health Services

In Nantong individual interviews were conducted with four women who had had uterine fibroids, two women who suffered from a chronic breast condition (hyperplasia of the breast) a woman who suffered from chronic Pelvic Inflammatory Disease (PID) and a woman who had been diagnosed with a cervical elusion and growth (cervix polyp). All of the women had obtained at least some care for their problems, except for one who was waiting for treatment for her cervical growth. Four women who had women's health problems diagnosed were interviewed in Zibo. One woman (39) suffered from adnexal inflammation (of the ovaries) and also had hyperplasia of the breast, one (35) had an ovarian tumour, one (33) had cervical elusion and the other (41) uterine fibroid. All of the women had received some treatment for their conditions.

In all cases of benign tumours, the routine check-ups were used to monitor the growth of the tumour once it had been identified. All of the women who had had benign uterine fibroids had had them removed, after a period of monitoring. In one case a woman delayed treatment, partly because she thought she would not be able to get any of the cost reimbursed, and partly because she was sure she would soon reach the menopause, which would alleviate the problem. However, when the bleeding became very severe and she went into shock, she agreed to have the operation. Although she had initially been concerned about the cost when she first became ill, when she became severely ill she did not hesitate to seek care: *"At that time, I just thought I should save my life. I didn't consider the cost. Also, we had some savings, so we didn't need to borrow anything. But now we are getting old I have some worries about our future."* (Case 1422003, Nantong)

The cost to individual women of operations for tumour removal was generally relatively low. Most of the women who had had tumours said that they were satisfied with their treatment. Nearly all of the women who received treatment for a women's health problem had received some reimbursement. The one exception was a young woman (28) suffering from a breast condition who was unable to get reimbursement from her employer (in the special development zone) for treatment at a specialist hospital (the OBGY specialist hospital) because this was not an assigned hospital.

Women with chronic problems experienced more difficulties. Two women working for a loss making collective in Zibo spent considerably more than their outpatient stipend on medication – one (35) had been spending around 500 yuan a month and said that this was affecting her quality of life, and the other (39) had spent around 4-500 yuan to date in 2000 and was borrowing money (see Case 2404031 on page 26 Another two women in Nantong did not regularly seek treatment: one because she did not have the time and the other because she could not afford to continue taking the medicine and felt that it did not work.

The household survey found that the majority of women in the enterprise-based sample who had a women's health problem identified in a check-up sought care for the problem (69% in Nantong and 59% in Zibo[17]). However in the community samples, this proportion drops to 5 out of 11 in Zibo and 1 out of 8 in Nantong. Less than half of the women in the community samples ((16% of the Nantong community sample, and 31% of those in the Zibo community sample) had been offered a women's health check-up in the last two years, meaning that many problems for these groups would remain undetected.

[17] Due to the small numbers involved, these percentages are only indicative, but do suggest clear differences between the enterprise and community samples.

8.5.5 Support and Effects on the Individual and Family During Illness

8.5.5.1. Practical Support from Family

Several respondents mentioned that members of their family (usually either their spouse or adult children) accompanied them to hospital for treatment and the availability of family members to look after those who were ill influenced care seeking in several cases. In some cases, family members had to arrange leave from work to do this, and generally lost a day's pay. A supportive attitude towards family obligations from their enterprise was therefore necessary, and this generally seemed to be forthcoming. In the case of severe illness, a heavy burden of care for the sick individual was placed on family members, and this burden fell particularly on women in the family. In several cases, elderly patients were also cared for by their children when they were ill. In most cases, the parents of children who were ill had to take time off work to take them to a facility or care for them, often losing pay as a result. In focus groups workers said it is only possible to employ carers in the hospital wards, if you have a relatively high salary[18]. Even relatively elderly women can find themselves bearing heavy care burdens. A 76-year-old man who suffered from cerebral thrombosis was being cared for principally by his wife (of a similar age) and a woman in her sixties was caring for her daughter in law who had suffered a spinal haemorrhage (see Case 1222041 page ?). In one case a woman of 80, who suffered from chronic ill health herself, continued to care full time for her husband.

In the case of less severe, but in some respects debilitating chronic illness, or recovery from an acute episode, a number of women said that their husbands were supportive in allowing them to do less housework. None of the male respondents mentioned this, probably because the normal state of affairs is that women do most of the housework. Several women with chronic illnesses mentioned that they still did the housework, although it was not clear whether they were complaining about this, possibly because their husbands were often present during interview. Care of children during illness was also an issue mentioned by the several of the women interviewed. For example, one woman had herself discharged from hospital because she felt she was too far away from home and she needed to look after her child. Another said:

Previously I did all the housework. Now that my health is bad he [her husband] has to do some of the housework. When I was healthy we didn't have this problem. Also my mother has to help me take care of my child.

Several respondents who had suffered an acute illness episode said they had received a lot of emotional support from family and friends. In focus groups with workers several women suffering from chronic illnesses discussed the support they received from husbands, but also mentioned other families where husbands or family members were not so supportive:

[Support provided] depends on different families. Every family has its own difficulties. Like in my family, my husband is very kind to me. My health is bad, but he takes care of me very well. Our child is also good to me. But some families do have problems. (Female FGD participant)

Some people explicitly related the degree of support they received to the fact that the illness was short lived and did not occur regularly. In contrast, several respondents with chronic

[18] Due to a lack of qualified nurses working in the health sector, the ratio of nurses to doctors is relatively low in China. Nursing assistants may be hired for improved nursing care.

illness mentioned negative effects of their illness on their relationships with other family members (for example see Case 2404031, page 31).

8.5.5.2. Financial Support from Family

Financial support from family members was also important. Financial support was provided from children to parents, as well as from parents to children in several cases. In some cases, this meant borrowing money from relatives, in others accepting money (or in one case commercial insurance) as a gift from relatives, and in other cases it simply meant the availability of the income of other family members, for fees or daily living expenses. In some cases, particularly where expenditure was very high, the income of other family members was crucial in enabling the individual to receive care. The total income available from parents, parents-in-law or adult children (depending on the age of the respondent) was important in influencing the care received and the burden placed on the household. The provision of general financial support, as well as specific support for health care expenses, for dependent family members (either parents or children) appeared to be a cause of economic constraint in households. However, no complaints were made about supporting any family member by any of the interviewees.

In critical incidence interviews several people mentioned using medicine prescribed for other people who had health insurance. One elderly woman who had not been able to afford to use health care since her husband died said '*Before he died I could get reimbursement from his work unit when I asked the doctor to write his name on my prescription.'* However, this was not limited to family members – friends and relatives also donated medicine. In focus groups with workers in Nantong, a number of workers mentioned this practice: *If a worker in a poor enterprise cannot get reimbursement but has a family member working in a good enterprise his problem may be solved to some extent by that family member, because they may get some medicine for him, or something else. So this problem needs to be solved.* (Male FGD participant)

There was no indication that women received less support from relatives such as their parents-in-law, although the traditionally problematic relationship between wives and their parents-in-law (particularly their mothers-in-law) might be expected to cause problems in some instances. Several older women, who were housewives, were dependent on their husbands and children for paying for care (see Section 5.6 Case Studies, below). One exception was an elderly woman who made money through informal income generating activities to cover the cost of her care (although she was dependent on the family for general living expenses).

8.5.6. Case Studies: Current Influences of Gender on Access to Health Care

8.5.6.1. How Gender Relations Affect Access to Health Care Benefits Within Different Types of Household

Several women interviewed had always been housewives and consequently had no health insurance or personal source of income or savings. Their husbands had pensions and some degree of health insurance entitlements. Whilst all of them used health care in some form, there were indications that they struggled to provide some contribution to the cost or that they rationed their use of health care because of concerns about the cost, suggesting that they did not feel fully entitled to use health care because of their lack of financial contributions to the household.

A woman (62), who had always been a housewife, said the household found it hard to pay for treatment for her pleurisy – this condition, which she had had for 30 years, flared up periodically. It flared up in January 2000, when she caught a bad cold, which subsided leaving her with chest pain. Her treatment cost around 600 yuan. She said that before 92 she was entitled to some reimbursement through her husband's insurance. Although her husband had good benefits (he was entitled to 100% reimbursement for in-patient care and outpatient costs of up to 720 yuan), his pension was supporting 4 people's daily living expenses (including themselves) because two of their sons had very low incomes. She paid her own medical expenses using money made through selling old clothes and bottles and babysitting, which added up to about 150 yuan a month. She said that their lives were very simple, and when asked about the future her husband said "We don't have any hope for the future. Write that down and I will sign it!" (Case 2504003, Zibo)

This 'self-rationing' of health care took an extreme form in the case of one elderly couple interviewed as part of the survey of 'vulnerable groups'.

A woman of about 80, who had spent much of her life as a carer, first for her mother-in-law and then for her husband, was illiterate and had never had a job. Her husband needed full time care for Parkinson's disease and bowel astriction. He had a pension and was entitled to health insurance but this was often delayed and was insufficient to meet the costs of his care, with the result that he reduced his medicine dosage. His wife suffered from a swollen face, hands and feet, dizziness and lack of energy, but she did not know whether she had high blood pressure because she hadn't been to see a doctor. She said 'I can only hope to serve my husband well. I hope I can die before him. I do not have labour insurance. I am willing to die before him. Only when he is alive, can I expect something. I feel very sad that I am not covered by labour insurance….[When she gets dizzy] Sometimes I just lie in bed. If both of us take medicines we can't afford it.' (Nantong)

8.5.6.2. How Gender Relations Influence Entitlements to Health Care for Different Types of Household

Loss or erosion of entitlements can also occur at the household level if the household loses the entitlements provided by the main breadwinner, and/or has to rely entirely on female sources of entitlements, especially where the women concerned have a history of being dependents (often due to caring roles) or there is a high dependency ratio in the household. This suggests that households with a disproportionate number of females are especially vulnerable to loss of entitlements. In the household survey, a higher proportion of households in the community based samples than in the enterprise samples were officially headed by women (30.8% as opposed to 19.9% respectively), which may point to a female head of household as a possible indicator of vulnerability.

A middle aged woman lived with her daughter, son, daughter-in-law and grandson. She had never had a formal job. She was doing casual work until her husband became ill in 1998. She stopped working to look after him. She had suffered from dizziness for some years, but since her husband's death it had become more severe. She also had heart problems and swollen legs. She did visit the doctor about the dizziness when her husband was alive, but it didn't get better. She said she currently took medicine given by friends and relatives quite a long time ago. Whilst her husband was alive (he worked for a factory and got full reimbursement of his fees) she got reimbursement through his work unit when she asked the doctor to write his name on her prescription. She couldn't do housework because of the dizziness, so her daughter-in-law had to do it. She had to take care of her grandson, however, because there was no one else to do it. Her daughter-in-law had recently got a job doing domestic work, but she also had chronic pelvic inflammation and had not seen a doctor about it. Her mother-in-law had lung disease for which she took medicine given to her by her daughter. Her mother-in-law needed looking after in the winter because she couldn't move when it got cold. Only her son was working. No one in the family ever visited the doctor because 'there is no money'. The family got 115 yuan a month from her husband's work unit, but no other official relief. The Street Committee had helped out by helping the daughter-in-law to get domestic work. (Nantong)

Elderly women with few personal entitlements can become almost entirely dependent on their children or other family members for health care. In the following cases the women concerned

respond by 'self-rationing' their health care, again suggesting an erosion of their perceptions of their right to care:

A woman of 73 was living on her own (her husband had died). She had worked in a garment factory as a temporary worker but stopped working to look after her mother-in-law in 1963. She got a subsidy of 99 yuan a month and was given 50 yuan each by her two children (son and daughter) – her daughter earned less than 300 yuan a month and her son's wife was laid off. Both had children. She said that she ate simply and seldom bought meat or fresh vegetables. She wasn't able to give gifts when the occasion demands. Her health wasn't too bad – she sometimes had some leg pains, which were sometimes serious: 'sometimes I don't dare to walk'. She was usually given drugs by relatives and seldom bought any herself. The previous year she got food poisoning and tried self-medication to no effect so she had to go to hospital where she spent 300 yuan on an injection. She did not stay in hospital because it was too expensive. Her son paid the bill. Her nephew also paid some of her medical bills the previous year. She didn't know how much was spent. She couldn't get any help from the Civil Affairs or Street Committee because 'they say I have a son and a daughter. I do not belong to those who can get any help from the government.' Her only wish was that 'I have no illness. I cannot afford to be ill.' (Zibo)

8.5.7. Discussion and Conclusions

8.5.7.1. Entitlements to Health Care

Our study found that individuals or households have difficulty accessing health care as a result of the intersection of a number of possible processes of entitlement loss, or the failure to accumulate entitlements to health care. Entitlements can include benefits entitlements, savings and financial support (the bulk of this is generally from relatives). These entitlements are accumulated over time, through serving in the workforce, especially for a particular work unit, earning a salary which enables the individual and other household members to save for a sufficient length of time, and raising a family or nurturing family or social networks. Conversely, individuals and or households can experience a series of events or processes that reduce their capacity to accumulate entitlements over their lifetimes. These include discontinuous employment (for example in short term or temporary contracts), redundancy, early retirement, low wages in relation to the cost of living, family break-up or breakdown in relations, bereavement (death of wage earning household members), and ill-health such as incapacity (of the individual or other household members) to work due to chronic illness, or depleted savings due to a high cost episode/ chronic illness. The convergence of a number of these events or processes can lead to a critical loss of entitlements, which restricts or prevents individuals and/or households from seeking care.

8.5.7.2. Influence of Gender on Accumulation of Health Care Entitlements in the Context of Changes in the Labour Market and Benefits System

Women's and men's capacity to build up social capital through formal entitlements has generally been fairly equitable in post 1949 urban China. Several indirect biases against women did exist. For example, women retired at an earlier age than men and have generally earned lower wages, limiting their capacity to save in their own right in comparison to men's. To the extent that collective enterprises offered less generous benefits than other work units and women were more likely to be employed by these collective enterprises, this has disproportionately affected women.

However the increasing direct discrimination in the labour market is likely to produce increasing differentiation in the ability of women and men to accumulate labour based entitlements, with consequences for their health and access to health care. Where women are discriminated against in recruitment and retention they are likely to suffer from un/under-employment and/or breaks in their employment history which will reduce their employment based entitlements and their ability to accumulate savings.

At the household level, the un-employment or insecure employment (i.e. due to temporary or short-term contracts) of one or more family members can affect the entitlements of the whole household. If the apparent trends towards discrimination against women in both recruitment and redundancy (and disguised redundancy) place women in weaker positions to accumulate labour based entitlements, those households dependent on a woman for health care entitlements will suffer.

Current social security reform appears to be based on universalistic principles, which are not likely to take into account either the gendered nature of the labour market or the different trajectories of women's employment. The allocation of formal entitlements to health care at the individual level appears to have benefited women historically by supporting their individual moral entitlements to care. However, as the socio-economic situation changes this can leave some women vulnerable to a loss of entitlements.

8.5.7.3. Potential Influence of Broader Societal Changes on Women's Accumulation of Health Care Entitlements

In the context of the demographic shift to an ageing population and the epidemiological transition to a heavier non-communicable disease burden, in conjunction with the pressures and gender discrimination in the employment market women are likely to face increasing pressures from societal/ family expectations to take on the majority of the increasing care burden. The emphasis on the 'quality' of the population that has accompanied the one child policy is also creating increasing pressure on parents, and particularly women, to invest heavily in their child's upbringing, which involves significant time as well as financial inputs. In a climate of bias against women in employment this may encourage increased polarisation in gender divisions of labour and roles, with an exaggeration of men's breadwinning role and women's caring role.

All these factors are likely to create an increasing number of 'dependents' (i.e. people who are not engaged in paid work due to other commitments in the long term or short term) who are likely to be disproportionately female. In the current benefits structure these individuals are unlikely to have direct entitlements and will also have less opportunity to accumulate savings so they are therefore more reliant on others, with a negative impact on their independence and possibly on their health care seeking behaviour. The issue of how to ensure that carers and dependents (whether women or men) are adequately protected from loss of entitlements to health care is a crucial one for policy makers to address.

8.5.7.4. Implications for Women's and Men's Access to Health Care

Our research suggests that currently working women are not disadvantaged in the allocation of resources for health care in the household. To some extent contrary to the researchers' expectations, our study found that women and men assume a right to use family resources to access health care and, where these are available, do so with little hesitation.

Amongst women who have not engaged in waged work, there is more hesitation to use family resources to seek health care, especially when the illness is not perceived as serious. In general this does not extend to reluctance to seek care for serious (particularly acute) illnesses, with one notable exception. However it provides some indication of the potential of a situation of dependence to erode assumptions of equality and equal access within the family.

If decision making in some households is shifting towards men where their earning capacity advantage over women is increasing, this may lead to an decrease in women's confidence in

their value in the household and the consequent self-imposed rationing of health care resources which is seen in many other contexts.

8.5.7.5. Access to Services to Meet the Specific Needs of Women

Provision for women's specific health care requires special investigation because of the link between the low value placed on women and the lack of provision of women's health care services and because of its strong preventive health care dimension. This study investigated two main areas: access to preventive services and curative care for women's reproductive health problems, and access to maternal health care.

Historically in the PRC women's health has been well protected and catered for by specific legislation and work unit responsibilities. Our study found that women in full employment generally have good entitlements to preventive care, such as screening and antenatal care, and curative care for women's health problems.

However there is increasing disparity between the care available to different groups of women. Different types of enterprises offer different levels of women's health care entitlements. Women without full employment (e.g. housewives, migrant women workers, unemployed women and some laid-off women) are unlikely to be offered any preventive services and are likely to have to pay out of pocket for curative care. The lack of availability of information on women's health needs for these groups may compound this problem.

Historically maternity benefits (both in terms of health and care and leave) were enshrined in legislation. Work units are still required by law to provide maternity benefits and not to discriminate against pregnant women. However women workers on temporary or short-term contracts are vulnerable to effective dismissal if they become pregnant, due to having no maternity rights, and employers being able simply not to renew their contracts. The 'one off' nature of a birth in an urban household means that many households are able and willing to cater for the expense of the pregnancy and birth where public provision is not available. However this depends to a certain extent on household entitlements such as savings or support from relatives. Where the lack of maternity benefits converges with other difficulties such as health problems and under/un-employment this can cause severe difficulties for a household.
The lack of entitlements to care in pregnancy and delivery can send a negative message to women about their value to society, both as workers and as mothers. (The protection of women's occupational health may also be under threat. Several women in our study complained of women's health problems being exacerbated by 'heavy work' and lack of flexibility at work.

8.6. Implications of Findings and Areas for Further Research

8.6.1. Implications of Findings

The study findings suggest the following critical areas to be considered in the formulation of new benefits systems in the health sector.

There is a need to provide safety nets against a critical loss of entitlements by individuals and households. Some such interventions are already being piloted. For example Shanghai Municipality and Guangdong Province have made some health insurance provision for the urban poor[19] but have not widely advertised it (i.e. only those who approach authorities, such as the street committee, are able to access it). Only those receiving income support from the

[19] These interventions are named '*Chen zhen tekun renyuan jiben yilioao baozhang zhidu'* or 'Basic insurance system for the urban poor').

municipal governments (i.e. those designated as poor) are eligible to access the funds. Actual coverage is therefore less than 10% (Tang et al 2001). Such safety nets need to be sensitive to both women's and men's needs. For example, women may be particularly vulnerable to a sudden entitlements loss through widowhood or divorce if they have a low entitlements base at an individual level. Entitlements for widows (and widowers) or divorcees should therefore be strengthened and clarified under any emerging system.

Entitlements to vulnerable groups of workers need to be strengthened. Pathways for building entitlements to health care are needed for workers with short term and temporary contracts. The issue of entitlements in retirement is particularly pertinent for women, because of their early retirement age and the use of 'early retirement' as disguised redundancy. Ways to strengthen the entitlements of workers who are retired early and protection against gender discrimination in early retirement policies are needed. These considerations require that a gender perspective be taken in the design of social security reforms, necessitating a move away from universalistic principles to the recognition of the different constraints and trajectories in women's and men's employment. Future reforms will need to consider the gendered nature of individuals' possibilities for accumulating entitlements through employment

Provisions need to be made for health care entitlements for carers and other dependents. Such entitlements will need to be accessible to these groups in their own right as individuals, rather than through those who support them financially, to reduce the potential problems of these groups feeling a loss of moral entitlement to care. Carers will also require broader support systems, including technical and financial support.

There is a clear need to develop indicators of vulnerability. The sub-study on 'vulnerable groups' initially identified these as the poor (as designated by street committees), the elderly, the disabled, migrant workers, and laid off workers. However the study suggests that whilst these are potential indicators of vulnerability for individuals because they represent some of the pathways to entitlements loss, none of them serve as sole indicators and they are not comprehensive. Additionally, because they are household level indicators, they may not capture the gender related vulnerability of individuals, such as dependents and carers who may suffer a loss of entitlements at an individual level.

The great variability in access to women's health care services demonstrates the need to ensure access to preventive as well as curative care for those groups of women who currently have low access. Such groups appear to be those with temporary or short-term contracts, those working for loss-making enterprises, the self-employed and dependents such as housewives, the elderly and carers.

Maternity rights need to be strengthened for those in short term or temporary employment (perhaps by de-linking maternity coverage from the individual institutions).

In terms of the quality of care and information provided to women about women's health, the perceptions of quality of women of differing ages should be further elicited to enable informed processes of improvement in the quality of these services. The limited information provided by this study suggests that there are gaps between women's expectations of quality and the services that they receive.

8.6.2. Areas for Further Research

The gaps in the literature and in the findings of this study suggest that the following areas should be further researched in order to gain a deeper understanding of how gender roles and relations affect health and access to health care in urban China:

Further investigation of the health issues and health care needs of specific groups of women and men who are vulnerable to entitlements loss in the rapidly changing employment market, such as migrants, those made redundant or 'early retired' and those with low educational levels who are likely to be concentrated in short term or temporary work. A broader focus on the relationship between the changing employment environment and health would be important in addition to investigations of access to health care.

Further investigation of the perceptions of different groups of urban women about their RH health care needs. This study is unable to draw firm conclusions about the levels of awareness of women's health issues or the levels of satisfaction with women's health care provision amongst different groups of women.

Further exploration of processes of decision making by men and women in the household and the degree to which gender roles within the household in are shifting in response to the changing socio-economic environment. For example anecdotal evidence suggests that where women's position in the employment market falls to a significantly lower level than that of men in the household, their decision-making power and status in the household similarly decreases. Further investigation of the nature and extent of this phenomenon and efforts to link this with women's well being as well as their access to health care services would be central to an in-depth analysis of gender and health in urban China.

Further investigation of adolescent girls' perceptions of their reproductive health needs, and their access to information and women's health services is important to a full understanding of gender and reproductive health in urban China. It would also be important to explore adolescent boys' understandings of and attitudes towards reproductive health and their perceived needs for services. An analysis of the attitudes of key stakeholders such as parents, teachers and health care providers and policy makers towards the provision of RH services for adolescents would be a critical component of such as study in order to assess the opportunities and constraints for improving services for this group.

Further investigation of the needs of the elderly which identify the processes by which some elderly people become vulnerable, and useful indicators of vulnerability amongst the elderly. Currently 'the elderly' is seen as a potentially vulnerable group, but there is insufficient understanding of how to disaggregate this category to identify those vulnerable to entitlement loss. The profiles and needs of carers for the elderly, and the changing nature of the care burden also require further attention to ensure that carers are adequately recognised and supported in the design of social security systems.

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Chapter 9

EFFICIENCY IN THE PROVISION OF HEALTH SERVICES

9.1 Hospital Sector Reforms

9.1.1 Rationale for the Reform

In general, hospital sector reforms initiated in Zibo and Nantong followed the reform guidelines developed by central and provincial government. Hence, the reform packages in both cities were similar. The reforms commenced in tandem with economic reform initiated in 1980. Three rationales were often raised by the government for reforming the hospital sector [1,2]. 1) Low efficiency. Hospitals had no incentive to efficiently produce health services because they relied on government budgets and could not retain a surplus of hospital revenue. 2) Cost escalation in the health insurance scheme. Payment systems and contractual arrangements in urban health insurance schemes provided financial incentives for hospitals to over-use health services and drugs. 3) Duplication of urban health facilities and surplus of health resources in tertiary hospitals.

9.1.2 Hospital Reimbursement Mechanism

Like other parts of the country, the Zibo and Nantong local governments began to reform hospital reimbursement methods in 1980. The major features of the reform were as follows: user fees were introduced to generate revenues and the government budget no longer covered all of hospital operating costs; hospitals could now retain all the surplus revenue generated for their own development; and hospitals were to have more financial autonomy [3]. In the ensuring two decades, shares of government budgets in total hospital revenues have rapidly decreased, and user charges have become major sources of hospital revenue. The reform of hospital reimbursement mechanisms in the two cities experienced similar patterns, as summarised below.

- From 1950 to 1960, the reimbursement mechanism was that all revenues generated in public hospitals were handed over to treasury authorities and then recurrent expenses of hospitals were totally covered by government subsidies. The process of hospital accounting was very complex and difficult to be managed.
- From 1960 to 1979, public hospitals were subsidised by government funding to cover the salaries of health workers. Incomes from user fees were retained by hospitals to cover other recurrent costs. In 1965, 90% of expenses on health workers' salaries were subsidised by government funding. In 1979, financial resources from government budgets in public hospitals stood at 135% of health workers' salaries. During this period, levels of prices set were far below levels of recurrent costs. Government funding was the major source of finance.
- From 1979 to the present, the allocation of government subsidies was based on the numbers of hospital bed or the defined volume of medical services. Prices of medical services began to be adjusted. Shares of government funding in total hospital revenues decreased rapidly. User fees and drug mark-ups became the major source of finance. At present, about 30% of salaries of hospital workers are covered by government funding, and about 5% of hospital revenues are supplied by government. During this time period, the economic autonomy of hospitals increased: all revenues generated by hospitals are retained and used by the hospitals themselves.

9.1.3 Pricing Policies

Prior to 1980, a 'low price' pricing policy was implemented in the hospital sector in Zibo and Nantong. The initial purpose of this policy was to make medical care affordable. Since then, because of the changes in hospital reimbursement methods, the government began to adjust the prices of medical services in order to fill the financial gaps between government funding and hospital recurrent costs. Decisions concerning pricing policy and fee schedules are made at provincial government level, by the Department of Health and the Department of Price Administration. Hence, the municipal governments of Zibo and Nantong cannot independently set health care prices themselves. Hospitals must use the fee schedules developed by provincial governments. Service items were the basic unit for pricing. In Shandong and Jiangsu provinces, about 4,000 fee items were used before 2000 [4,5].

In 1980, the Shandong Provincial government set the first version of the fee schedule to be used in all public hospitals. In 1989 and 1990, a decade after the issue of the first fee schedule, the prices of some diagnostic and surgical services were raised. In 1992 and 1993, prices of some diagnostic services using hi-tech medical equipment were reduced, while prices of some labour-intensive medical services were raised. In 1994, the second version of the fee schedule was set. The fee schedule currently used in Shandong Province is the 2000 version.

Jiangsu Province had a similar process with regard to adjusting the fee schedules of hospital services. Before 1993, prices of hi-tech diagnostic and treatment service items were set much higher than their costs, compared with basic health services. In 1993, the fee schedule was adjusted by reducing the prices of CT scans and MIR, and increasing the prices of registration fees and bed fees. All patients, regardless of their health insurance status, were charged the same level of prices. In 1997, in accordance with urban health insurance reform, prices of medical professional services and non-essential services were increased, and prices of CT and MIR reduced. In addition, price regulation was strengthened.

9.1.4 Health Insurance Reform and Contract Arrangement

In 1994 the Zibo government commenced health insurance reform. Prior to 1998, reform measures focussed on the introduction of co-payment and deductibles for users. The primary purpose of this reform was to control medical expenses by providing cost-saving incentive for the insured. Other elements of health insurance schemes, such as providers' payment methods, risk-pooling, and fund management were not changed. The health insurance plan continued to operate at individual-institution base. Health insurance funds were managed by individual institutions although no risk-sharing strategy existed amongst them. From April 1998, the Government Health Insurance plan was radically reformed. This was characterised by the pooling of funds from government institutions at city level, and the establishment of rules regarding collecting premiums and paying hospitals which were to be applied across the prefecture. However, the payment arrangement remained the fee-for-service method. The labour health insurance plan, in general, was not changed. The major design difference of the urban health insurance plan between that set out in government guidelines and the Zibo model, was that the latter did not pool funds across government institutions and enterprises.

The most recent round of health insurance reform was started at the end of 2000. By the end of 2001, the Zibo municipal government will have implement the newly-designed urban health insurance scheme. The development of this insurance scheme adhered strictly to the guidelines laid down by the central and provincial governments. The major contents of the scheme can be summarised as follows [6].

- *Eligibility.* All employees working in enterprises with various ownerships and in government-owned institutions must participate in the insurance.
- *Premium.* A premium is to be collected from both employees and employers, amounting to 8% of employees' annual incomes: employers are to contribute 6%, and individual employees 2%.
- *Unit of Fund Management.* The Health Insurance Management Centre within the Municipal Department of Labour and Social Security is the basic unit for managing the fund.
- *Fund Management.* The insurance fund is divided into two parts: the individual health account and the risk-pooling fund. In general, 47.5% of the fund goes to the individual health account and 52.5% of the fund to the risk-pooling fund.
- *Use of the Fund.* The individual health account fund can only be used by the individual him/herself. No transfers between individual accounts is permitted. The risk-pooling fund is used for those who have exhausted the fund in their health accounts and paid the required deductibles. Any individual health account fund surplus can be carried over to the next time period. When the fund in the health account is used up and an eligible patient wishes to use the risk-pooling fund, s/he must pay an amount of deductible. Medical expenses after the deductible and before the ceiling must be co-paid by the insured. Medical expenses exceeding the ceiling must be paid by the insured person or by other types of insurance plan if s/he has them.
- *Deductible.* Before claiming reimbursements for medical expenses from the risk-pooling fund, the insured is asked to pay a deductible. The amount of deductible is set around 10% of the average annual income of employees. If the annual income per capita is 10,000 yuan, the minimum of deductible will be set at 1,000 yuan.
- *Co-Payment.* After paying the deductible and before reaching the ceiling, medical expenses are paid jointly by the risk-pooling fund and the employee. The proportion of co-payment paid by the individual employee is about 15%.
- *Ceiling.* The ceiling for use of the risk-pooling fund is set at an amount which is 4 times the average annual income of employees.
- *Exclusive People.* Those who retired before 1949, disabled army personnel, and those working in government agencies, are given additional government subsidies for their insurance. Retirees after 1949 are not required to contribute a premium from their pocket. Unemployed workers and bankrupted enterprises are exempted from contributing premiums. The government Re-employment Centres are responsible for contributing premiums at 60% of normal premium rate for unemployed workers.

As one of 50 national pilot cities, Nantong commenced urban health insurance reform in April, 1997. At the outset a series of political and administrative measures were taken by the municipal government. Policy documents, including 'Design of the Employee-Based Health Insurance Scheme', 'Methods of Managing the Health Insurance Fund', 'Methods of Contracting Hospitals for the Urban Health Insurance Scheme", and 'Regulation of Health Insurance Fund Collection Procedures', were issued and the policies implemented. In addition, a specific organisation, the Centre for Health Insurance Scheme Administration, was established within the Municipal Department of Labour and Social Security. Major contents of the reform included the following elements [7].

- *Eligibility.* All employees working in enterprises with various ownerships and in government-owned institutions must participate in the insurance scheme.

- *Premium* A premium is to be collected from both employees and employers, amounting to 11.5% of employees' annual incomes: employers are to contribute 10.5% and individual employees 1%.
- *Unit of Fund Management.* The Centre for Health Insurance Scheme Administration is responsible for managing the fund.
- *Fund Management.* The insurance fund is divided into two parts: the individual health account and the risk-pooling fund. Employees contribute 5% of annual income to the individual health account if they are under 35, 6% if they are between 35 and 45, and those over 46 pay 7%.
- *Deductible.* Before claiming reimbursements for medical expenses from the risk-pooling fund, the insured should pay a deductible of 5% of the average annual income of employees.
- *Co-Payment.* After paying the deductible, medical expenses are paid jointly by the risk-pooling fund and the employees. Co-payment rates vary depending on the amount of medical expenses: expenses below 5,000 yuan - 16%,; between 5,000 and 10,000 yuan - 8%; between 10,000 and 40,000 yuan - 4%; and above 40,000 yuan - 10%.
- *Exclusive People.* The retirees are not required to contribute a premium from their pocket. Unemployed and laid-off workers contribute the premium based on the minimum standard of salary if their level of incomes are less than the minimum salary.
- *Contractual Relationship.* The departments of Labour and Social Security, and Health are jointly responsible for selecting the contract hospitals. The Centre for Health Insurance Scheme Administration represents the insurers and is responsible for issuing and implementing the contracts. The quality, benefits, payment methods, and responsibilities of each party are defined in the contracts. Besides clinics, 5 hospitals were selected for referral medical services.

When the new health insurance scheme was implemented, 946 institutions with 83,000 employees were included in the scheme, amounting to 25.3% of eligible employees. Government institutions and large enterprises were more likely to enter into the new health insurance scheme. By the end of June 2000, about 24% of eligible employees were covered by the new insurance scheme.

From July, 2000, Nantong municipal government adjusted the insurance scheme mainly in accordance with changes in central government policy [8]. Major changes included: 1) the premium was reduced to 8% of annual salaries of employees, with individuals paying 2%; 2) the proportion of total funds in the individual health account was reduced; 3) the funds in the individual health accounts and the social risk-pooling fund were separated (this was actually implemented from April 1999); 4) the ceiling of 4 times of employees' annual salaries was introduced; and 5) the complementary health insurance fund was established for government employees and well-off enterprises.

The major differences in urban health insurance arrangements between Zibo and Nantong included: 1) health insurance management - unlike Nantong, the Zibo government did not set up a specific management unit for the urban health insurance scheme; 2) Zibo and Nantong had set a different level of financial contributions from employers, and different co-payment rates; 3) in Zibo fee-for-service was the major payment method, while Nantong introduced a fixed change payment method; and 4) in Nantong, a competition mechanism had been introduced to select contract hospitals.

9.1.5 Payment Methods

Fee-for-service was the method for paying contract hospitals in Zibo. After 1998 some individual government institutions used a capitation method to pay hospitals for their employees. A fixed amount of fund ranging between 200 and 300 yuan a year was paid for a certain benefit package. However, institutions using this method accounted for only about 10% of eligible institutions. In the newly designed health insurance scheme that will be implemented by the end of 2001, a fixed charge method will be used.

Before early 1997, fee-for-service was the dominant in payment system in Nantong. Between April 1997 and April 1999 the reformed health insurance scheme adopted fixed charges as the method for paying both the outpatient and inpatient services provided by contract hospitals. Fixed charges were paid using the indicators of per outpatient visit and per discharged patient. The fee level of outpatient visit was calculated using the average unit expense of outpatient visits in the previous time period and the number of visits. The fee level of inpatient service was determined using the average medical expenses of hospitalized patients, the length of stay, bed-days, and the number of discharged patients. After April 1999, along with the change in use of the individual health account fund, it was decided that outpatient services should be paid directly by the users from their own account. The health insurer just paid the hospital for inpatient services from the risk-pooling fund at a fixed charge.

9.1.6 Regional Health Planning and the Community Health System

In 1992, the Zhoucun district of Zibo was involved in an experiment to reform the methods of health resource distribution and allocation. The purposes of the reform were to increase efficiency and equity by adjusting the existing pattern of resource allocation. According to the reform package, local government has the authority to plan the distribution of Zibo's available health resources regardless of the ownership of the resources. By doing this, it was hoped that duplication of facilities and functions would be avoided and more resources could be transferred from high level hospitals to community health centres. This reform did not achieve its expected outcome due to the complex political and administrative procedures involved in managing health resources.

Since 1980, the community health care system in urban cities has been largely destroyed. An increase in hospital autonomy and the cancellation of the referral system are the major reasons. An incomplete system of health service delivery at the community level explained in part the rapid increase in medical costs. One of strategies being employed in Zibo to control the unreasonable escalation of medical costs, is the re-establishment of the community health care system. Community health centres and stations to provide curative and preventive services have been established. Some health workers previously working in hospitals are working in these centres upon completing their training. The success of this reform will benefit both regional health resource planning and health insurance reform, because the redistribution of health resources will increase system efficiency. However, this reform will take a long time and should gradually receive stronger political support.

9.2 Hospital Management and Administration

9.2.1 Description of Sample hospitals

In Zibo and Nantong, all the hospitals sampled were at and above county (district) level. Of the 22 hospitals in Zibo, 2 hospitals were at municipal level and the rest were at county level. 11 hospitals were general ones, 8 were Chinese traditional hospitals, and 3 hospitals were owned by enterprises. In Nantong, of the 19 hospitals, 10 were general hospitals, 8 Chinese traditional hospitals, and one an enterprise hospital. The characteristics of sample hospitals are presented in table 9.1.

Table 9.1 Characteristics of Sample Hospitals

Indicators	1990	1995	1997	1999
Zibo				
Number of health worker	5110	6320	6800	7020
Number of hospital beds	4030	4820	5400	5500
Total revenues (10,000 yuan)	830	1400	2000	2700
% of government share	11	6	6	5
% of user fee	35	40	38	41
% of drugs	48	46	47	46
Total value of hi-tech equipment (million)	23	44	76	120
Nantong				
Number of health worker	5501	6657	7011	7340
Number of hospital beds	4553	5289	5750	5950
Total revenues (10,000 yuan)	1400	2500	3300	4300
% of government share	7	6	5	6
% of user fee	32	35	36	39
% of drugs	53	49	49	50
Total value of hi-tech equipment (million)	17	64	92	130

9.2.2 Changes in Scales of Hospitals

Expansion of hospitals in terms of the number of health workers, hospital beds, value of high technologies, and value of capital are illustrated in figure 9.1 to figure 9.4.

Changes in hospital scales in Zibo can be summarised as follows.

- From 1990 to 1995 - Annual increase rates of health workers was 4.0%; hospital beds 3.7%; value of hi-tech equipment 14.0%. With regard to total revenues, shares of government budgets decreased from 11% to 6%, user fees increased from 35% to 40%, and drugs decreased from 48% to 46%.
- From 1995 to 1997 - Annual increase rates of health workers was 3.2%; hospital beds 5.8%; value of hi-tech equipment 32%. Regarding total revenues, shares of government budget remained at 6%, user fees slightly decreased.
- From 1997 to 1999 - Annual increase rates of health workers was 1.2%; hospital beds 1%; value of hi-tech equipment 25%. Regarding total revenues, shares of government budget decreased from 6% to 5%, user fees increased from 38% to 41%.

Changes in hospital scales in Nantong can be summarised as follows.

- From 1990 to 1995 - Annual increase rates of health workers was 4.4%; hospital beds 3.0%; value of hi-tech equipment 30.6%. Regarding total revenues, shares of government budget decreased from 7% to 6%, user fee increased from 32% to 35%, drug decreased from 53% to 49%.
- From 1995-1997 - Annual increase rates of health workers was 2.6%; hospital beds 4.3%; value of hi-tech equipment 19.6%. Regarding total revenues, shares of government budget reduced by one per cent, user fee slightly increased.
- From 1997 to 1999 - Annual increase rates of health workers was 2.3%; hospital beds 1.7%; value of hi-tech equipment 17.1%. Regarding total revenues, shares of government budget slightly increased, user fees increased from 36% to 39%.

The major difference in changes in hospital scales between Zibo and Nantong was that after 1997 the increase rate of the value of hi-tech equipment was slower in Nantong than in Zibo and than that before 1997.

Values indicated in Y-axis are actual numbers for health workers and hospital beds, 10 thousand yuan for hi-tech equipment, and 100 thousand yuan for value of capital.

Figure 9.1 Changes in hospital scales in Zibo

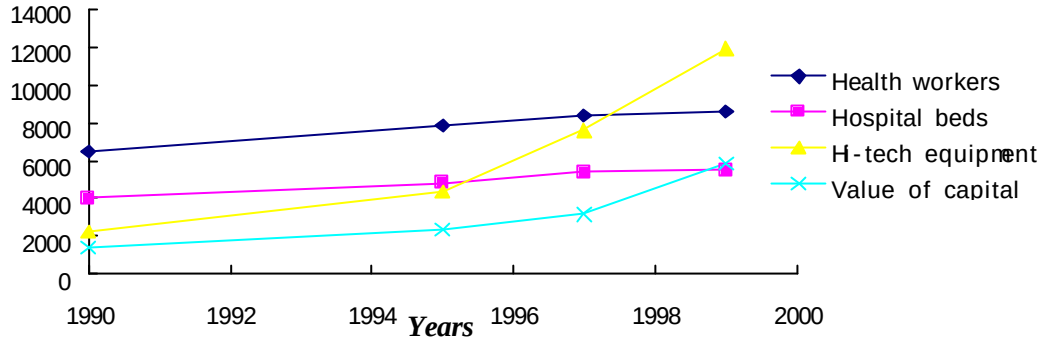


Figure 9.2 Changes of resources of finance in Zibo

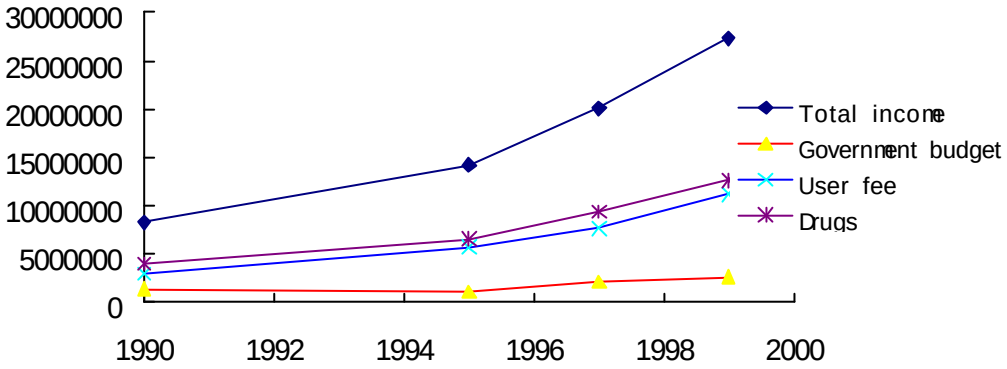


Figure 9.3 Changes in hospital scales in Nantong

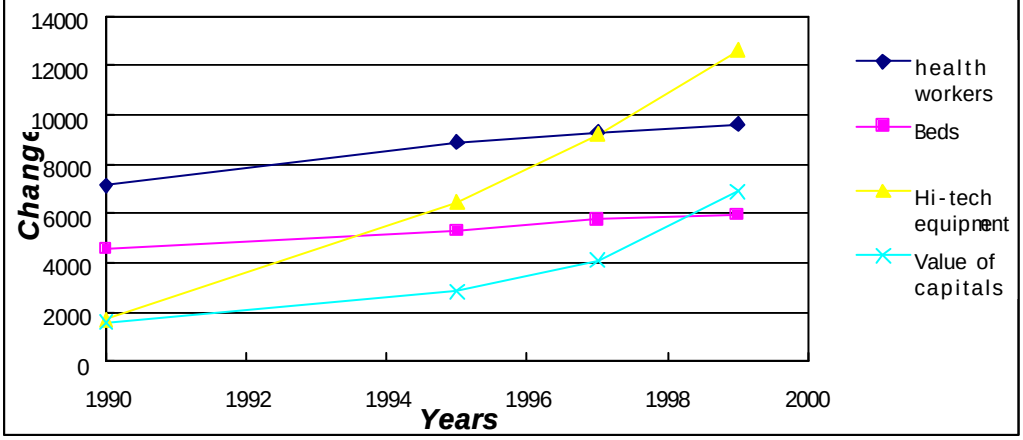
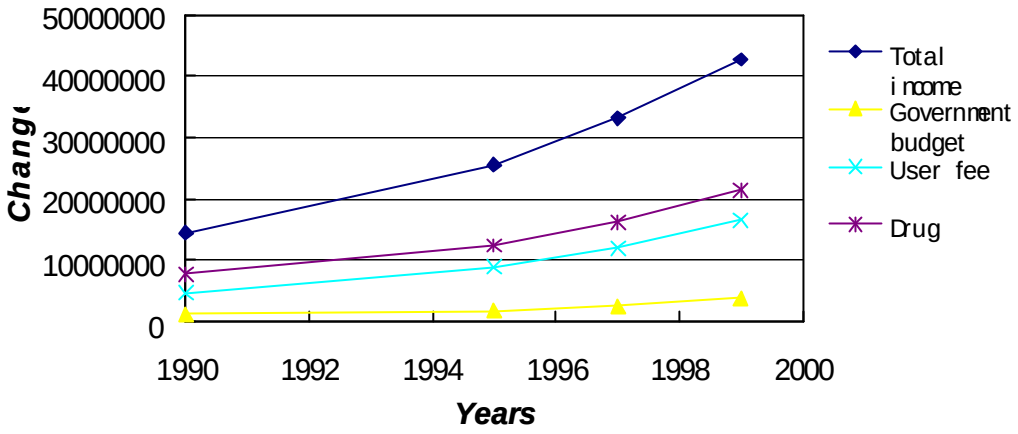


Figure 9.4 Changes in resources of finance of hospitals in Nantong



As indicated above the change of investment in capital and hi-tech equipment is substantially higher than that for labour and beds for both cities. Regarding revenues, the development reflects the increase of revenues from drugs and user fees. Government revenues have become less important for the hospital sector.

9.2.3 Productivity

Indicators for measuring productivity are outpatient services per doctor, bed-days per doctor, income per health worker, bed occupancy rate, LOS, and bed turn-over rate. Outpatient service has been adjusted with quality, price, and case mix. Bed days have been adjusted with quality and price. Income has been adjusted with price. The results are summarised in table 9.2.

In Zibo, both outpatient visits and inpatient days served by each doctor decreased from 1990 to 1999, especially bed-days per doctor. The volume of inpatient services reduced by about 200 bed-days per doctor from 1990 to 1999. Bed occupancy rates also decreased from 81% in 1990, to 63% in 1999. In the same time period, income generated by each health worker increased rapidly, from 17,000 yuan in 1990 to 46,000 yuan in 1999.

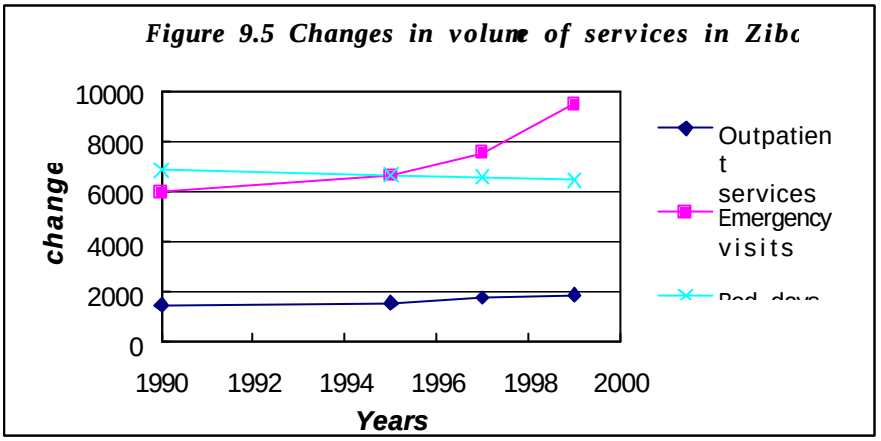
Similarly, outpatient visits and inpatient days served by each doctor decreased from 1990 to 1999. Between 1990 and 1999, outpatient visits per doctor reduced by 27% and bed-days per doctor reduced by 36%. In the same time period, the income generated by each health worker increased rapidly, from 16,070 yuan in 1990 to 66,270 yuan in 1999.

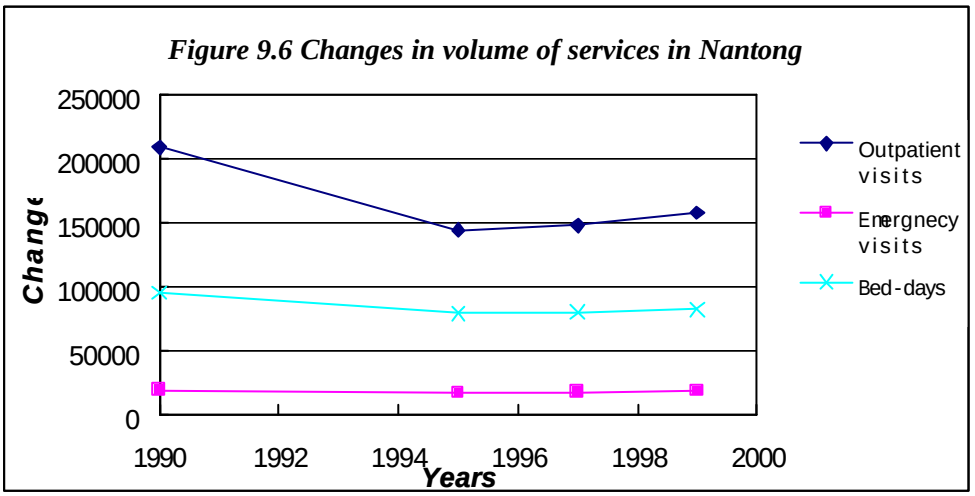
Changes in major indicators in productivity can be clearly seen from figure 9.5 and 9.6.

Table 9.2 Productivity in Zibo and Nantong in Selected Years

	1990	1995	1997	1999
Zibo				
Outpatient & emergency visits per doctor	1312	1166	1217	1218
Bed-days per doctor	690	574	525	486
LOS (days)	17.4	15.6	14.2	12.4
Income per health worker (yuan)	17033	27150	34631	46011
Bed turn-over rate (times)	19	19	19	21
Bed occupancy rate (%)	81	73	66	63

Nantong				
Outpatient & emergency visits per doctor	1928	1150	1101	1099
Bed-days per doctor	806	561	532	513
LOS (days)	20.2	17.3	15.9	15.0
Income per health worker (yuan)	19270	55443	72576	84214
Bed turn-over rate (times)	19	16	16	17
Bed occupancy rate (%)	95	71	64	64





There are several factors affecting the decline in productivity in the study hospitals of the two cities. First, as a whole, the use of outpatient and inpatient services during the 1990s have been seen to decline for several reasons, including the rapid increase of medical care costs, the collapse of the work-related health insurance, and rising competition in the medical care market. In in-depth interviews hospital managers in the two cities highlighted this problem. The decline of services in the two study cities was not exceptional. Gao and his associates reported that the use of inpatient services declined from 4.5 % in 1992 to 3.0% in 1997 in the urban areas of China (Gao, et al. 2001). Second, as reported by the hospital managers interviewed, it is very difficult for the hospitals to lay-off health workers and staff, even if they don't have much work to do, although in theory they have the right to hire and fire staff. Conversely, these hospitals sometimes had to take some military officers who just retired from the service, and new medical graduates, according to the government rules.

9.2.4 Responsibility System

For improving the performances of clinical departments and individual health workers, a responsibility system was introduced in the hospital sector in Zibo in 1994 and in Nantong in 1993. This system is an internally administrated mechanism designed and implemented by the hospital themselves. The figure below shows the relations in the system. Usually, at the beginning of a year, the hospital leadership and department heads negotiate a contract in which responsibilities and incentives are defined. Some variations existed in specific contents of the responsibility system between hospital and between Zibo and Nantong. However, usually there are four key components in the contract: volume of workloads, quality, incomes, and patient satisfaction.

- Workloads. Outpatient encounters and inpatient days are the measures of workloads. The determination of volumes of workloads that each clinical department should provide are based on the workloads delivered in the last year.
- Quality. About 50 indicators are designed to assess service quality. These indicators cover three dimensions of quality, structure, process, and outcome. Scoring of 100 points for each indicator is used.
- Income. Methods for calculating the incomes of departments varied across hospitals. The basic formula is: Incomes = Revenues – Expenditures.
- Patient satisfaction. Number of incidents of misconduct in practice is the key indicator.

Indicators and scoring methods are generalised in an evaluation manual. A specific department within hospitals is responsible for conducting a monthly assessment according to the scoring manual. The sum of the scores each department gains is the basis upon which hospital managers allocate bonuses. Within departments, the heads will distribute bonuses to individual workers according to their performances. However, there is no scoring system within the department.

Such a responsibility system has to some extent improved the performance of different departments within hospitals and encouraged health workers to increase their productivity. However, one consequence of this system is that the gap in income levels among doctors and nurses working in different hospital departments has increased significantly. Health workers who attended the focus group discussions reported that part of the gap has been seen as reasonable, since people's workloads and skills differed. Nonetheless, some part of the income gap was attributed purely to the differences in medical equipment used by different departments. Prices for the use of different medical equipment varies a great deal. In another words, marginal profits from the use of different equipment were not the same. Therefore, one doctor said in the focus group discussion that the machines were making money for hospitals and providing bonuses for health workers. This implied that it is not easy to establish a good system that provides fair incentives to health workers and that ensures rational provision of quality services.

9.2.5 Personnel Policy

Hospital directors are appointed by the same level of government. Directors of hospitals decide upon who fills the roles of department heads. From 1996, personnel policy started to be reformed in Zibo and Nantong, in accordance with guidelines issued by central government. The permanent relationship between health workers and hospitals was changed to a contractual relationship. The new policy allows hospital management to fire and hire staff. Firstly, positions required by hospitals are defined according to service patterns and workloads. Secondly, a competition mechanism is used to select health workers to work in the defined positions. Finally, health workers who are not successful in the competition will

lose their job or will be transferred to nonprofessional positions. However, in practice, this policy has not been well implemented for many reasons. Key informant interviews with hospital managers in the two cities reflected that hospitals could not refuse applicants if those people were recommended by senior officials, and that hospital managers were not able to fire employees if no new positions for the fired staff were found within the hospitals, as previously mentioned.

9.2.6 Pricing Practice

It can be concluded that no hospital in Zibo and Nantong charged patients strictly following the fee schedule issued from the Shandong and Jiangsu provincial governments. The topic of actual prices charged to the patients was too sensitive to obtain answers from hospital managers in both Zibo and Nantong. In Zibo, we were able to investigate this matter by examining information on: 1) the numbers of hospitals that were punished because of illegal behaviour in charging users. From discussion with health official who were responsible for regulating prices, it was found that in 1990 five hospitals were punished by the price administration agency. In 1997 and 1999, 6 and 7 hospitals were punished respectively; and 2) differences in fee levels between official prices and prices in practice. An investigation conducted in Shandong showed that in 15 hospitals, including 3 hospitals in Zibo, the prices in practice were in general twice as high as official prices.

Health officials interviewed in this study attributed this situation to the delay in fee schedule adjustment. Because fee schedules had not been updated at the same time as the changes in prices of health inputs, hospitals found it very hard to implement schedules if they wanted to maintain a financial balance. Key informants indicated that, in most cases, hospitals could not cover operating costs with government budgets and revenues generated from user charges with the standard fee schedules. Usually, the hospitals distorted standard fee schedules through: 1) separating one fee item into two or more fee items. Hospitals generate additional revenues from charging patients for the "new" service items; 2) providing more profitable services and less non-profitable services. For example, hi-tech equipment services and drugs may be over-supplied; and 3) introducing new service items. For those service items that were not included in the fee schedules, the hospital could apply for new prices if those services are to be carried out by the hospital. In most cases, the prices of those new service items would be set at high level, which stimulates hospitals to introduce new service items.

9.2.7 Bonus System

In order to stimulate health workers to increase productivity, the bonus system was introduced in the hospital sector in Zibo in 1987 and in Nantong in 1985. There are four time periods in terms of types of bonus system. In Zibo, from 1987 to 1990, a flat bonus method was operated. With this method, every health worker was awarded the same bonus regardless of his or her contribution. From 1990 to 1994, two methods of distributing bonuses were adopted in the studied hospitals. One is a volume-based method and the other is an income-based method. The former means that rewards was distributed to a health worker or a department according to the volume of services (outpatient visits and inpatient days) the health worker or department provided. The latter was based on the incomes a health worker or a department generated by providing medical services. Since 1994, a performance-based bonus method has been used. Elements of performance included incomes generated, quality of services, and volume of services. Income is still central in this method. Nantong experienced the same changes in implementing different bonus methods as Zibo.

Because the bonus systems used in the two cities were based on volume of services and amount of incomes, the departments of hospitals would try to generate more revenues through

providing more services. This could be one of the reasons for the cost escalation of medical care. In addition, the over-use of diagnostic tests was also reported by some service users participating in the focus group discussions in both of the study cities. Some service users clearly understood that some doctors wanted to take as many tests as possible, of which some of the tests were not necessary in terms of making a correct diagnosis. They knew that some hospitals would like to generate revenues by providing more services to their patients.

9.2.8 Relations between Changes in Hospital Actions and Hospital Sector Reforms and Policies

The changes in hospital sector reform and polices and hospitals actions have been represented in a time series arrow diagram, which provides a picture about the relationship between them (figure 9.7). Hospital reimbursement mechanism reform was the root cause for both hospital sector reforms and hospital actions. Especially, changes in pricing policies could be regarded as complementary policies to reimbursement reform. Along with the decrease in shares of government budgets in total hospital revenues, price tools were used to finance public hospitals. It could be concluded that reimbursement reform has driven public hospitals into the market. After government changed the hospital reimbursement mechanism, a series of actions, including introduction of bonus systems, the responsibility system, and price distortion were taken by the hospitals.

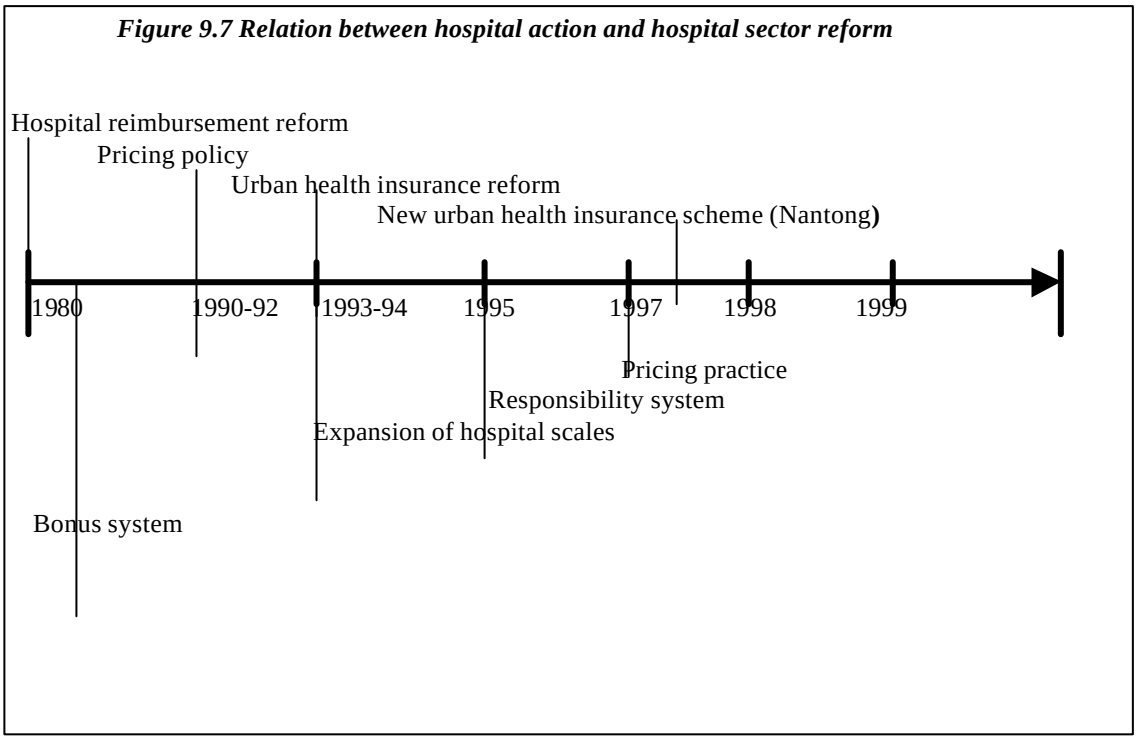
The hospital managers interviewed in this study reported that the implementation of the bonus and responsibility systems was closely related to government hospital financing policy. Hospitals had to use this kind of method to increase revenues through stimulating health workers to provide more services and generate more revenue. Heads of clinical departments of sample hospitals indicated that even though several dimensions such as quality were included in the responsibility system, the central part is still the net income from providing health services. Changes in bonus methods also served the purpose of increasing hospital revenues through rewarding the departments that had reached or exceeded revenue goals.

Both hospital managers and health administrators attributed hospital expansion and price distortion to hospital reimbursement mechanism and pricing policy. Government budgeting policy, in which amount of budgets were determined by numbers of hospital staff and beds, drove hospitals to recruit more health workers and equip additional hospital beds without considering the demand for hospital services. Pricing policy with higher prices of hi-tech services before 1994 is one of the reasons why hospitals tried to buy high technologies, such as CT and MRI. In addition, because provincial governments did not adjust fee schedules according to changes in the price of health inputs, hospitals had to distort the price schedules to generate more revenue. Health officials in the two cities stressed that even if price regulators knew this situation, it was very hard to control. The primary reason was that thousands of fee items made it extremely difficult for regulators to monitor the pricing behaviour of hospitals.

In Zibo, key people from the Department of Health and hospitals did not think urban health insurance reform, initiated from early 1990, had much influence over hospital behaviour. They mentioned three reasons. First, the individual-institution-based insurance plans were not pooled, which did not increase the purchasing power of the insured with regard to influencing hospitals. Second, all the tertiary and secondary hospitals were contracted by the institutions. Insurance funds allocated to hospitals accounted for a small portion of total hospital revenues. Hospitals did not care much about this resource of finance. Lastly, some hospitals are in monopolistic positions. Institutions had no choice but to select hospitals these for contract services. For example, the highest level hospitals within a district and county

were usually the only candidates for contracting. Control over the behaviour of those hospitals, such as regarding price distortion, was not effective. Furthermore, those hospitals were models for other types of hospitals. Their actions and behaviour were usually followed.

Figure 9.7 Relation between hospital action and hospital sector reform



Health administrators and insurance managers indicated that before 1996, the relation between urban health insurance reform and hospital action was not close in Nantong. The reasons given were very similar to those in as Zibo. After the implementation of the new urban health insurance scheme, the relationship was obviously changed. The interviewees stated four reasons. Firstly, the establishment of a specific department of health insurance administration, representing all the insured, made it possible to negotiate with, monitor, and control hospitals. Secondly, the pooled insurance scheme increased the power of the insurers. Thirdly, changes in the payment system might reduce the extent of price distortion of hospital services. Lastly, the insurance scheme covered only basic health services, which encouraged hospitals not to purchase expensive high technologies and use expensive drugs.

9.3 Measurement of Efficiency

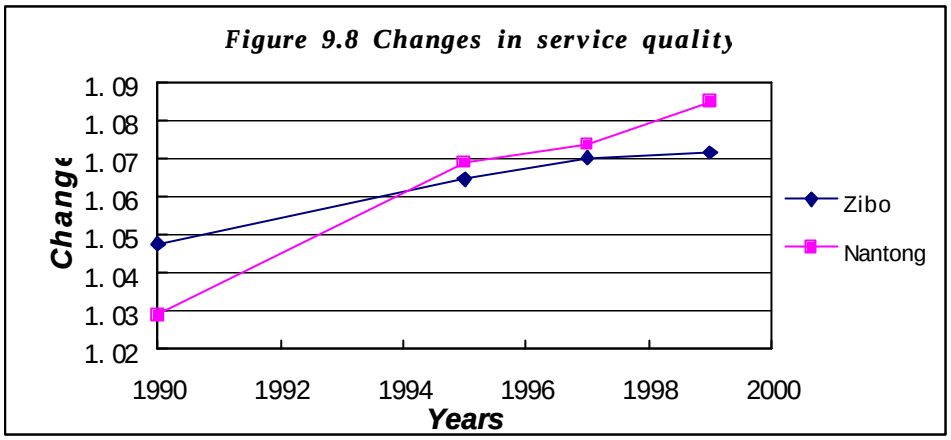
9.3.1 Adjustment of Quality and Case Mix

For comparing the relative efficiency performance of hospitals, quality and case mix in different time periods and among hospitals were adjusted. Methods of adjustment were presented in the methodology section; with these, the value of quality and case mix indices in each sample hospital was calculated

Figure 9.8 shows that after adjustment in both Zibo and Nantong, quality of services had improved in the study period. The values of quality index were 1.05 in 1990 and 1.07 in 1999 in Zibo. In Nantong, the values of quality index were 1.03 in 1990 and 1.08 in 1999. Improvement of quality between 1990 and 1999 was greater in Nantong than in Zibo.

Values of quality index were slightly different between different levels of hospital. In Zibo, the value of quality index was 1.08 in municipal hospitals, while it was 1.06 in county

(district) hospitals. In Nantong, values of quality index in municipal and county (district) hospitals were 1.09 and 1.07, respectively.



Calculation of the case mix index showed difference in its values between different levels of hospitals in Zibo and Nantong. Values of case mix index in municipal hospitals were greater than those in county (district) hospitals. Table 9.3 provides the results.

Table 9.3 Results of Quality Adjustment

Hospital level	Values of case mix index
Zibo	
Outpatient services: municipal hospitals	0.98
Outpatient services: county hospitals	0.78
Inpatient services: municipal hospitals	1.33
Inpatient services: county hospitals	0.98
Nantong	
Outpatient services: municipal hospitals	1.11
Outpatient services: county hospitals	0.98
Inpatient services: municipal hospitals	1.67
Inpatient services: county hospitals	0.84

9.3.2 Unit cost

In both cities, unit costs per outpatient visit and per bed-day increased rapidly from 1990 to 1999. All costs and expenditures have been converted to fixed prices using 1999 as a base year. The growth rate of unit cost per bed-day was greater than the unit cost per outpatient visit (table 9.4).

In Zibo, the unit cost per outpatient visit was 2.75 times higher in 1999 than that in 1990. Annual increase rates of unit cost per outpatient visit was 11% from 1990 to 1995, 14% from 1995 to 1997, and 13% from 1997 to 1999. From 1995 to 1999, the unit cost per bed-day increased nearly 4 times. Annual increase rates per bed-day were 14% from 1990 to 1995, 18% from 1995 to 1999, and nearly 20% from 1997 to 1999.

In Nantong, the unit cost per outpatient visit was 4.08 times higher in 1999 than that in 1990, an annual increase rate of 17%. Annual increase rates of the unit cost per outpatient visit was 21% from 1990 to 1995, 13%, from 1995 to 1997, and 12% from 1997 to 1999. From 1995 to 1999, the unit cost per bed-day increased nearly 4 times. Annual increase rates per bed-day were 19% from 1990 to 1995, 14% from 1995 to 1999, and 13% from 1997 to 1999.

Figure 9.9 shows that the overall level of unit costs in Nantong is higher than that in Zibo. However, from 1997 the increase rates of unit costs were less in Nantong than in Zibo.

Table 9.5 presents the unit costs of different types of hospital. In Zibo, the unit costs of both outpatient and inpatient services in enterprise hospitals increased more rapidly than those in other types of hospital. From 1990 to 1999, the unit cost per outpatient visit increased by 4.5 times and the unit cost per bed day increased by 9.1 times in enterprise hospitals. County (district) general hospitals had the lowest increase rates. On the contrary in Nantong, the unit costs in enterprise hospitals had the lowest increase rate.

Table 9.4 Unit Costs in Zibo and Nantong in Selected Years (Yuan)

	Unit cost per outpatient visit	Unit cost per inpatient day
Zibo		
1990	24.18	67.50
1995	40.13	129.69
1997	52.18	179.26
1999	66.74	257.05
Nantong		
1990	23.19	85.25
1995	59.07	205.99
1997	75.74	265.53
1999	94.50	341.89

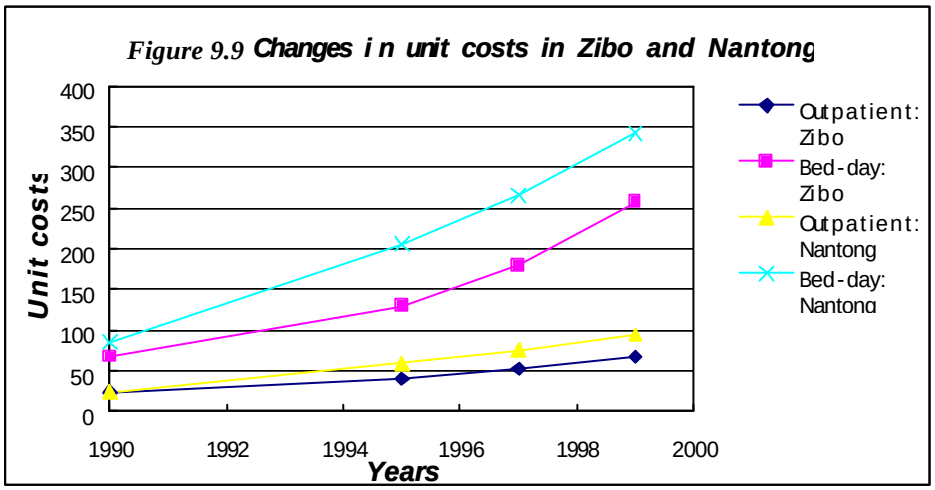


Table 9.5 Unit Costs by Types of Hospitals in Zibo and Nantong

	Municipal general hospital		County general hospital		Chinese traditional hospital		Enterprise hospital	
	Zibo	Nantong	Zibo	Nantong	Zibo	Nantong	Zibo	Nantong
Unit cost of outpatient visit								
1990	26.15	17.49	65.01	21.99	14.51	16.63	20.28	47.44
1995	42.68	50.08	47.55	56.56	39.06	56.94	42.38	72.84
1997	51.90	63.98	63.89	72.80	45.83	73.95	68.46	88.13
1999	80.36	68.80	77.26	87.71	63.62	96.59	90.74	112.24
Unit cost of bed-day								
1990	56.99	62.32	72.21	79.74	89.19	75.35	26.53	77.92
1995	119.05	113.73	105.41	191.29	208.09	342.39	79.89	172.09
1997	145.65	151.26	153.54	248.49	279.64	399.63	140.73	234.76
1999	146.81	174.52	212.77	310.26	388.29	431.51	236.41	187.64

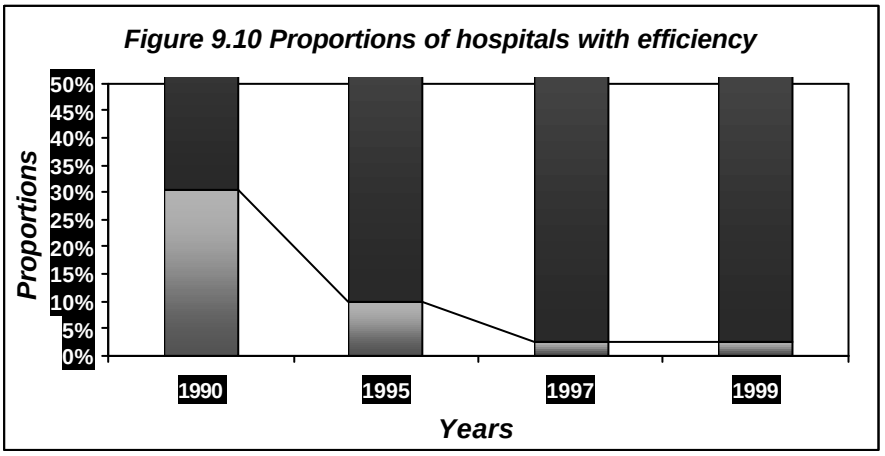
The main reason why the unit costs increased significantly in the 1990s, and particularly in the early 1990s, might be related to the fact that, while the use of services declined in the two cities, as a whole, the revenues generated by the vast majority of hospitals surveyed increased over the period. Induced demand for expensive diagnostic tests and treatment may be partly attributed to the increase of unit costs. In addition, the improvement in quality of the services provided by these hospitals, as presented above, might also consume more health resources.

9.3.3 Data Envelope Analysis (DEA)

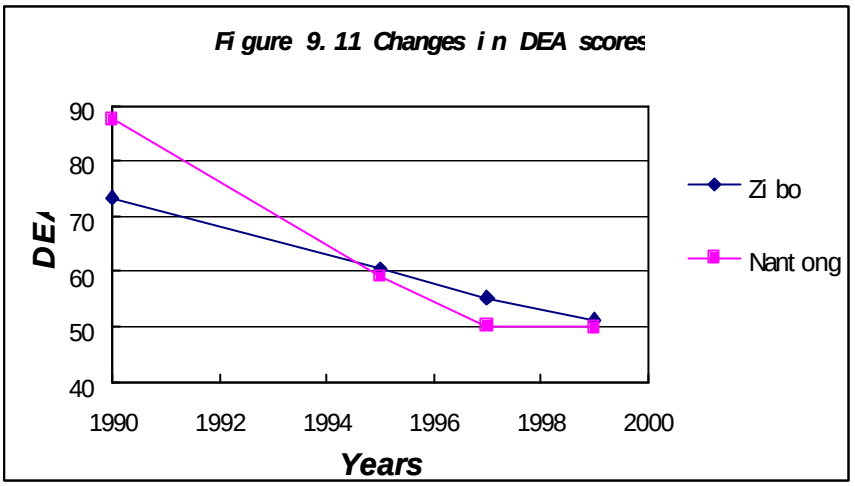
Overall, DEA scores decreased in Zibo and Nantong. The proportions of hospitals with relatively efficient service provision in the total sample hospitals reduced from 1990 to 1999, as illustrated in figure 9.10. As was mentioned in the methodology section, the most efficient hospitals are given a highest value. In the figures below the best practice hospitals are given the value of 100 and all other hospitals a lower value.

In Zibo, the average DEA scores decreased from 73 in 1990 to 60, 55 and 51 in 1995, 1997, and 1999, respectively. DEA scores decreased by 13% between 1990 and 1995, 5% between 1995 and 1997, and 4% between 1997 and 1999. In Nantong, the average DEA scores decreased from 87 in 1990 to 60, 51 and 50 in 1995, 1997, and 1999, respectively. In the three time periods, i.e., 1990-1995, 1995-1997, and 1997-1999, decrease rates of DEA scores were 28%, 8% and 1%, respectively. Trends of changes in DEA scores in the two cities are demonstrated in figure 9.11.

Figure 9.10 Proportions of hospitals with efficiency



The figure indicates that there is a reduction in hospitals operating according to 'best practice'. Most hospitals achieving the highest DEA-score were found in 1990.



During the two time periods, between 1990 and 1995 and between 1997 and 1999, different types of hospitals in Zibo and Nantong had different changes in DEA scores (table 9.6). In Zibo, enterprise and Chinese traditional hospitals experienced a greater reduction in DEA scores than general hospitals in both time periods. In Nantong, DEA scores dramatically decreased from 1990 to 1995. From 1997 to 1999, DEA scores increased by 3% and 12% in municipal and enterprise hospitals, respectively. Decrease rates of DEA scores in county (district) general hospitals and Chinese traditional hospitals were much less than those in the prior time period.

Table 9.6 DEA Scores in Zibo and Nantong by Types of Hospital

	Municipal general hospital		County general hospital		Chinese traditional hospital		Enterprise hospital	
	Zibo	Nant	Zibo	Nant	Zibo	Nant	Zibo	Nant
1990	95.61	100.00	87.65	88.62	91.81	88.47	100.00	100.00
1995	90.67	84.18	86.17	55.93	85.24	52.65	85.83	56.18
% reduction	4.94	15.82	1.48	32.69	6.57	35.82	14.17	43.82
1997	89.05	73.15	85.69	47.14	84.58	41.59	84.95	37.27
1999	86.82	76.21	80.61	45.64	78.12	41.20	77.75	49.27
% reduction	2.23	Up 3.06	5.08	1.50	6.46	0.39	7.20	Up 12.00

9.4 Effects of Urban Health Sector Reform on Efficiency

9.4.1 Tracer study

Acute appendicitis

Table 5.7 shows medical expense per case, share of drug expenses in total medical expenses, and length of hospital stay by patient groups in selected years in Zibo. Compared to medical expenses in 1995, medical expenses increases by 100% in 1999. The increase rates among patient groups covered by different health insurance schemes varied. Medical expenses for

out-of-pocket patients increased by 98%, those for GHI patients increased by 120%, and those for LHI patients increased by 123%.

The categories of medical expenses are presented in table 9.8. In total expenses, drug and treatment expenditures were the major components. The difference in medical expenses between different users resulted mainly from the proportion of drug expenditures.

Table 9.7 Medical Expenses and LOS Acute Appendicitis by Insurance Groups

Year	Health insurance status	Number of cases	Expenses 'yuan'	% of drug	LOS (days)
1995	Self-payment	124	953.23	27.24	8.93
	GHI	26	1276.19	35.43	12.35
	LHI	32	1161.56	30.08	11.28
	Total	182	1036.00	29.24	9.83
1999	Self-payment	140	1885.36	32.62	8.36
	GHI	26	2795.68	42.00	11.42
	LHI	19	2596.72	43.70	8.21
	Total	185	2086.36	35.81	8.77

Table 9.8 Categories of Medical Expenses on Appendicitis in Zibo

Items	1995			1999		
	GHI	LHI	Self-payment	GHI	LHI	Self-payment
Bed fee	73.64	75.70	45.87	98.73	62.87	71.75
Drug	381.00	349.41	259.68	1190.84	1134.86	615.09
Treatment	506.58	471.31	461.63	1291.18	935.34	864.08
Examination	15.76	18.63	7.40	70.19	53.45	31.46
Total	976.98	839.35	774.58	2650.94	2186.52	1582.38

In Nantong, medical expense per case increased from 1,096 yuan in 1995 to 1,456 yuan in 1999 (table 9.9). The increase rate of medical expenses was 33%. Increase rates among different insurance users varied, the highest being the self-payment patients (38%), the next highest the government health insured (33%), and the lowest the labour health insured (12%). Proportions of drug expenses in total expenditures decreased in all groups. In addition, the length of stay in hospitals fell.

Table 9.10 presents the major categories of expenses for treating appendicitis.

Table 9.9 Medical Expenses and LOS Acute Appendicitis by Insurance Groups

Year	Health insurance status	Number of cases	Expenses 'yuan'	% of drug	LOS (days)
1995	Self-paym,ent	134	1040.93	39.74	8.08
	GHI	57	1094.39	37.17	7.95
	LHI	19	1309.27	47.42	9.26
	Pooled insurance	6	1024.29	36.89	8.50
	Sub-total	216	1096.02	39.80	8.16
1999	Self-payment	243	1437.18	29.18	7.29
	GHI	9	1456.24	30.66	7.67
	LHI	4	1466.96	36.85	8.75
	New scheme	16	1745.83	36.48	9.44
	Sub-total	272	1456.40	29.85	7.45

Table 9.10 Categories of Medical Expenses on Appendicitis in Nantong

Items	1995			1999			
	GHI	LHI	Self-payment	GHI	LHI	New scheme	Self-payment
Bed fee	77.02	64.91	64.00	73.11	92.00	103.16	74.50
Drug	346.26	631.18	420.03	440.03	536.99	632.53	417.86
Treatment	223.37	341.49	326.20	521.48	474.75	318.45	466.26
Examination	10.56	71.59	26.40	52.11	97.75	82.13	30.78
Total	657.21	1109.17	836.63	1086.73	1201.49	1136.27	989.40

Focus group discussions with service users in the two cities reported that doctors often prescribed more drugs than necessary drugs for those covered by the old LHI and/or GHI schemes when these patients were being discharged from hospital. The cost of these drugs was included in the hospital bills. The patients usually got a much higher percentage of reimbursement for inpatient service expenses than for outpatient service expenses. In addition to this reason, those covered by GHI and/or LHI schemes were more likely to seek inpatient services from tertiary hospitals where service prices are higher than those provided by secondary and primary hospitals. That is why the average medical expenses for appendicitis were much higher amongst the inpatients covered by LHI and/GHL than amongst the self-payment group.

Birth Delivery

Table 9.11 shows expense per case, share of drug expenses in total medical expenses, and length of hospital stay by user groups. Compared to medical expenses in 1995, medical expenses of birth delivery services increased by 94% in 1999. The increase rates among user groups covered by different health insurance schemes varied. Medical expenses increased by 120% for out-of-pocket users, 90% for GHI users, and 50% for LHI users. This contrasts to the increase rates of different groups with acute appendicitis. The major reason is that in recent years most of the enterprises set a ceiling for reimbursing baby delivering users, which helps control expense increases.

From table 9.12, it was clear that the difference in expenses between different users was caused by the variation in expenditures on treatment. For example, expenditure on treatment per case with government health insurance was 1063 yuan; this was more than the total expenses of the other two groups of users.

Table 9.11. Expenses and LOS of Birth Delivery Services by Insurance Groups In Zibo

Year	Health insurance status	Number of cases	Expenses 'yuan'	% of drug	LOS (days)
1995	Self-payment	309	457.77	11.48	4.44
	GHI	97	717.66	9.81	5.93
	LHI	36	633.85	12.03	5.11
	Total	442	529.15	11.03	4.57
1999	Self-payment	383	991.53	5.59	4.96
	GHI	45	1371.12	4.82	6.05
	LHI	21	946.56	6.14	7.48
	Total	449	1027.47	5.51	5.19

Table 9.12 Categories of Medical Expenses on Birth Delivery in Zibo

Itmes	1995			1999		
	GHI	LHI	Self-payment	GHI	LHI	Self-payment
Bed fee	35.29	39.56	27.83	116.83	107.88	64.18
Drug	54.79	76.28	52.53	76.52	58.09	55.45
Treatment	290.87	413.41	300.10	1063.70	642.75	736.15
Examination	12.74	1.15	3.35	9.22	0	4.39
Total	393.69	530.40	383.81	1266.27	808.72	860.17

In Nantong, as shown in table 9.13, the difference in birth delivery expenses was small between different user groups. From 1995 to 1999, the average increase rate of health expenses was 36%. The increase rate of expense per case of self-payment users was higher (43%) than that of the other user groups (32% for GHI users and 36% for LHI) between 1995 and 1999.

Table 9.13 Expenses and LOS of Birth Delivery Services by Insurance Groups in Nantong

Year	Health insurance status	Number of cases	Expenses 'yuan'	% of drug	LOS (days)
1995	Self-payment	214	953.26	26.32	7.29
	GHI	80	1108.98	25.87	7.59
	LHI	83	1038.37	27.09	7.28
	Pooled insruance	10	1097.44	35.72	8.00
	Sub-total	387	1007.43	26.64	7.21
1999	Self-payment	290	1360.54	24.00	6.32
	GHI	31	1461.94	25.30	7.09
	LHI	8	1412.85	22.52	6.38
	New scheme	10	1483.41	28.31	7.40
	Sub-total	339	1374.67	24.21	6.42

Table 9.14 Categories of Medical Expenses on Birth Delivery in Nantong

Items	1995			1999			
	GHI	LHI	Self-payment	GHI	LHI	New scheme	Self-payment
Bed fee	82.71	73.94	74.10	203.50	181.25	196.67	177.14
Drug	201.62	285.92	255.05	375.75	317.87	320.90	327.22
Treatment	509.36	343.05	339.15	511.39	422.83	561.40	462.20
Examination	26.81	122.73	88.37	166.40	235.00	121.33	154.81
Total	820.50	825.64	756.67	1257.04	1156.95	1200.30	1121.37

9.4.2 Identification of Influencing Factors

Apart from measuring the productivity and presenting the development over time, it is of interest to include an analysis of the determining factors that could be linked to the result. In order to identify these factors we have performed a regression analysis for each productivity measure used in the study. The factors that are supposed to influence productivity are presented below. The expected signs (+/-) for a positive or negative influence on the productivity are presented in brackets, when appropriate:

- Time of establishing the hospital
- Grade of hospitals (-)

- Service patterns of the hospitals
- Number of hospital beds (+)
- Share of government budget in total revenues (+)
- User fees (-)
- Income from drugs (-)
- Doctor/ /hospital bed (-)
- Share of GHI fund in total hospital revenues (-)
- Share of LHI fund in total hospital revenues (-)
- Types of bonus methods (+)
- Personnel policy (+)
- Pricing policy (+)
- Types of health insurance schemes
- Responsibility system (+)

The signs could of course be questioned and depend on a great many circumstances and institutional conditions. However, the international experiences of that share of insurance fund (GHI and LHI) in total hospital incomes is likely to reduce high productivity incentives. Also the number of doctors and the level of hospitals could have an impact. Personnel, pricing and bonus policies could, if inappropriately designed, have an opposite effect. The size of hospitals, here measured by the number of beds, shows whether there are economies of scale or not.

Table 9.15 to 9.18 report the results of regression models, taking the unit cost of hospital services and DEA scores as dependent variables.

Nine of fifteen independent variables were statistically significant to the unit cost of hospital services in Zibo, including the pricing policy, the number of hospital beds, the share of the government budget in total hospital revenues, the bonus system, and the share of drug income in total revenues (table 5.15). Health insurance schemes were not included in significant factors. It was found that: 1) Pricing policy had a positive relationship with the unit cost of hospital services. This means that the later the adjustment of fee schedules, the greater the unit cost. 2) The number of hospital beds had a positive relationship with the unit cost, implying that an expansion of hospital scale had a significant effect on unit cost. 3) An increase of the government budget in total hospital revenues would have positive effects on the unit cost. 4) The introduction of the bonus system had resulted in an increase in the unit cost. 5) The proportion of drug income in total revenues had a close relationship with an increase in unit cost. This means that an increase in unit cost partially resulted from an increase in the proportion of drug incomes.

Table 9.15 Result of Regression Analysis in Zibo

Dependent Variable: Unit Cost of Outpatient Services

Independent variables	Coefficient	P –value
Time of establishing the hospital	-15.278930	(*)0.0667
Grade of hospitals	-26.529286	(*)0.1713
Service patterns of the hospitals	24.479949	(*)0.0115
Number of hospital beds	0.072220	(*)0.2829
Share of government budget in total revenues	20.193896	0.5804
User fees	126.435274	(*)0.0352
Income from drugs	155.586752	(*)0.0124
Doctor/ /hospital bed	-11.503944	0.6928
Share of GHI fund in total hospital revenues	18.372951	0.6102
Share of LHI fund in total hospital revenues	-12.885832	0.7838
Types of bonus methods	-1.895513	0.7127
Personnel policy	-19.759258	(*)0.2020
Pricing policy	24.548885	(*)0.0041
Types of health insurance schemes	10.949845	0.3819
Responsibility system	7.210039	0.6945

(*) Significant difference at ?=0.3

As shown in table 9.16, in Nantong only two variables were identified as being significant in influencing the unit cost of hospital services: the time the hospitals were established, and the introduction of the responsibility system. The responsibility system had a negative effect on the control of unit cost.

Table 9.16 Result of Regression Analysis in Nantong

Dependent Variable: Unit Cost of Outpatient Services

Independent variables	Coefficient	P –value
Time of establishing the hospital	0.859476	(*)0.0046
Grade of hospitals	399.954550	0.6098
Service patterns of the hospitals	223.902642	0.6341
Number of hospital beds	1.223764	0.5656
Share of government budget in total revenues	44.901045	0.9829
User fees	-386.948424	0.5552
Income from drugs	16.920514	0.5495
Doctor/ /hospital bed	303.266815	0.7435
Share of GHI fund in total hospital revenues	-82.835184	0.8845
Share of LHI fund in total hospital revenues	-243.614235	0.6266
Types of bonus methods	26.091068	0.8435
Personnel policy	-64.569823	0.8659
Pricing policy	153.911356	0.7590
Types of health insurance schemes	-47.991335	0.9485
Responsibility system	757.512280	(*)0.1997

(*) Significant difference at ?=0.3

In regression models with DEA scores as dependent variables, eight independent variables in Zibo and six independent variables in Nantong were selected at 0.3 significant level.

In Zibo, the most important factors influencing DEA scores were the number of hospital beds, the time of adjusting fee schedules, the share of drug income in total hospital revenues, the share of the government health insurance fund in total user charges, and the introduction of

the bonus system. The implications of independent variables for dependent variables were as follows: 1) an increase in the number of hospitals beds could improve the internal efficiency of hospital resources usage; 2) an adjustment of fee schedules could not improve hospital efficiency performance; 3) an increase in the share of drug incomes would negatively affect the efficiency of hospital service provision; 4) an increase in the share of the government health insurance fund could reduce hospital service efficiency; and 5) the introduction of changes in bonus methods could improve the internal efficiency of hospital services.

In Nantong, the most significant factors included fee schedule adjustment, the number of hospital beds, the share of the labour health insurance fund in total user fees, and the share of the government budget in total hospital revenues. The explanations were as follows: 1) fee schedule adjustment did not improve the relative efficiency of hospitals; 2) an increase in hospital beds benefitted hospitals in terms of improving outputs; 3) an increase in the share of the labour health insurance fund could improve the efficiency of hospitals (on this point Nantong's findings differed from Zibo's); and 4) an increase in the share of the government budget would reduce hospital efficiency. Even though the variable of urban health insurance reform was not significant in the model at the selection level, the value of its coefficient was great. (See table 9.18).

Table 9.17 Result of Regression Analysis in Zibo

Dependent variable: DEA scores

Independent variables	Coefficient	P-value
Time of establishing the hospital	1.881337	0.3424
Grade of hospitals	-3.289603	0.4934
Service patterns of the hospitals	0.603376	0.7949
Number of hospital beds	0.029082	(*)0.0759
Share of government budget in total revenues	-13.931520	(*)0.1304
User fees	21.695421	(*)0.1444
Income from drugs	-1.354755	0.9277
Doctor/ /hospital bed	-3.220364	0.6554
Share of GHI fund in total hospital revenues	-19.152391	(*)0.0342
Share of LHI fund in total hospital revenues	2.607809	0.8207
Types of bonus methods	0.995289	0.4379
Personnel policy	10.508927	(*)0.0062
Pricing policy	-3.600317	(*)0.0723
Types of health insurance schemes	-3.532891	(*)0.2644
Responsibility system	-3.194841	0.4582

(*) Significant difference at ?=0.3

Table 9.18 Result of Regression Analysis in Nantong
Dependent Variable: DEA Scores

Independent variables	Coefficient	P-value
Time of establishing the hospital	0.011903	(*)0.0002
Grade of hospitals	-8.511787	0.3004
Service patterns of the hospitals	13.819231	(*)0.0065
Number of hospital beds	0.068407	(*)0.0031
Share of government budget in total revenues	-46.829936	(*)0.0363
User fees	4.081842	0.5515
Income from drugs	0.163373	0.5802
Doctor/ /hospital bed	-9.812024	0.3130
Share of GHI fund in total hospital revenues	1.494507	0.8020
Share of LHI fund in total hospital revenues	6.842379	(*)0.1940
Types of bonus methods	-1.154533	0.4047
Personnel policy	2.996313	0.4545
Pricing policy	-24.678835	(*)0.0001
Types of health insurance schemes	7.310599	0.3479
Responsibility system	4.902972	0.4249

(*) Significant difference at ?=0.3

There were four variables which significantly influenced both unit cost and DEA scores in Zibo: the number of hospital beds, the share of user fees in total hospital revenues, the personnel policy and the pricing policy. If these variables were consistent in explaining the changes in unit cost and DEA scores, they should have opposite directional signs. Two variables, personnel policy and pricing policy, were consistent in explaining unit cost and DEA scores. This means that the implementation of personnel reform in the hospital sector could reduce medical costs and increase DEA scores, and that price adjustment was not effective in controlling costs and improving hospital efficiency. Whilst the number of hospital beds and the share of user fees could result in an increase in unit cost, they could also improve hospital efficiency. The explanation for this may be that in calculating DEA scores, hospital revenue was one indicator of outputs. The number of hospital beds and the share of user fees in total hospital revenues could compel hospitals to provide more services to generate additional revenue.

In Nantong, only one variable, the time the hospital was established was significant with regard to both the unit cost and the DEA scores. In both Zibo and Nantong, three variables, the number of hospital beds, the share of the government budget in total hospital revenues, and the pricing policy, significantly influenced DEA scores. They had the same signs in determining efficiency in both cities.

9.5 Conclusions and Discussions

9.5.1 Health Sector Reform and Hospital Managerial Actions

The stated aims of health sector reform were to improve the efficiency of service provision, to contain the escalation of medical costs, to improve access to health care, and to improve service quality. Since 80% of health resources were allocated to hospital sector, the performance of hospitals would determine whether or not those aims could be achieved.

The top priority of hospitals is to maintain a financial balance. This is also the precondition for hospitals to remain in operation. Therefore, any actions of hospitals in response to

changes in their environment, including financial polices, would ultimately be directed towards the realisation of financial viability.

Since the early 1980s, hospital financial reform has been central to all reform strategies in the health sector. When the government decided to allow the market to play a more important role in the financing of hospital services, it marked the beginning of hospitals having to generate revenues largely from user fees and drug mark-ups. Due to the fact that the mechanisms of the planned economy had dominated hospital procedures for a long time, in attempting to generate surplus revenue, hospital administrators and managers lacked the knowledge and skills to plan cost-effective, efficient organisational strategies.

When the government budget was allocated according to the numbers of hospital staff and beds, hospitals simply recruited more health workers and equipped more hospital beds. When the government set high prices for hi-tech services, hospitals purchased more high technology equipment. When the government could not adjust the fee schedules in line with inflation, hospitals distorted the prices of medical services. When the government fixed the mark-up rates for drugs, hospitals planned to use new and expensive drugs. The rationale for other hospital actions, such as the implementations of the bonus and responsibility systems, also revolved around the primary objective of hospitals, that of maintaining a financial balance. Because the hospital sector was not effectively regulated and the financial responsibility of government was not clearly defined, it was hard to monitor and regulate the hospital actions mentioned above. In recent years it has been generally agreed that hospital financial reform is the root cause of changes in the hospital sector [9,10].

It is hoped that urban health insurance reform, by changing the payment system and contractual relationship, could have positive effects on the efficiency of hospital resource usage [11,12,13]. However, it should be noted that, in general, only a small proportion of health care users in hospitals are covered by health insurance schemes. Therefore, the relationship between urban health insurance reform and the efficient performance of hospitals is not clear at the macro level. This will be examined the sections below.

9.5.2 Hospital Productivity

This study revealed that hospital productivity in both Zibo and Nantong has decreased over the past decade. Each doctor provided fewer outpatient and inpatient services and the bed occupancy rates of inpatients services decreased.

The findings are consistent with results in other studies. Outpatient visits served by each health worker declined from 575 in 1992 to 504 in 1997, according to the National Health Service Survey [14]. It was reported that the occupancy rates of hospital beds decreased from 85% in 1994 to 69% in 1997 [15].

The number of outpatient visits and hospital bed-days provided by each doctor are determined by two factors: changes in total quantities of outpatient visits and hospital bed-days; and changes in numbers of doctors. If the increase in demand for hospital services is less than the increase in number of doctors, outpatient visits and hospital bed-days per doctor would certainly decline.

In recent years, the demand for hospital services did not increase proportionally in line with increases in household incomes and population rates. In general, in the 1990s hospital care utilisation decreased. The reasons identified include self-treatment and the financial hardship of the users, and the quality of health care [14,16,17]. In Zibo and Nantong, the annual

increase rate of the demand for hospital services was less than the natural growth rate of the population in the 1990s. In the meantime, increases in hospital staff rates remained high, which resulted in a reduction in the productivity of hospital provision.

Three reasons could account for the rapid increase in the number of hospital staff. Firstly, the expansion of the labour force in the hospital sector was mainly directed by government policy on medical student recruitment. The Chinese government has tried to address the problem of the shortage in health resources since 1980 through a number of measures. These include strengthening the capability of the formal medical education sector with regards to training more students, permitting the private sector to run medical educational and training activities, and reintroducing private practice in the health sector. In 1986, 390,000 medical students graduated from 130 medical universities. In 1995, the number of medical educational institutions and graduated medical students had increased to 177 and 805,400, respectively [18]. Secondly, government budgeting policy strongly encouraged public hospitals to recruit more health workers. Before 1998, government funding allocated to public hospitals was partially determined by the number of hospital workers: more health workers implied higher government subsidies. Lastly, public hospitals lacked autonomy in formulating personnel policy. At present in China, public hospitals have very limited autonomy with regard to employing hospital staff, even though central government has called for adjustments to hospital staff recruitment in accordance with the changes in demand which commenced in 1996. Usually, public hospital managers cannot refuse applicants for hospital employment if those people are introduced by government authorities. Meanwhile, hospitals also experience difficulty in dismissing employees, even if they are surplus to requirements.

Recently, a new 'Doctor Law' was implemented to control the number of doctors practising medicine. All doctors, except very elderly ones and new medical graduates, are now required to pass a qualifying examination before they are awarded a license. However, one health administrator interviewed thought that the current examination was too easy to achieve its intended purpose. Therefore, the problem of over-staffing in many hospitals in the two cities was reported in several focus group discussions and in-depth interviews.

9.5.3 Unit Costs

In Zibo and Nantong, unit costs per outpatient visit and bed-day increased rapidly from 1990 to 1999. In terms of the annual increase rate of unit costs, hospitals in Zibo and Nantong experienced different patterns. The annual increase rates of unit costs of hospitals in Zibo rose continuously during different time periods. In Nantong, the annual increase rates of unit costs declined from 1995.

A country-wide hospital survey revealed that unit costs underwent a similar increase in the 1990s [19]. In another study, conducted by Xinzhu Liu, about 30% of costs were not necessary for the treatment of the diseases [20].

Because the calculations of unit costs have been adjusted with case mix and quality of health care in this study, possible explanations for the rapid rise in unit costs could include the following: the increase in prices of inputs, including staff salaries and medical materials and drugs; the use of high technology equipment; and the over-supply of health workers, hospital beds and treatment.

Staff salaries and the prices of medical supplies are not controlled by hospitals. In addition, to a large extent, the prices of drugs are determined by the pharmaceutical producers and distributors. The annual increase rates of salaries and medical supplies were 10.8% and 7%,

respectively, between 1990 and 1999 [21,22]. The price factor could not fully explain the dramatic increase in the unit prices of hospital services. Other explanations such as over-prescription of drugs, over-use of hi-tech equipment, and a surplus of hospital resources would be crucial in determining levels of unit costs.

Revenues generated from drugs have become one of the major sources of finance for hospital operations since the mid-1980s. In terms of unit cost, more than 50% of expenses were allocated to drugs in the two cities. Specifically, the fixed mark-up rate of drugs induces hospitals to use more expensive drugs. Even though policy- makers and regulators paid great attention to the control of drug costs, the effects on cost containment were not satisfied during the study period. Findings from key informant interviews also confirmed that the close link between drug prescription and hospital revenues had distorted the drug prescription behaviour. A number of research reports document the fact that new and expensive drugs are usually the first choice by some doctors in hospitals [23,24].

Over use of high technologies certainly resulted in a rise in medical costs. Because hospitals could benefit from providing hi-tech equipment services in accordance with the pricing policy before 1995, all secondary and tertiary hospitals in Zibo and Nantong purchased CT scanners and other kinds of high technology equipment. Use of these technologies increased the prices of medical services, and, moreover, hospitals would try to utilise them as much as possible to generate revenue. As a result, incidences of unnecessary service provision using these technologies would increase. In 1995, prices of hi-tech equipment services were reduced in the two cities. However, by that time a great deal of high-tech equipment had been purchased by most of the hospitals.

The escalation of unit costs in hospitals was also caused by the rapid expansion of other types of health resources, such as hospital staff. The explanations are similar to those provided in the hospital productivity analysis.

The slower increase rates of unit costs in Nantong in comparison to those in Zibo could be partially due to the effects of changes in payment methods. From the mid-1990s, the Nantong government began to use new payment methods, replacing the fee-for-service payment system. From early 1997 especially, fixed charges per outpatient visit and per bed-day were used to pay hospitals in the urban health insurance scheme. In this arrangement, medical expenses above the fixed charges would be born by the contract hospitals. The idea was to encourage hospitals to try to contain unit costs. In the meantime, fee-for-service was still used in Zibo in GHI and LHI schemes, which obviously would not have positive effects on the containment of unit costs.

9.5.4 Hospital Efficiency

Relative efficiency (DEA scores) generally decreased in Zibo and Nantong in the 1990s. It is worth noting that decrease rates in the two cities during the different time periods vary. Prior to 1997, the decrease rate of DEA scores in Nantong was higher than that in Zibo. After 1997, the decrease rate of DEA scores in Nantong was much lower than that in Zibo. In addition, different types of hospitals in Zibo and Nantong had different variations in DEA scores. Enterprise and Chinese traditional hospitals experienced a greater reduction in DEA scores than the general hospitals in Zibo, and DEA scores increased in municipal and enterprise hospitals after 1997 in Nantong.

Studies measuring the efficiency of hospital services using the DEA method are very limited. A study of 30 hospitals using the DEA measurement reported similar results and findings to this one [25].

DEA scores are determined by the combination of inputs and outputs. If increases in outputs (outpatient visits, bed-days, number of hospital admissions, and number of surgical operations) are less than increases of inputs (hospital staff, hospital beds, expenditures, and values of capitals), DEA scores would consequently decline. With regard to productivity analysis, it has been clear that in both Zibo and Nantong utilisation of hospital services was limited, and sample hospitals experienced rapid expansion in their scales. This is the principal reason for the reduction in DEA scores in the two cities.

Reasons for increase in hospital staff have been discussed in the productivity section. Explanations for the increase in hospital beds could be 1) the number of hospital beds was one of the criteria determining the level of government funding to public hospitals, which provided incentives for hospitals to equip more beds. This implied that the equipping of hospital beds was not linked to an increase in hospitalisation demands; and 2) the government lacked health resource planning when it tried to address the shortage of hospital beds in early 1980. Meanwhile, the shortage of hospital beds had been effectively solved through the rapid increase in hospital beds. However, a proportion of hospital beds, especially in secondary and tertiary hospitals, was not efficiently used.

The relatively high increase rate of values of hospital capitals could be one of the most important factors for the reduction of DEA scores. Similarly, the rapid increase in values of capitals in hospitals could have three explanations. Firstly, just as there were shortages of health workers and hospital beds during the period of the planned economy, the availability and growth of capital inputs in hospitals were also very limited in the same period. When China commenced economic reform in the early 1980s, the intensive input of capital in all sectors, including hospitals, was one of its characteristics. Because hospital construction and medical technologies consume a greater proportion of resources than most other activities, values of hospital capital would consequently drastically increase. Secondly, the pricing structure stimulated hospitals to purchase high value equipment. Before 1995, prices of hi-tech equipment services were set far higher than their costs in the two cities. Hence, with these fee schedules hospitals could make good benefits by providing hi-tech equipment services. This is why, understandably, the increase rates of values of high technologies slowed after the price structures were adjusted. Lastly, the equipment of high technologies is regarded as one of the important instruments in competition amongst hospitals. Usually, the number of high technologies is regarded as a sign of service quality, reputation, and effectiveness of treatment by both health suppliers and users.

The reduction in the utilisation of services in enterprise and Chinese traditional hospitals in Zibo may be the major reason for their greater decline in DEA scores in relation to other types of hospitals. Even if most of the enterprise hospitals provided services to all users within and outside enterprises, the utilisation of those hospitals was limited because users, especially out-of-pocket patients, were likely to seek medical care in government-owned general hospitals. Similarly, Chinese traditional hospitals faced a continual decline in utilisation. Young health care users would not seek health care in these hospitals.

In Nantong, the increase in DEA scores in municipal and enterprise hospitals after 1997 could be explained by the changes in urban health insurance schemes. The new urban health insurance scheme, pooling GHI and LHI together, made it possible for insurance

administrators to regulate the behaviour of contract hospitals. Since cost containment is central to the new urban health insurance scheme, hospitals tried to control expenditure in order to secure insurance contracts. Because municipal and enterprise hospitals were the major health care providers to insured users, they were more heavily influenced with regard to implementing cost-saving policies.

9.5.5 Determinants of Hospital Efficiency

Between 1995 and 1999, the increase rates of medical expenses per case for appendicitis and birth delivery were much higher in Zibo than in Nantong. In Zibo, medical expenses per appendicitis case covered by GHI and LHI schemes were higher than those paid out-of-pocket in terms of the absolute amount of payment and the increase rates of expenditures. In the meantime, the increase rate of health expenditure for birth delivery was higher for out-of-pocket users than for GHI and LHI users. In Nantong, the increase rates of health expenditure for both appendicitis and birth delivery cases showed contrary trends to those in Zibo. The expense per case of out-of-pocket users increased faster than that of insured users.

A number of studies show that the traditional GHI and LHI schemes have resulted in wastes of health resources because there was a lack of mechanisms for cost containment on both the supply and demand sides [26,27,28]. In this study, because it is assumed that, with the exception of differences in health insurance status, other factors of the cases are comparable, the difference in medical expenses and in increase rates in expenditure would be caused by the effects of health insurance schemes.

In Zibo, the fee-for-service payment system and low co-payment arrangements for the insured could not effectively control cost escalation. This could explain the substantial variation in medical expenses of appendicitis cases between user groups with different insurance status. With regard to birth delivery services, in 1995 the enterprises and government institutions in Zibo set a ceiling for covering expenses. This resulted in lower increase rates of expenses for birth delivery among users covered by the GHI or LHI schemes than those experienced by out-of-pocket users.

The new urban health insurance scheme implemented in Nantong increased co-payment rates. It also strengthened regulations governing the use of the health insurance fund by changing the payment system and administrative procedures with regard to contract hospitals. These actions may have positive impacts on cost containment. Interviews with health insurance administrators confirmed that following the introduction of the new health insurance scheme, contract hospitals were more cautious about charging the insured, and, furthermore, insured patients were more aware of precisely what amounts were spent on hospital services.

Difference between Zibo and Nantong in medical expenses for treating appendicitis largely resulted from the differences in drug expenses and lengths of stay. Drugs accounted for a larger proportion of expenses and the length of stay was much longer for hospitalised patients in Zibo than for those in Nantong. This could be explained by the fact that Nantong introduced a new fixed charge payment method per hospital bed-day and regulated the length of stay for inpatient care. The fixed charge encouraged hospitals to try to reduce unit expenses. Together with the regulated length of stay, the increase rate of medical expenses consequently declined.

The effects of changes in health insurance schemes on cost containment may also be examined by analysing the variation between Zibo and Nantong in medical expenses of out-of-pocket patients with appendicitis. It is notable that in 1999 the medical expense per case of

appendicitis for out-of-pocket patients was much higher in Zibo than in Nantong. One of the explanations could be that hospital behaviour in charging patients in Nantong had changed with the implementation of the new urban health insurance scheme. If this change is radical and permanent, not only the insured but also the out-of-pocket patients would benefit.

Besides the effects of the urban health insurance reform measures, other factors including pricing policy, the share of drug incomes in total hospital incomes, the bonus system, and the share of government budget in total hospital revenues were identified as influencing the unit cost and DEA scores. Pricing policy partly determines efficiency in that it can distort hospital charging behaviour. This distortion is likely to worsen if fee schedules are not properly adjusted. An increase in the share of drugs in total incomes leads to an increase in unit cost and a reduction in efficiency.

9.6 Policy Recommendations

The success of the Chinese health care system before 1980 is closely associated with health financing policy. Strong intervention from government assured the accessibility and affordability of health care for most of the population. Rural cooperative medical systems and urban government and labour health insurance schemes were largely supported by the low-cost health care system. The referral system, primary health care development, investment in public health programmes, and the limitation of high technology investment were the major determinants of low level health care costs.

Economic reform measures initiated in the early 1980s basically changed the whole economic structure and people's lives. The introduction of the competitive mechanism is one of the key reform issues. Most goods and services produced are determined by market forces, and no longer by the government. This new kind of mechanism greatly improved economic productivity and increased economic freedom. In a very short period of time, the Chinese economy progressed enormously.

Health care development has bene fitted from economic reform: more hospitals were constructed with the newly-generated wealth; the health workforce was strengthened due to the expansion of medical education; hospitals were equipped with better and higher technologies, absorbing a large proportion of investment in this area; and newer and more drugs were used in hospitals with the rapid increase of domestic and foreign pharmaceutical products. In addition, hospitals were encouraged to provide more services because of changes in the incentive structure and the introduction of a competitive market in the hospital sector.

However, market forces can produce negative effects in the health sector if the government cannot effectively regulate the market and merely intends to the use market mechanism to address all the problems in health care. Hospital financing reform, as a result of economic reform, has caused a series of problems in the health sector, including cost escalation, the inefficient use of health resources, a distortion in pricing behaviour, and inequitable access to health care. These problems and their causes were concluded and discussed in this study; it is hoped that the following recommendations will contribute to their correction.

9.6.1 Improving Hospital Financing Policies

The role of government in financing hospital services should be clearly defined. It seems impossible for both the Zibo and Nantong governments to resume a leading role in financing public hospitals for various reasons. However, with its limited budget, each government should clearly define services and institutions to be subsidised. Priorities for subsidies from

public funding could be cost-effective medical services and lower levels of hospital. The current method of allocating public funding using indicators of the numbers of hospital beds and hospital staff should be ended. Governments in the two cities could consider classifying public hospitals into two types, following the guidelines issued by the state government. The first type is not-for-profit hospitals which provide services to low-income patients and could be subsidised with a greater proportion of the government budget. The second type is for-profit hospitals that mainly generate revenues through user charges.

In addition, the municipal governments could also consider subsidising users instead of providers. For example, the government could shift the budgets from hospitals to the urban health insurance fund. This amount of fund could specifically be used for the poor and for other vulnerable population groups, for instance the unemployed and laid-off workers, to cover their premiums, co-payment, and deductibles.

Fee schedules should be properly adjusted. The new pricing policy issued by the central government in middle of 2000 gives local governments more autonomy in setting and adjusting the prices of medical services. The Departments of Price Administration and Health in the two cities could use this new pricing policy to correct problems in hospital price structures. The focus of adjusting prices could be on hi-tech equipment services and drugs. Prices of hi-tech equipment services should be drastically reduced to act as a disincentive to the purchase and over-use of such equipment. In the meantime, mark-ups of drugs for hospitals should be reduced to disconnect the link between hospital revenues and drug selling.

Incomes from drugs should be effectively reduced. The municipal governments could coordinate the work of three departments, the departments of Health, Drug Administration, and Price Administration, in order to control health expenditure on drugs. The measures could include 1) devising an essential drug list for use in drug prescription; 2) splitting the beneficial link between drug prescription and hospital revenues and making the sale of drugs independent from revenue generation; 3) adjusting the mark-up rates in hospitals. For example, the mark-up rate could be reduced from 15% to 5%; 4) setting the prices of drugs according to their costs. Charging prices for a drug which are much higher than their costs should not be permitted.

9.6.2 Enforcing Health Resource Planning and Developing the Community Health Care System

Regional health resource planning should be continuously implemented. Zibo has rich experiences in designing and implementing regional health resource planning. However, many activities defined in the plan were not really implemented. For example, the hospital workforce was not reduced and duplicated health facilities were not combined or closed. If the regional health plan is finally to be put into practice, the Zibo municipal government needs to coordinate the work of relevant agencies, including the departments of Planning, Health, and Finance. The Nantong municipal government should also consider designing and implementing health resource planning. To improve the efficiency of service provision, three elements should be well planned: the health workforce, hospital beds, and high-tech equipment. Concrete measures would include: 1) some hospitals with very low levels of efficiency in service provision could be closed or integrated into other health facilities; 2) in municipal cities, technologically advanced equipment and specialised medical services could be concentrated in one or two hospitals to rationalise the distribution of health resources; and 3) the Chinese traditional hospitals could adjust the current service patterns towards providing

health care to the elderly and those people who could be well treated with Chinese traditional medicine.

Community health care system should be strengthened. It has been proven that the development of the community health care system is one of the most effective ways of using health resources and serving local communities. The Zibo and Nantong municipal governments could support the development of community health care by 1) directly funding the operations of community health units; 2) redistributing health resources, including health workers and medical equipment, from high level health facilities to primary health units; and 3) training community health workers to improve service quality; 4) setting the prices of community health care at a lower level, and reducing co-payment and deductibles for the insured to attract more health users; and 5) establishing a formal referral system. By doing this, community health care could be effectively utilised and most of the minor health problems could be addressed with low cost treatments. Since there are various administrative and co-ordinating issues in establishing a referral system, the government should take the leading role.

9.6.3 Improving Urban Health Insurance Reform

The Zibo municipal government could commence the design and implementation of a new urban health insurance scheme, and in Nantong, the health insurance scheme could be further improved. Even though the Zibo government planned to implement the new urban health insurance scheme three years ago, it was still not running effectively at the time of this study. The establishment of a new urban health insurance scheme would strengthen purchasing power by pooling the fund across the city, increasing the ability of insurers to control the negative behaviour of hospitals. The new urban health insurance scheme has been in a process of implementation for years. However, during this time the social and economic contexts have changed, and continue to do so. From the view of cost containment, if not general overall efficacy, the design of the scheme should be updated.

The fee-for-service payment system could be replaced with other kinds of payment methods. To improve the efficiency of hospital service provision, it is necessary to try alternative payment systems, especially in Zibo where the fee-for-service payment method still dominates in urban health insurance schemes. In Nantong, besides the fixed charge payment method, other payment methods including capitation, global budget, and DRGs could be tried. These methods have demonstrated relative advantages over the fee-for-service methods in controlling hospital costs and improving the efficiency of hospital services.

A competition mechanism could be introduced in selecting contract hospitals. First, criteria for selecting hospitals could be developed. Major components should include indicators of quality, cost, and efficiency of performance. Second, an evaluation panel should be set up to assess the performance of hospitals. This panel should work regularly at municipal level and submit reports to the fund management agency. Whether or not hospitals are contracted should depend on their relative performance. Third, appropriate incentive mechanisms should be designed for contract hospitals. Highly efficient hospitals could be rewarded with the continued contracts, and those with lower levels of efficiency could be removed from the contract list or financially punished. Lastly, the fund kept in the personal health account could be used in any hospital. This would motivate hospitals to improve efficiency to attract more insured patients.

An information system for managing the health insurance schemes could be established. The Nantong Centre for Health Insurance Management has set up a relatively good information system for urban health insurance administration. In Zibo this kind of information system was not established. Since information is very important for a successful health insurance managerial system, it is strongly recommended that the Zibo municipal government construct one. Indicators included in the information system could be unit expenses charged by contract hospitals, quality of services, drugs and services covered by the insurance scheme, and a general assessment of hospitals by the panel. These indicators could be disseminated to the general public through newspapers, TV programmes, and other media sources.

9.6.4 Regulating Competition between Hospitals

The municipal government should be very clear with regards to what should be regulated when a market mechanism is introduced into the health sector. Hospitals compete with each other in advertising their high technology equipment and unique specialties, and this information may mislead users seeking medical care. In order to correct such kinds of problems the government could 1) disseminate basic information on hospital performance to the general public. Users would be well informed about quality, prices, and specialised hospital services and have the basis upon which to make an informed choice; 2) issue and enforce regulations regarding the advertising behaviour of hospitals. Hospitals that advertise inappropriate information should be heavily punished; 3) regulate investments in advanced technologies. Whether or not a hospital should be outfitted with a piece of high technology equipment should be determined after evaluation and should require government persmission; and 4) encourage multi-ownership hospitals including private hospitals to enter the medical market. This would enhance competition.

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Chapter 10

STUDY FINDINGS AND POLICY CONCLUSIONS

10.1 LINKING RESEARCH TO MANAGEMENT OF HEALTH SYSTEM CHANGE

The study was designed in the late 1990s in consultation with the MOH. The Government had announced it intended to address the problems with urban health services, as a high priority. Many cities had introduced health reforms. There had been few systematic assessments of the impact of economic and institutional change and various reform initiatives on the performance of urban health services. The MOH wanted to bridge this knowledge gap.

The research team had to address two challenges to make the study useful to policy-makers and health service managers. It had to provide well-documented and timely evidence in a rapidly changing situation. It also had to develop understandings relevant to a variety of urban settings. The team decided that detailed case studies were most likely to provide insights into the processes leading to poor health system performance. These studies would supply evidence that could be used in the formulation of reform and development strategies.

A three-year study in two cities is a small research effort compared to the size of China and the enormity of the changes taking place. It had to focus on the issues potential users of the findings considered important. The team worked closely with policy-makers and local health managers throughout the project, to ensure their needs were taken into account.

10.1.1 Study design

The research concept was developed in response to a request from Cai Renhua, then Director of the Department of Health Policy and Law of the Ministry of Health. He contributed to the development of the study after becoming the Director of the Chinese Health Economics Institute. He presented a review of urban health reforms to a research development workshop at the end of the project's inception phase of the project. This review, which identified priority research problems, informed the design of the case studies.

During the inception phase the research team prepared situation analyses of the study cities, based on existing data and key informant interviews. The research team asked officials from the city health departments and other relevant departments to review recent reforms and identify issues that concerned them. At the end of the inception phase the entire research team visited both cities and provincial health departments to discuss priorities for the detailed studies. An official from the Jiangsu Provincial Health Department subsequently participated in the design of the research instruments for the equity sub-study.

10.1.2 City workshops

The case study findings were compiled into city reports. These reports were presented to workshops in Zibo and Nantong attended by officials from health and other relevant departments. The workshop objectives were to correct errors, confusions and gaps in data and discuss the implications of the findings for health development strategies. The final research report incorporated suggestions from the city workshops. Health Department officials from each city presented a response to the study findings and proposals for follow up activities to the national workshop.

10.1.3 National workshop

The project culminated in a workshop in Beijing in December 2001. The objectives were to present the findings and policy implications to policy-makers and identify priorities for follow-up studies and experimentation. The participants included officials from the Ministries of Health, Labour and Social Security and Science and Technology and from the governments of the study cities, health system researchers and representatives of international agencies funding health-related activities in China. Three Indian researchers, involved in a similar study in that country also attended.

Prior to the workshop, the research team published the research findings in three issues of *Chinese Health Resources* and compiled a draft research report in English. Cai Renhua, Director of the Chinese Health Economics Institute, and Xiong Xianjun, Chief of the Medical Insurance Division of the Ministry of Labour and Social Security, prepared reviews of different aspects of urban health reform. The research team also reviewed Chinese and international experience with health system reform in the context of rapid economic and institutional change. The aim of these reviews was to situate the case studies in their broader context. The authors presented these papers to a one-day workshop at the IDS in October 2001. Two officials from Nantong participated in the workshop. The research team drew on these papers in identifying policy issues arising from the case studies.

The workshop was organised in three parts. During the first day the team briefed policy-makers and representatives of international agencies on the key findings and policy issues arising from the study. Officials from the study cities responded to the discussion and outlined plans for follow-up activities and Cai Renhua made concluding comments. The second day was a discussion of the draft research report. The comments were subsequently taken into account in producing the final draft. The third day was a discussion of follow-up studies and experiments and a review of the India study. The remainder of this chapter is a report on the first and third days. Section 10.2 summarises the findings; section 10.3 outlines policy issues arising from the study findings and section 10.4 presents suggestions for follow-up activities.

10.2 SUMMARY OF FINDINGS

10.2.1 Equity sub-study

Both cities are well advanced in the demographic and epidemiological transitions, with significant numbers of residents over 60 years of age. The top six causes of death are non-communicable diseases. Infections are the seventh cause of death and are still a major health problem. The elderly report higher than average levels of ill health and greater utilisation of health services. For example, government health insurance disbursed considerably more per pensioner than for other employees.

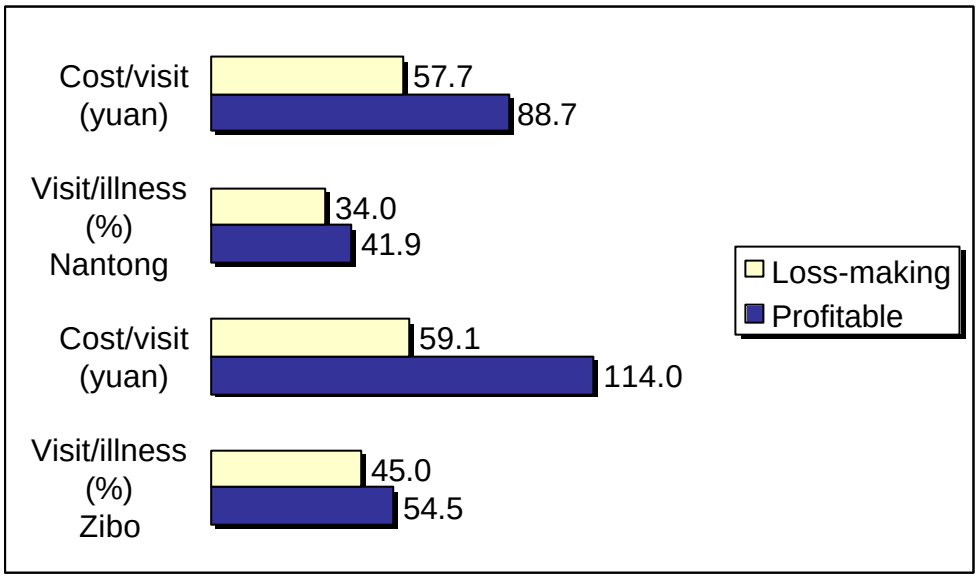
The poor reported higher rates of illness and a higher prevalence of chronic disease than the families of enterprise employees (table 10.1). Rural-urban migrants, who tend to be young and healthy, reported fewer health problems.

The study found that economic factors influence access to services. The employees of profitable enterprises, and their families, reported greater utilisation of health services that those of loss-making enterprises (figure 10.1).

Table 10.1 Two-week illness episodes and chronic disease prevalence amongst different social groups in the two cities

Category of household	Nantong		Zibo	
	2-week illness episodes %	Chronic disease prevalence %	2-week illness episodes %	Chronic disease prevalence %
Laid-off /unemployed	25.0	19.1	16.2	10.3
Employees	35.3	22.2	23.8	11.4
Poverty	37.4	44.1	33.2	33.9
Migrants	18.0	8.8	8.1	3.5

Figure 10.1 Use of health services by employees of profitable and loss-making enterprises in the study cities



Nantong is richer than Zibo. In 1998 Nantong's GDP was 19,500 rmb per capita; in 1997 Zibo's was 12,470 rmb. The study sample of elderly people had substantially higher incomes in Nantong. A larger proportion of Nantong's population have health insurance. 92% of the sample of Nantong elderly were insured compared with 39% of the Zibo sample. Almost half the sample of poor households were insured in Nantong and around a quarter were insured in Zibo.

An average outpatient visit cost much more in Nantong. This was largely because people used different facilities for routine health problems (figure 10.2). The following discussion is based on people's expressed preferences for facilities; the data on use followed a similar pattern. A high proportion of people in Nantong said they routinely use referral hospitals. The situation is different in Zibo, where many people use community health centres and clinics (public and private). Zibo has made considerable efforts to strengthen community health centres. Also many enterprises in that city run their own clinics.

Figure 10.2 Health facilities preferred by different population groups in the study cities

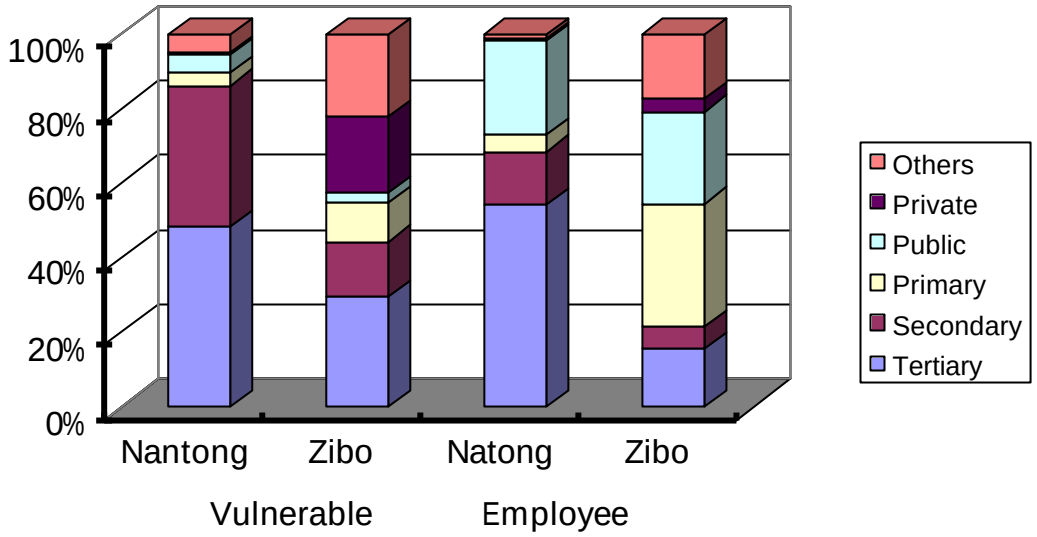
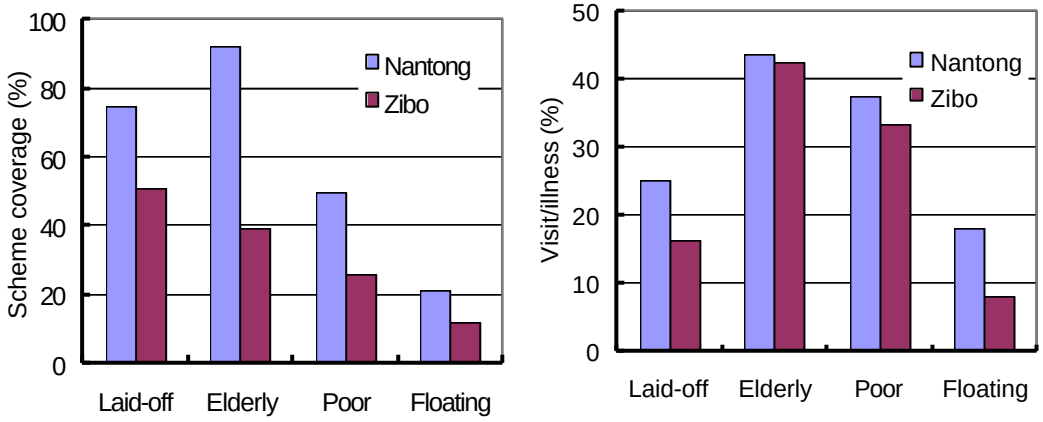


Figure 10.3 The coverage rate of health scheme and outpatient visit within two weeks amongst certain vulnerable groups in the study cities



The average cost per visit was lower in Zibo than Nantong at all kinds of facility except tertiary hospitals. This may reflect the fact that most people going to tertiary hospitals in Zibo were either quite ill or fully insured. The average cost of an outpatient visit to a referral hospital in Nantong was around 80 yuan, whilst visits to primary care hospitals cost under 50 yuan and clinics cost less than 40 yuan. This more than compensated for the lower incomes in the latter city.

The impact of these differences on access to health services was mixed. Many Nantong residents had health insurance, but those without insurance had to pay a great deal for health care. Fewer people were insured in Zibo, but the cost per visit was lower. The net result was that the poor and vulnerable reported similar levels of utilisation in the two cities (figure 3).

People with chronic disease bear a heavy financial burden, particularly if they are uninsured. Uninsured people with a chronic disease reported a median expenditure on health care of 6.1% of household income in Nantong and 17.2% in Zibo. A small number of people with chronic disease spent a great deal of money, indeed. People with labour insurance spent a

much smaller proportion of their income on health care. The following interviews illustrate the heavy burden of chronic disease on some families.

Ms. B is a 58-year-old living on her own and earning a small amount of money from casual work. She has several chronic health problems. "I won't go to see a doctor if my bronchitis or cervical problems are not very severe, and I usually do not visit the doctor when I get a cold."

Mr. Z is an elderly man with Parkinson's Disease. He has a pension of 490 yuan a month and he has partial health insurance. His wife does not have a job and they live off his pension. He pays around 200 yuan a month for health care.

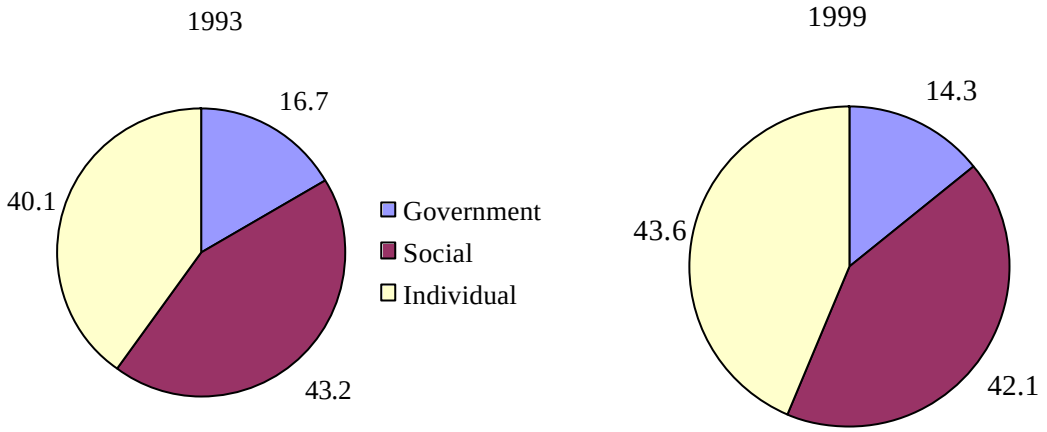
The study did not find major differences in access to health care between men and women. Women face a double burden from work and caring for their family. This burden will increase as the offspring of one-child families become responsible for four aged parents. Entitlement to health benefits is linked to employment. Any changes in the pattern of employment, as a result of enterprise reform, could affect access to services, if health insurance does not fully cover workers' spouses.

Nantong has hosted an experimental health insurance scheme since 1997. A survey of enterprises in 1999 found that those in the scheme had an older workforce and more permanent employees. Many of these enterprises had reduced their spending on health benefits on joining the scheme. Enterprises with a young workforce did not join. The scheme was experiencing serious financial problems in 1999. It subsequently decreased contribution rates and substantially reduced benefits for outpatient services. The government agreed to pay the health benefits of the small number of elderly with special health entitlements (certain war veterans, retired cadres and so forth), who had accounted for a substantial share of total disbursements by the scheme. Many more enterprises joined and the financial situation improved. However, it is too early to assess the financial viability of the scheme or the impact of the new benefits package on access to services.

Enterprise employees in Nantong reported spending 583 yuan per capita on health care (including out-of-pocket payments and insurance reimbursement). 78.3% of this expenditure was on outpatient services. The Nantong Health Insurance Scheme reserves more than 50% of the insurance funds as a social fund for inpatient care and six chronic diseases; patients pay for other outpatient services from their individual accounts and in cash. This puts a heavy financial burden on the families of people with chronic health problems.

Total health expenditure in Nantong was 3.3% of GDP in 1999, compared with the national average of 4.8% (figure 10.4). Government's share of health expenditure fell between 1993 and 1999, whilst the contribution of out-of-pocket expenditure rose. Government spending on public health services and prevention did not keep up with inflation. Nantong spent only 1.3 yuan per capita on EPS and 0.4 yuan per capita on MCH in 1999.

Figure 10.4, Sources of health financing in Nantong, 1993 and 1999



10.2.2 Efficiency sub-study

A number of hospital-related reforms have been initiated since the early 1980s The reforms implemented in the study cities followed central and provincial government guidelines. They concerned hospital reimbursement mechanisms, price controls, health insurance reform, payment methods and regional health planning.

Table 10.2 summarises changes in the cost of health care in the study hospitals in Zibo and Nantong during the 1990s. The growth in the number of health workers and hospital beds slowed towards the end of the decade, but the value of hospital equipment continued to rise rapidly. Government's share of hospital budgets had fallen to 5% in both cities by 1999.

Table 10.2, Growth in hospital costs in Zibo and Nantong 1990-9

	Zibo	**Nantong**
1990-5	Annual increases in number of health workers 4%, hospital beds 3.7%, value of equipment 14%. Government share of budgets decreased from 11% to 6%.	Annual increases in number of health workers 4.4%, hospital beds 3.0%, value of equipment 30.6%. Government share of budgets decreased from 7% to 6%.
1995-7	Annual increases in number of health workers 3.2%, hospital beds 5.8%, value of equipment 32%. Government share of budgets remained at 6%.	Annual increases in number of health workers 2.6%, hospital beds 4.3%, value of equipment 19.6%. Government share of budgets decreased from 6% to 5%.
1997-9	Annual increases in number of health workers 1.2%, hospital beds 1%, value of equipment 25%. Government share of budgets decreased from 6% to 5%.	Annual increases in number of health workers 2.3%, hospital beds 1.7%, value of equipment 17.1%. Government share of budgets remained at 5%.

Table 10.3 presents trends in productivity as indicated by the number of outpatient and emergency visits and bed-days per doctor, average length of stay (ALOS), income per health worker, bed turn-over rate and bed occupancy. Outpatient services have been adjusted for quality and case mix and bed-days have been adjusted for quality [bed-days (inpatient services) was also adjusted for case-mix]. Income has been adjusted for price. Activity per health worker and per bed fell, but income per health worker rose in both cities.

Table 10.3 Productivity in Zibo and Nantong in Selected Years

	1990	1995	1997	1999
Zibo				
Outpatient & emergency visits per doctor	1312	1166	1217	1218
Bed-days per doctor	690	574	525	486
ALOS (days)	17.4	15.6	14.2	12.4
Income per health worker (yuan)	17033	27150	34631	46011
Bed turn-over rate (times)	19	19	19	21
Bed occupancy rate (%)	81	73	66	63
Nantong				
Outpatient & emergency visits per doctor	1928	1150	1101	1099
Bed-days per doctor	806	561	532	513
ALOS (days)	20.2	17.3	15.9	15.0
Income per health worker (yuan)	19270	55443	72576	84214
Bed turn-over rate (times)	19	16	16	17
Bed occupancy rate (%)	95	71	64	64

Utilisation of outpatient and inpatient services declined during the 1990s due to the rapid increase of medical care costs, the reduction in coverage of work-related health insurance and increasing competition. Hospital managers highlighted this problem in interviews. They also said that the system of personnel management encouraged overstaffing prior to the mid-1990s.

Both cities introduced so-called “responsibility” systems, during the early 1990s, to improve the performance of clinical departments and individual health workers. This is an internally administrated mechanism designed and implemented by hospitals. At the beginning of each year, the hospital leaders and department heads negotiate a contract that defines responsibilities and incentives. The contract details vary between hospitals and cities. However, they usually refer to volume and complexity of services provided, income generation, and patient satisfaction.

The government appoints hospital directors and they appoint department heads, in turn. The study cities began to reform personnel policy in 1996, in accordance with national government guidelines. Health workers now work on contracts. However, hospital managers said they could not refuse to appoint people recommended by senior officials, and they found it very difficult to fire staff.

None of the study hospitals adhered strictly to the provincial fee schedule. Health officials said that delays in fee adjustments meant that hospitals had to find strategies to survive financially. Hospitals distorted the standard fee schedule by separating one fee into two or more items. They also generated revenue by encouraging people to use profitable services, such as expensive technologies and drugs.

Zibo and Nantong introduced salary bonuses in the mid-1980s. The kind of bonus changed over time. In Zibo every health worker was paid the same bonus between 1987 and 1990. From 1990 to 1994, hospitals paid bonuses on the basis of either volume of services provided or amount of revenue generated by health workers or departments. Since 1994, bonuses have been based on measures of performance that take revenue generation and quality and volume of services into account. In practice, however, revenue generation is the most influential factor. Nantong experienced similar changes.

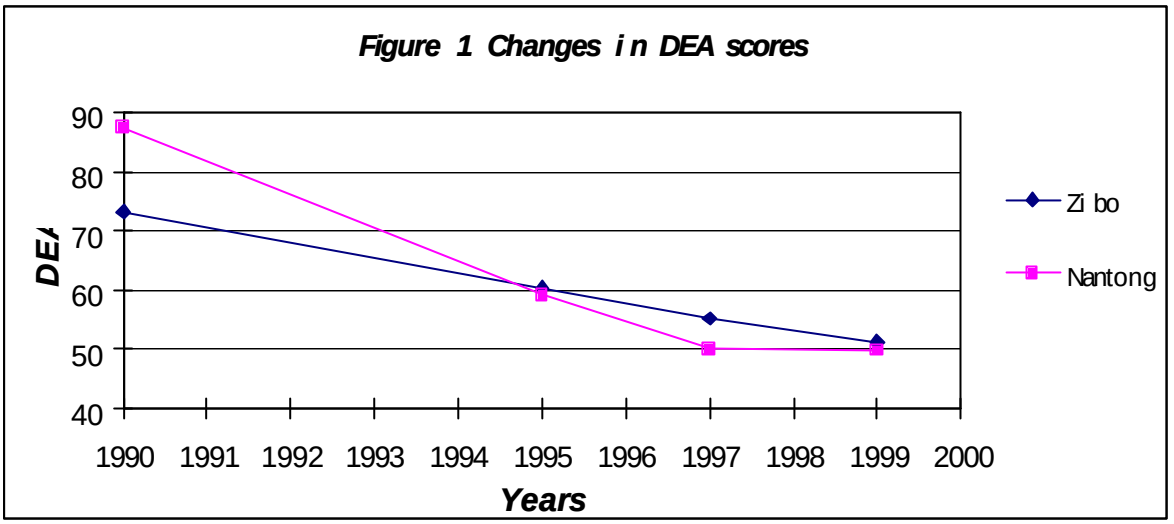
Hospital managers reported that the implementation of the bonus and responsibility systems was closely related to government hospital financing policy. Hospitals had to use this approach to encourage health workers to provide more services and generate more revenue. Heads of clinical departments indicated that even though quality is included in the responsibility system, the central part is still the net income from providing health services.

Table 10.4 Average Cost of care in hospitals in Zibo and Nantong, at constant, 1999, prices (Yuan)

	Average cost of an outpatient visit	Average cost of an inpatient day
Zibo		
1990	24.18	67.50
1995	40.13	129.69
1997	52.18	179.26
1999	66.74	257.05
Nantong		
1990	23.19	85.25
1995	59.07	205.99
1997	75.74	265.53
1999	94.50	341.89

The average cost of an outpatient visit and inpatient day increased rapidly in both cities between 1990 and 1999, even after correcting for inflation (table 3). During the 1990s utilisation of hospital services fell, while the average cost per visit rose sharply. This is partly due to improvements in the quality and variety of services available. It also reflects increased provision of costly diagnostic tests. Data Envelope Analysis (DEA) provides another measure of hospital efficiency. It shows that the proportion of hospitals with relatively efficient service provision declined between 1990 to 1999 (figure 1).

The study looked at changes in the cost of two common conditions, acute appendicitis and normal delivery. The cost of an average case of acute appendicitis doubled between 1995 and 1999 in Zibo. The rate of increase was higher for people with insurance than for those paying in cash. The rate of increase was slower in Nantong. Proportions of drug expenses in total expenditures decreased in all groups in Nantong and the length of stay in hospitals fell. The average cost of an institutional delivery increased by 94% between 1995 and 1999 in Zibo. The increase was greater for those paying in cash. The reason is that most enterprises had set a ceiling for reimbursement of delivery.



In order to explore the factors contributing to efficiency falls, we performed a regression analysis for each efficiency measure. The determinants identified included number of beds, share of government budget in total revenue, amount of user fees, and share of insurance payments in total revenue.

10.3 POLICY ISSUES ARISING FROM STUDY

This section presents outlines of policy issues arising from the study findings. The policy review papers in Section V discuss these issues in more detail.

10.3.1 Equity sub-study

The study found the following:

- the number of old-old is growing and they tend to have greater health needs
- traditional infectious diseases persist and new ones are threatening
- the uninsured use health services less and those with chronic illness bear a heavy burden
- the poor have more health problems but use fewer services
- the Nantong health insurance scheme is established and in financial balance, but it is too early to assess its financial sustainability or its impact on different social groups
- government health expenditure is low and is largely spent on salaries of hospital and health centre employees

The government faces the challenge of honouring existing health insurance entitlements whilst establishing a health finance system appropriate to new economic arrangements and changing health needs. This is a long-term process and it is important to define priority issues to be addressed. The following discussion is organised in terms of the five objectives listed in the matrix below.

Strengthen public health and preventive programmes

City governments have to ensure that public health and preventive programmes are appropriate to a changing situation. City Health Departments will have to give more attention to the needs of the elderly, migrants and poor and vulnerable groups and also to AIDS prevention. They also need to monitor for emergent problems with health and health-related behaviour of vulnerable groups. Local governments will have to allocate sufficient funds to meet these needs.

Agenda for urban health development and reform

Objectives for reform	Implications for demand side	Implications for supply side
a) Effective public health and preventive programmes	• Fund local government public health services adequately • Define the responsibilities of these services more clearly • Co-ordinate health activities funded from different sources with the ultimate aim of integration	• Reform public health services to address new needs • Monitor emerging needs linked to social change
b) Access to effective and affordable health services for the elderly	• Define basic health entitlement and redefine benefit packages to remove incentives for hospital-based care • Establish sources of finance (contributions, tax, transfer of assets) • Define relative responsibilities of local government and insurance funded services	• Restructure health system (facilities and service delivery) to give greater emphasis to primary care services • Strengthen facility management and improve efficiency • Introduce new payment mechanisms to reduce incentives for cost increases • Define roles of local government services in terms of prevention and community support systems
c) Health insurance scheme phased in	• Establish compulsory scheme and convince beneficiaries it is sustainable • Define geographic base of scheme • Define family members to be covered in contributory schemes • Define sources of finance for groups with special entitlements	
d) Health safety net for the poor and vulnerable	• Decide whether to include all urban residents in basic insurance • Define criteria for eligibility for government support • Growth of charitable foundations	• Strengthen programmes to meet needs of vulnerable groups • Make low cost services more available
e) Reduce urban-rural imbalances in public health	• Ensure adequate funding of urban local government health services • Fund basic rural public health • Begin discussions about insurance for migrants and rural workers	• Expand public health system and preventive programmes in cities • Low cost services for migrants • Strengthen rural public health services

Provide the elderly with access to effective and affordable health services

Many experimental health insurance schemes have experienced financial problems associated with the high cost of benefits for the elderly. Some have collapsed and others have remained solvent by raiding individual savings account. They all face rising costs as more beneficiaries reach 75 years of age.

It is difficult to convince young and healthy people to make substantial contributions to a scheme from which the major beneficiaries are the elderly, unless they believe they will benefit when they grow old. It is difficult to create this kind of confidence in a period of rapid change. Local governments may need to supplement insurance contributions with funding from taxes, borrowing and the transfer of assets to a health insurance fund. Government will also have to pay for special benefits they wish to provide to special groups, such as veterans of the revolutionary war.

International experience suggests that referral hospitals do not provide cost-effective health care for the elderly. Present insurance schemes encourage people to seek care from these facilities. A major effort is needed to identify an appropriate mix of community support, basic preventive and curative services, and care in hospitals and nursing homes. The government could encourage some cities to experiment with an integrated benefit for the elderly. The benefit would be financed from the same sources as existing schemes. The purpose would be to test alternative approaches for addressing the needs of the elderly.

Phase in health insurance scheme

The government has enunciated principles for health insurance reform, which combine a basic benefit for urban employees, contributory insurance and a voluntary private top up. There is a trade off between the size of the basic benefit package and the feasibility of extending coverage more widely. Basic insurance schemes do not cover family members. This could become a particular problem for women who spend a lot of time caring for children and elderly parents.

There are questions about the geographic basis for pooling. A scheme that covers all cities in a province would put a heavy strain on poorer localities unless there were fiscal transfers between cities. This would reduce inequalities between cities, but might increase rural-urban segmentation. The larger the commitments of city governments to finance benefits for urban dwellers, the greater the likelihood they will resist fiscal transfers to poor rural localities. This kind of trade-off will become especially important if coverage is extended to workers in rural-based enterprises and to rural-urban migrants.

The most important challenge is to convince young people that they will eventually benefit from newly established schemes. One reason for the introduction of individual accounts was that they provided assurance to account holders that they had a firm claim on these resources. The fact that insurance schemes have had to draw down the balances in these accounts means that they have to find an alternative strategy to win the trust of potential contributors.

Establish health safety net for the poor and vulnerable

There are only minimal arrangements to finance health care for the urban poor. Municipal Health Departments need to take the problems associated with poverty into account in planning their preventive programmes. They also need to devise strategies to make effective basic services available at an affordable cost where people live.

There is a growing recognition that poor health and the high cost of medical care is an important factor leading to household impoverishment. This suggests the need for some form of safety net, which would involve co-operation between local departments of health and civil affairs. The design of a targeted health benefit will not be easy. Government will have to address issues such as the identification of beneficiaries, the definition of a package of appropriate health services and the design of payment mechanisms that encourage facilities to provide services of a reasonable quality and price.

The government has begun to encourage the establishment of charitable foundations to address the needs of the indigent. This development raises difficult questions about the relative responsibility of government and private charities in raising money from profitable enterprise and people with substantial incomes and in supporting those in need.

Reduce urban-rural imbalances in public health

The health of urban and rural populations is inter-linked. The reduction of structural barriers in the labour market will make it increasingly difficult to maintain large differences in entitlement to health insurance between urban and peri-urban residents. The high burden on urban enterprises of health insurance gives an advantage to those outside the city boundary. New enterprises may take this into account in deciding where to locate. This could eventually erode urban social benefits. The many rural-urban migrants also push the social wage down. These pressures can be addressed by keeping the cost of urban health insurance down and by extending coverage to rural-based workers, over time.

There is a constant threat that infectious diseases will spread to the cities. One way to address this problem is by ensuring that local public health services keep up with urbanisation. Another approach is to improve rural public health. This is one reason for cities to agree to an increase in fiscal transfers to poor rural areas. Also migrant workers and their employers could be required to contribute to a health insurance fund. The contributions would accrue to individual medical accounts and/or be transferred to a health fund in the migrants' registered places of residence.

Regional health planning
Regional health plans presently focus on rationalisation of infrastructure and human resources. The next step is to base plans on an analysis of the health needs of various social groups and the arrangements for meeting them. This will necessitate an integrated approach to issues of health finance and supply-side reform. All relevant departments (health, labour and social security, civil affairs and so forth) will have to collaborate in formulating these plans.

Policy-makers face the challenge of establishing a health insurance system appropriate to the emerging patterns of labour market segmentation. They need to avoid a race to the bottom in which the social benefits of rural residents become the norm for city dwellers, too. This will ultimately require the establishment of compulsory basic health insurance that can be extended to all employees. Measures are needed to protect governments of poor localities from an excessive burden in financing this benefit. Health insurance reforms will have to be linked to system-wide changes to government financial management.

10.3.2 Efficiency sub-study

The most important and interesting observations and experiences from the two cities study concerning hospital efficiency were:

- the expansion of hospitals in size, staff and investment in hi-tech equipment
- a declining productivity
- low capacity and bed utilization
- the large share of revenues coming from sales of drugs
- the distortion of price regulation and
  the discrepancy between regulated prices and costs
- the incentives given by hospital bonus systems to generate revenues more than saving costs
- some positive impact of the new urban insurance reform on efficiency

This section outlines some of the options for addressing these issues.

Planning and structuring of health service providers
The regional health authorities in China still influence health services through the planning mechanisms. As the ownership of most hospitals lies within the public sector and the local health authorities decide about structure and regulations in the sector, there are still possibilities to use the planning instruments.

International experience of hospital systems based on market relationships and decentralized decision-making show that the overall structuring of the sector often remains as a task for public health authorities. Duplication of services and reduction of the number of hospitals are issues where the planning interventions have to be carried out in the market. A problem observed in the city studies is that plans were not implemented. For example, hospital workforces were not reduced and excess hospitals were not closed. Local government could

use their powers to close down or integrate facilities with low efficiency. Also, high technology and specialist services could be concentrated to one or two hospitals to rationalize distribution of health resources.

There is no integration between hospitals and other health providers. This has led to an over-use of hospitals for services that could be provided at community level. The experience of Zibo, where the government has supported the establishment of community health services illustrates how this can reduce costs. Further development of these services could substantially increase access to basic services at little additional cost. The government could take the leading role in establishing the referral system, because of the need for administration and coordination activities.

The Financing System for Hospitals

It is unlikely that government budgets will provide a major share of hospital finance. This makes it particularly important that the available funds are used as well as possible. The present method of allocating public funding on the basis of the number of beds and staff is likely to expansion of inputs that could cause overall inefficiency and waste of resources. The government has several options for improving the use of its funds. One option would be for government to fund only cost-effective hospital services. Government funding could be made conditional on proof that treatments are cost-effective and investments in equipment are appropriate. However, experience shows that partial financing is not a very successful strategy for controlling costs and improving efficiency.

The other option is for government to target hospital funding on vulnerable groups. One option could be to support certain types and/or levels of hospitals that these people use. Alternatively, the government could shift the budgets from hospitals to the health insurance fund. These funds would be reserved for use by the poor and other vulnerable groups. Irrespective of the mechanisms the government uses, the important message is to define clear objectives for government hospital finance.

Price-regulation

The international experience of price-regulation in health care is not very clear. There are numerous examples of price-regulations that have failed to meet their objectives. China's experience is of inadequate regulation of prices, which has not been adjusted to cost escalation and the supply of new services. If price regulation is to play a role in the control of costs and promote efficiency, there is a need for revising the pricing policy and the way it is carried out.

The new pricing policy issued by the central government in mid-2000 gives local governments more autonomy in setting and adjusting prices of medical services. Local departments of Price Administration and Health could use this policy to correct problems in hospital price structure. The focus of adjusting prices could be on hi-tech equipment services and drugs. Prices of hi-tech equipment services should be reduced to discourage hospitals from buying and over using hi-tech equipment. Meanwhile, mark-ups of drugs for hospitals should be reduced to disconnect links between hospital revenues and drug selling. It should be noted that price regulation is not easy and that all such regulations must be adapted to technological changes in hospital services. It is also important that the regulation not only focus on specified items, but consider all items used during an illness episode at a hospital admission.

Revenues from pharmaceuticals
Most countries regulate the sale and distribution of pharmaceuticals. There generally no direct exchange of drugs between manufactures and consumers. Due to a large gap in knowledge ('asymmetric information') different regulations are in place to protect consumers. In many countries there is a discussion of how the distribution chain should be organized. The role of providers as hospitals and physicians is crucial. First, providers have a decisive influence on prescription and the choice of drugs. A central question is whether providers should be allowed to sell drugs. Even if they have the right to dispose and sell drugs there are regulations about the incentives for the sale of drugs. In China drug revenues have become important for the hospitals' financing and there is little incentive to control costs of drugs.

Given the vulnerability of patients and the effect of supplier-induced demand it is improper that hospitals have the incentive to promote drug consumption. In order to reduce revenues from drugs the Municipal governments could coordinate the work of three departments, Departments of Health, Drug Administration, and Price Administration, in controlling health expenditures on drugs.

The relationship between insurers and hospital providers
The function of health insurance schemes has a large impact on and sets constraints on hospital behavior. The efficiency of the hospitals will be a function of how the relationship between new insurance bodies and hospitals is arranged. International experience demonstrates the importance of competent and active insurers in controlling costs. This function could be handled in different ways and by the use of a set of tools.

The introduction of the new urban health insurance schemes has had some positive impact on hospital efficiency. The trend of declining efficiency was discontinued and the insurers are judged to play a more active role in negotiations with hospitals. It is necessary to provide insurers with tools and instruments to become efficient purchasers of health services. In countries where insurers (or third party payers) have been given a more active role as purchasers of health services, there are examples of slower increases in expenditures and higher productivity rates.

The city study shows that the use of the fee-for-service (FFS) payments gives hospitals almost no incentive for efficiency. For improving efficiency of hospital service provision, it is necessary to try alternative payment systems such as payments based on Diagnosis Related Groups (DRGs) or similar methods. The important issue is not to copy any special payment system but to develop and design appropriate payment mechanisms, which give hospitals incentives to act according to the insurers (and the patients) preferences.

A more active performance of the insurance schemes opens up opportunities for effective competition between hospitals. However, experience shows that it is difficult to foster price competition. If the insurer or the purchaser buys a substantial share of the hospitals production it has a better bargaining power in the negotiations. In countries with public procurement there are examples of efficient tendering.

Since the new urban insurance schemes act on behalf of several insured groups they might achieve a bargaining power that could be used in negotiations with hospitals. Competition could be introduced in selecting contract hospitals. Criteria for selecting hospitals providing could be developed. Major components of the criteria could include indicators of quality, cost, and efficiency. An evaluation panel should be set up to assess hospital performance. This panel should work at municipal level and submit reports to the fund management agency.

Whether or not a hospital is contracted should depend on relative performance of hospitals. Appropriate incentives should be designed for contract hospitals. Hospitals having better efficiency performance could be rewarded with the savings of costs and hospitals with lower efficiency could be unlisted from the contract or be financially punished.

Internal Management and information system within insurance schemes and hospitals
In addition to developing the conditions for negotiations and contractual arrangements between insurers and providers it is also necessary to develop internal management capacity on both sides. The insurers must keep records in order to compare different providers and also to follow trends over the years. Some of this information could be part of a contract where it is specified what information providers should collect to the insurers. Overall it is important to improve the information per patient group (or diagnosis) so that information about cost, effects, quantity of services and quality indicators could be analyzed simultaneously.

10.3.3 Comments by Cai Renhua

Cai Renhua wrapped up the discussion of policy issues by drawing attention to problems inherent in this kind of research. He pointed out that the government had announced a new policy on urban health insurance after data collection had ended. Consequently, some of the findings no longer reflected reality. This pointed to the need to understand the study and the research report as a stage in a long-term collaboration between researchers, policy-makers and health service managers. It is more important to understand the underlying processes and to assess the outcome of different experimental initiatives than to provide detailed snapshots of reality at a point in time.

10.4 FOLLOW-UP ACTIVITIES

10.4.1 Suggestions by the Health Departments of the Study Cities

The Director of the Zibo Health Department reported that the study findings were accurate. He outlined municipal government plans to produce a regional health plan, strengthen community health care and regulate hospital performance and a means to reduce unnecessary health care costs. He emphasised the usefulness of the research findings to these activities.

The Director of the Nantong Health Department reported that the findings of the research team accurately reflected reality. He outlined plans for addressing the problems identified. Nantong intends to produce a regional health plan that addresses issues such as the appropriate level of government health finance and how it should be allocated, the roles of complementary sources of health finance and strategies for integrating community health services into the insurance scheme. A second focus of local government health reforms is to improve access to health services by extending coverage of health insurance scheme and establishing a health safety net for the poor. Another concern is the need to reduce unnecessary hospital costs. The Director asked the research team to assist in the planning exercise and contribute to studies and experimentation focusing on the priority issues he had identified.

10.4.2 Priorities for studies and experimentation

This section outlines the conclusions of the workshop regarding priorities for studies and experimentation. It reflects comments by officials from the Ministries of Health and Labour and Social Security and other workshop participants.

Several people pointed out the limitations of cross-sectional studies in a situation of rapid change. One suggestion was that health insurance records could be used to monitor utilisation of services by different groups in terms of age and type of employers. These studies could be supplemented by selecting a sample of households to complete questionnaires on a regular basis.

There was general agreement that the combination of questionnaire surveys and qualitative approaches provided a useful insight into the situation of specific social groups regarding health and access to health services. These methods could be adapted to provide ongoing monitoring of the situation amongst these groups to provide early warnings of problems. These studies could complement the 5-yearly national household health surveys.

National and local government officials expressed an interest in strategies for extending insurance coverage beyond those presently included in the basic health insurance scheme. This might involve the development and testing of experimental approaches for insuring additional social groups and/or establishing health safety nets for the poor.

One area of particular concern of the MOLSS is the need to increase the capacity of insurance schemes to negotiate and monitor contracts with health service providers. This raises questions about the skills insurance scheme managers need and the information that hospitals should provide them. There is also an interest in the influence of alternative payment mechanisms on hospital performance.

One conclusions of the study is that it is important to link supply and demand-side changes. For example, the Nantong health insurance scheme spends a lot on acute hospital care for the elderly. Meanwhile, the city health department spends little on community support for the elderly or alternatives to hospital care. This suggests the need for regional health plans, that involve all relevant stakeholders in an effort to address needs.