EFFICIENCY AND EQUITY AS PILLARS OF SOCIAL WELFARE – THE CASE OF CHINA’S NEW RURAL COOPERATIVE MEDICAL INSURANCE

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Abstract

The Chinese health care system has undergone several changes since the end of the Cultural Revolution in 1976. The latest alteration is the NRCMI (New Rural Cooperative Medical Insurance) scheme which was introduced in 2003 and removed the old RCMI (Rural Cooperative Insurance). The major achievement has been the increased coverage rate of the rural population, which even tends to full coverage within the next few years. There is still space for improvements, however. The success and future of the scheme depend on how the responsible stakeholders such as central and local governments, health care providers, administrators of the health care fund etc. will deal with the major challenges. To increase the health status of the rural population and their overall welfare, it is of utmost importance to include the principles of equity and for reasons of sustainability the aspect of efficiency. For this reason the following study focuses on the assessment of equity and efficiency matters within the NRCMI. Basically it has turned out that the design of the scheme provides a firm footing for a health care scheme encompassing the rural population. During the analysis it has become obvious that some features need to be improved and adjusted. One important aspect of efficiency improvement is the merging of the NRCMI with the urban health care scheme, which could result in enormous economies of scale. Furthermore, provider payment methods need to be adjusted from fee for service to prospective payment methods like global budgets or case-based payments; this would decrease the system’s high costs and make health care more accessible and equitable. Moreover, central and local governments need to assume more responsibility to ensure a consistent pursuit of the strategy to improve people’s health status. Improvements in people’s health can only be followed up, if comprehensive monitoring systems exist. An introduction of such a system would also be advantageous for policy enhancements in the health care sector and is therefore strongly recommended. In regard to the benefit package an increase of reimbursement rates and broader coverage of inpatient and outpatient health care costs aiming at reduced out of pocket payments should be considered to increase equity especially in regard to access to health care services. The highly decentralised NRCMI would also benefit from standardisation and accreditation guidelines to install a regulated procedure for hiring and training of medical staff. This would also prevent and reduce fraud and corruption within the health care system.
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<th>Full Form</th>
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<tr>
<td>BMI</td>
<td>Basic Medical Insurance</td>
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<tr>
<td>DALE</td>
<td>Disability-Adjusted Life Expectancy</td>
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<td>DALY</td>
<td>Disability-Adjusted Live Year</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>ILO</td>
<td>International Labour Office</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<td>NGO</td>
<td>Non-governmental organisation</td>
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<td>NRCMI</td>
<td>New Rural Cooperative Medical Insurance</td>
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<td>RCMI</td>
<td>Rural Cooperative Medical Insurance</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WHR</td>
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1. Introduction

Before the reform era the People’s Republic of China was one of the more advanced countries in the East Asian region concerning a comprehensive public health care system. Since Deng Xiaoping’s (former leader of the Communist Party of China) opening-up policy which was the first step towards the socialist market economy, the conditions in the public health care sector have worsened. China as an anchor country for the Asian region has undergone major reforms in the health care sector for the last 20 years. During the 1990ies a health care scheme called Basic Medical Insurance (citizens with urban danwei) was introduced to cover China’s formal workers in cities. It was followed by a voluntary, highly decentralised Rural Cooperative Medical Insurance system which replaced the old Rural Cooperative Medical Insurance system and which was adopted in 2003. It has to be mentioned that the rural and urban scheme have different features and conditions for the insured population. The long-term overall goal should be to merge the different Chinese health care schemes to a universal one (differences between provinces are inevitable because of widely differing development levels between the provinces) to ensure and guarantee a countrywide consistent medical care.

2. Problem statement

“Social welfare is maximised by the joint pursuit of efficiency and social justice...”

(Barr, 2004, p. 254)

When Nicholas Barr wrote the citation in his book “Economics of the Welfare State”, he was referring to the improvements in the health sector in developing as well as developed nations. The WHO (World Health Organization, 2000) characterizes the overall aims of health systems as follows: improving the health of the population they serve, responding to people’s expectations and providing financial protection against the costs of ill-health. Coming back to Barr these aims can only be achieved if there is an appropriate balance between equity (he puts this term on the same level with social justice) and efficiency. A health care system can be highly efficient in cost containment, price-performance ratio etc., but unfair, e.g. benefits are only gained by certain groups of the population. In this case the efficiency gains do not result in overall social welfare, since there are large inequities within the distribution of benefits within the population. For this reason equity and
efficiency have to be considered simultaneously, however, at the end of the day the application of these principles depend on the policy makers. Barr explains that the optimum to achieve the highest level of social welfare lies “where the value gained from the last health intervention is equal to the marginal value that would be derived from the alternative uses to which the resources involved could be put” (Barr, 2004, p. 255).

In the following the emphasis will be on the design of health care systems and their performance, even if it is evident that health does not only depend on a well-functioning health care system, but also on living standards such as access to clean water and sanitation, on environmental conditions, on an individual’s genetic constitution etc. In general, the assessment of the efficiency and equity of health care systems is difficult because health activities and interventions are not always easy to define and attributable. For example it is hardly ever possible to prove a direct relationship between treatment (costs) and an improved health outcome (benefit). In the following the term “effectiveness of care” will not be taken into consideration because at this stage it cannot be concluded that the NRCMI achieves its overall goal such as improving the health status of patients. Despite this constraint, it can be examined if available funds for health care are equitably distributed and efficiently used. Furthermore, as the WHO (World Health Organization, 2007) points out it does not need a lot of money to provide basic services. The health experts estimated that the minimum spending per person per year for provision of basic, life-saving services should have been between US$ 35 and US$ 50. Considering that it is noticeable that health care conditions such as coverage of medical insurance are still rather bad and parts of the population are excluded from any kind of medical care. An annual amount between US$ 35 and US$ 50 for basic care does not seem high but it has to be kept in mind that governments often lack the priorities but not the resources they spend, that is that even if there is money available due to high economic growth for example, it will not be allocated to social development policies. In this situation people have large shares of health care spending as out of pocket payments, which bear a huge risk and can result in liquidation of property such as houses or other assets (Weber, 2000). In the worst case ill-health can also cause poverty of a whole household, especially in the case of catastrophic illnesses when the household suffers from the income loss of the sick and at the same time has to pay for the medical bills. These out of pocket payments can turn out to be a financial burden and risk as for example the Chinese per capita annual net income of rural households in 2007 averaged only US$ 460 (converted with rate as of January 1st, 2007)
(National Bureau of Statistics of China, 2008), whereas fees for health care services often approach prices as in OECD countries (Wagstaff, Lindelow, Wang, & Zhang, 2009). In that case governments have to concentrate on a public redistribution mechanism and an efficient as well as equitable financing mechanism, however, in many cases this is not sufficient and foreign aid from the international community is needed to support programmes and projects focusing on efficient management of the health care sector.

Health care schemes are designed differently in various countries and even within a country. The differences in a scheme’s design affect its performance. Every health care scheme whether in a developing or developed country features its own design in regard to the benefit package, the coverage within the population, the types of providers and their payment methods, the administrative structure as well as the financing scheme which focuses on the flows of fund into and from the health care scheme. An important peculiarity of the health care market is that there is a tripartite system, that is there are 1) providers of services who determine the quantity of goods and services in a country, 2) the contributors, taxpayers and patients who cause an almost unlimited demand and 3) third-party payers who facilitate the financial operationalisation of the health care market (Cichon et al., 2004). It is crucial to know that the organisation of a system is to a great extent a matter of choice and policy decision, so are the financing mechanisms of health care systems. The payment mechanism and the sources of funding significantly influence the economic behaviour of the providers as well as consumers, which can lead to distortions in the health care markets in terms of inefficiency and inequity. There is a broad range from privately financed schemes as we can find in the United States of America to dominantly publicly financed ones still prevalent in post-communist countries. But most systems are pluralistic as they combine parts of public and private schemes.

In the following I will determine whether the aims of efficiency and equity can be applied to China’s NRCMI system. As mentioned above according to Barr (2004) this is the only way to ensure a maximisation of social welfare. The NRCMI system’s success therefore highly depends on the scheme’s design. The efficiency and social justice principles should be reflected in the conception of the benefit package, the coverage within the population, the types of providers and their payments, the administrative structure and the financing scheme which focuses on the flows of fund into and from the health care scheme. At the
end the findings from the investigation will identify achievements and challenges of the NRCMI.

3. Methodology

I will apply a qualitative approach, in which I will scrutinize the principles of equity and efficiency in regard to the NRCMI’s benefit package, coverage rate, types of providers and their payment methods, administrative structure as well as the financing scheme. To find out about the scheme’s challenges and opportunities, first these two principles will be explained in detail taking into consideration literature from international organisations such as the WHO, the ILO, the World Bank and many more. I also had the opportunity to include the new draft of the Social Insurance Law, which was read by the National People’s Congress Standing Committee in December 2008. This draft is of utmost importance, since it contains innovations concerning social policies’ universal coverage of China’s urban and rural population.

The theoretical part will mainly focus on the definition of equity and efficiency and how it can be applied to the health care sector. I will also explain the difficulties of competitiveness in health care markets and if they match the NRCMI scheme. Then I will examine the nature of the NRCMI and in how far the market failures influence the insurance scheme as well as the effects on efficiency and equity. To deepen the touch to reality, I conducted five interviews with experts in the field of NRCMI. Respondents work amongst others for the following institutes/organisations: Chinese Centre for Health Management and Policy, Development Research Centre of The State Council of the People’s Republic of China, Fudan University/School of Public Health and WHO. It has to be kept in mind while reading the assessment that the opinion of the civil population is not reflected sufficiently in comparison to state level organisations. Conducting a survey at the local level including rural residents’ opinions would have gone beyond the scope of this assessment. In further studies, it would be interesting to include more information from the consumer level and their perception concerning the NRCMI. Since the scheme is just in a test stage and coverage has been extended gradually over China’s county level, comprehensive data sets have not been publicly available yet. An extensive country-wide data collection and analysis is not feasible at this point in time, but should be considered in the future so that broad quantitative analyses can support monitoring and research.
4. Concepts of improvements in health care

In the WHR from 2000 the WHO (World Health Organization, 2000) reported that the assessment of a health (care) system includes various components. First the health care system’s attainments in regard to the objectives identified by the WHO such as responsiveness, good health and fair financial distribution have to be examined. Therefore it is necessary to take the functions within the existing health care system into consideration, since their performance is essential for achieving the health objectives. When taking stock of the attainments, it should be considered what has been achieved in terms of the three objectives. The second step is to assess the performance of the scheme. In this case resources have to be contrasted (expenditures) with achievements (health outcomes) to analyse whether the system functions well. That is, we have to analyse if the attainments are as good as they could be given the same expenditures. The various components of the attainment and performance appraisal are displayed in figure 1.

Figure 1: Assessment of health care systems according to WHR 2000

As already mentioned in the introduction health care improvements can only be maximized if the degree of equity, effectiveness and efficiency increase. In the following I will only focus on the terms equity as well as efficiency as they are mentioned by Barr (2004). As mentioned in part 2, the aspect of effectiveness as a third factor to increase a population’s health situation, will not be considered intensely because of insufficient nationwide information especially about health outcomes within the NRCMI. Moreover, it has to be
kept in mind that efficiency focuses more on the scheme’s financial sustainability whereas equity aims on social justice. When using the model of the WHO, the study at hand is focused on attainment processes, whereas efficiency and equity are parts of the health system’s objectives. Since the NRCMI is a rather new insurance scheme, comprehensive data and information on health outcomes for the members under the NRCMI have not been available yet.

Below, the terms of efficiency and equity in the context of the health care sector will be defined. Besides that, the failures facing an increase of efficiency and equity will be elaborated.

4.1. Efficiency

Efficiency is defined as “the extent to which an activity produces the greatest product at a given cost, or a specified level of production at the lowest cost” (Cichon et al., 1999, p. 349). In the context of health, efficiency means using a given level of inputs which was set by the government in policy papers to maximise health gains or to achieve health outcomes at the lowest possible costs. According to the WHO efficiency in the health care sector can be measured by a system’s performance assessment, in which the estimates for the largest and smallest achievements in health outcomes are related to health expenditures (World Health Organization, 2000). An efficient performance means approaching to the highest health outcomes possible while keeping the level of spending as low as possible (World Health Organization, 2000). In comparison to that a scheme which performs badly and therefore inefficiently is characterised by wasting resources, although there might be good health outcomes, a high degree of responsiveness and/or equity.

Efficiency can only be ensured when certain standard assumptions apply. As long as these assumptions hold, the market is in equilibrium and government interventions are needless and can even lead to distortions. But if one assumption does not hold, intervention by third parties will be a useful and necessary tool to balance the market efficiency.

4.1.1. Perfect information

The first assumption out of four is perfect information or knowledge. Three crucial aspects have to be differentiated when talking about perfect knowledge: quality, prices and future, which are highly connected to uncertainty. Imperfect information about goods’ or services’
quality can be solved by gathering sufficient information (information problem), but in some cases an information-processing problem is existent and rational choices cannot be made even if information was provided (Barr, 2004, p. 76). Concerning prices it has to be emphasized that efficiency is increased when a good or service can be valued, which is only possible with sufficient knowledge. Goods like cars and food are not confronted with a lack of information on quality and prices but services such as health care can face serious imperfect knowledge problems. Perfect information for the consumer side in the health care market implies that he/she is fully informed about:

1. his/her own health status
2. the options how to improve health status
3. the impact of the options available
4. the health care supplier with the best/worst quality and lowest/highest prices


In some cases e.g. chronic diseases the consumer is aware of his/her health status and often also of the necessary treatment. But in most of the cases health care is needed by the demand side because of contingencies and if so perfect information is not available. Another concern is that compared to other commodities, the outcome of health care cannot be estimated in advance (Weisbrod, 1977). Consumers have to rely on doctors’ opinions as they are advisers and producers; consumers have to deduce their decision from the experts’ opinions. The supplier is also in a situation in which he/she can substantially influence the demand of his/her service provided (Donaldson, Gerard, Jan, Mitton, & Wiseman, 2004, p. 27). An example is that a doctor advises the patient a certain treatment from which he/she would financially benefit, although the treatment would not be necessary at that time. This makes the issue of imperfect information to a crucial feature of health care markets. The situation can be even more serious when people do not have even the opportunity to gather information because of a lack of resources. This phenomenon can mainly be found within lower-income groups, where health care is a “luxury” good (Sen, 2005).

Perfect information on the side of suppliers is given to a greater extent than for the demanders when considering health care markets. The suppliers often have influence on the demand of the consumers to a certain degree. The information on the supplier side is often mistaken for the consumers because for the most part the information is technical and can only be understood by experts. Furthermore, the cost of a false diagnosis or
treatment is often more expensive for the consumer than for the supplier as actions taken are irreversible, that is that an inappropriate treatment can have negative effects on a patient’s health status (Barr, 2004).

Health insurance markets can face two major challenges in regard to asymmetric information issues. These phenomena are called moral hazard and adverse selection and they can hinder an efficient allocation of insurances (see detailed explanations below). Market failures can occur because these information asymmetries disturb the health care market equilibrium of demand and supply. The only option to insure efficiently against potential losses is public sector intervention. These government interventions can prevent market failures to a certain extent but they cannot fully prevent these actions from taking place.

According to Gruber (2007, p. 337) moral hazard are “adverse actions taken by individuals or producers in response to insurance against adverse outcomes.” When (Feldstein, 1973) discussed the insurance effects on health care use over 35 years ago, he referred to consumer moral hazard. In his work he pointed out that additional insurance had increased the price of health care, and more expensive health care had increased the demand for insurance. This phenomenon can be explained as follows: a health insurance increases the demand for medical care because the incentive to keep a healthy lifestyle can get lost while relying on the security of insurance. Furthermore, the fact that medical service is provided for free or to a small amount increases the utilisation rate of health care services, even if therapy would not be necessary. But contrary to some experts’ opinions we have to keep in mind that the existence of health insurance does not have a huge impact on utilisation of service (Donaldson, Gerard, Jan, Mitton, & Wiseman, 2004). On the supplier side of the health care market there are also moral hazard effects. The provider moral hazard can imply that doctors have a financial incentive to provide more medical care than necessary. In case of perfect information on the demand side excess in care would not have the chance to take place. The kind of provider payment highly influences the demand determined by the supplier, this is fee-for-service payments to health care providers, which are exceeding the competitive market prices, increase the incentive to overprovide medical services. Consequently, it can also be concluded that the prices below the competitive price lead to an underprovision of health care services or even to qualitative restrictions (Barr, 2004, p. 261).
The other action taking place is called adverse selection and it occurs when an individual hides the fact that he or she is a bad risk. Then the insurer cannot guess a person’s risk status which could disturb the market equilibrium and lead to inefficiency and financial instability (Barr, 2004, p. 260). Usually, premiums are set by insurance companies in calculating an average risk level of the insured, which is called community rating (Donaldson, Gerard, Jan, Mitton, & Wiseman, 2004). The problem is that people who consider their risks as relatively low compared to the average risk will drop out of insurance because the insurance is not worth the benefit according to their perception. The risk mix within the insurance fund is not given any more, since the “good” risks drop out and this distorts the financial equilibrium of the insurance fund and causes a loss of risk spreading (Cutler & Zeckhauser, 1998). The method of cream skimming is used in medical insurance practice by insurers who have incentives to screen out all the “bad” risks. When this approach is used, different premium levels can be asked by the insurers: low-risk people pay lower premiums than high-risk people. This can exclude people from health care insurance but this effect cannot always be treated as market failure according to Evans (1984). For the low-risk group, the market fails because of information asymmetries concerning the insured’s risk status. The other group of insured consists of high-risk people who cannot afford a health care insurance according to their personal risk level. Even if Evans (1984) does not judge it as market failure, I will treat it as such because according to the principle of solidarity everybody should get a minimum insurance even if he/she cannot afford it. It is also quite evident that in private health care schemes, in which people have to insure themselves and therefore the coverage is correlated with the income level, the low-income groups have low coverage rates or the other way round that the not covered people have low incomes. As seen above adverse selection is a market failure which cannot be solved by market forces, since perfect information is not given.

4.1.2. Perfect competition

The second assumption is perfect competition which consists of two main characteristics: price-taking and equal power. The former refers to a free market without any boundaries to enter or leave the market that implies no monopolies, no regulation, no subsidization and no other government interventions. In certain situations a regulated market can increase efficiency, even if individuals and companies have restricted market access or are bound to fixed prices. The efficient output can be produced through regulated maximum prices
which are paid to the monopolist or through subsidies with or without a lump-sum tax (Gruber, 2007). Discrimination in terms of market entry has to be avoided so that the rule of equal power holds. The fact that people have different disposable incomes which e.g. enable them to frequent markets more often and more intensely than people with less disposable income does not account for discrimination. It should be ensured that everybody has equal power to enter a market; there should be no distinctions in terms of race, sex, language, religion etc. Here the legislation can set a regulation which guarantees the above mentioned entitlement.

In the health care market competition is not possible because almost every country grants licences for doctors and other medical professionals. Consequently, the balanced competition is disrupted because of unequal power assigned to the medical professionals (Donaldson, Gerard, Jan, Mitton, & Wiseman, 2004, p. 24). Prices can be determined by them and might result in high costs of health care services, as it is always the case when market equilibrium is imbalanced and the supply is limited as well as regulated. The only way out of this dilemma is to involve third parties such as governments, which act as a counterbalance in terms of link between the consumers and providers, to ensure good quality and relatively low costs (Donaldson, Gerard, Jan, Mitton, & Wiseman, 2004, p. 24).

4.1.3. Certainty

The third assumption, which is a condition for efficient health care provision, is certainty. The consumer is thereby supposed to know “what they want, when they want it and where they can get it” (Donaldson, Gerard, Jan, Mitton, & Wiseman, 2004, p. 25). In terms of health care consumptions it is impossible to predict people’s demand (Normand & Weber, 1994, p. 9). The aspect of uncertainty has a large impact on people’s lives that is why health insurances aim at protecting people against uncertain events such as contingent spending on medical services, which otherwise would be a reduction in people’s disposable incomes and can quickly result in poverty. There is not a solution to protect against uncertainty but there is the opportunity to absorb the shock of financial distress and to smooth the shortfall in a household’s or individual’s consumption. Health insurance markets aim at this kind of contingency; they protect people against a slump of income, since they compensate for health care expenses in contingencies.
4.1.4. No market failures

The fourth assumption is derived from the fact that market failures reduce efficiency in the health care sector. The public goods problem and the externalities issue are of utmost importance when considering health care markets.

Public goods are characterized by non-rivalry in consumption, that is that somebody’s consumption does not influence somebody else’s consumption. Furthermore, public goods are non-excludable, which makes it impossible to deny the opportunity to consume the good (Gruber, 2007, p. 187). When these two features appear market production might be inefficient or even non-existent. The fact of non-excludability may lead to the free-rider problem (Barr, 2004, p. 74). In regard to health care schemes and insurances, it can be said that private health care schemes are the best option to prevent free-riding to a certain extent whereas public health care schemes such as the British National Health Service give the opportunity to “free-ride”, since it is a tax-financed system, in which people not contributing to tax revenue still benefit from primary as well as secondary health care.

The problem of externalities is closely related to the public goods issue. It arises when actions of one individual make another one better or worse off, that means they can be negative or positive for the other party involved. Furthermore, the initiator neither gains any benefit nor bears any kind of costs for his/her actions (Gruber, 2007, p. 121). Overall it can be said that the actions remain uncompensated in the market, which can lead to distortions. In health care markets external effects refer mostly to positive externalities. One example is that people may benefit from other people’s medical consumption such as vaccinations that protect against communicable diseases (hepatitis e.g.). In an unregulated market in which externalities are not tackled, underproduction of medical care and inefficiency concerning health care provision can be a consequence. As the costs of health care are fixed (e.g. staff and equipment cannot be liquidised in the short run), the supply side cannot react quickly in case of changing demand. The market cannot tap its full potential and inefficiencies can arise.

4.2. Efficiency indicators

The WHO designs indicators for efficiency measures of health care schemes. Two indicators to measure the performance of health care schemes are the DALY and the
DALE approach. The DALY approach quantifies the burden of disease from mortality and morbidity. One Disability-Adjusted Live Year corresponds to one lost year of "healthy" life (World Health Organization, 2009). When summing up the DALYs across the population, the gap between current health status and an ideal health situation, in which the people are healthy and fit until old age, can be determined (World Health Organization, 2009). In contrast the Disability-Adjusted Life Expectancy DALE refers to “the equivalent number of years of life expected to be lived in full health” (Mathers, Sadana, Salomon, Murray, & Lopez, 2000, p. 1). Performance on the level of health is defined as the ratio between achieved levels of health and the levels of health that could be achieved by the most efficient health system. In this econometric model the numerator displays the difference between a country’s DALE and the DALE that would be observed in case of a non-existing health care system, that is excluding determinants that influence health from the calculations (World Health Organization, 2000). The ratio’s denominator shows the difference between the highest DALE possible given the observed levels of health spending per capita and the DALE in case a health care scheme is not existent (World Health Organization, 2000). Both measures of people’s health include information on the impact of premature death and of other health outcomes such as disability. Thus in quantifying the burden of disease, health outcomes can be linked with the population’s health status in regard to causes as well as occurrence of illnesses (Mathers, Sadana, Salomon, Murray, & Lopez, 2000).

We can find the same idea of efficient performance indicators in an article by Liu (2003). The term used by Liu is “allocative” efficiency, which can be put on a level with performance efficiency used by the WHO. Allocative efficiency measures the effects of health outcomes relatively to health activities as inputs. It directs to the maximisation of health outcomes with the least expensive health interventions. As there is no information publicly available about health outcomes under the NRCMI, this variable cannot be analysed yet. In the long run a comprehensive data collection is of utmost importance to measure how the system responds to health needs. The focus for the assessment of the NRCMI is therefore on external efficiency, that includes the micro-efficiency as well as the macro-efficiency aim. Macro-efficiency defines the fraction of health care expenditures as a proportion of GDP whereas micro-efficiency explains the way resources are spent between alternative uses within the health care sector (Barr, 2004, p. 10). Productive efficiency (or technical efficiency) refers to the production of health care outputs of a
given quality to the lowest price as possible (Scott, 2001, p. 9). Compared to health outcomes which refer to people’s health conditions, health outputs refer to goods and services produced in the process of health care provision. It is important to keep in mind that in case the four assumptions concerning an efficient market failed, the external efficiency automatically could not tap its full potential.

4.3. Equity

In 2008 the WHO described health inequity as follows:

“The poorest of the poor have high levels of illness and premature mortality. But poor health is not confined to those worst off. In countries at all levels of income, health and illness follow a social gradient: the lower the socioeconomic position, the worse the health... Where systematic differences in health are judged to be avoidable by reasonable action they are, quite simply, unfair. It is this that we label health inequity. Putting right these inequities – the huge and remediable differences in health between and within countries – is a matter of social justice.” (World Health Organization, 2008, p. Executive Summary)

To scrutinise whether the NRCMI is based on the idea of social justice and the elimination of inequity within the health care sector, the ILO gave a more precise definition of equity within a health care system. According to their statement a social security scheme is equitable when all members are entitled to the same benefits (Cichon et al., 1999, p. 51). There might be a few general limitations on access to certain benefits but generally the benefits entitlements do not depend on individual contributions made. The principle of equity also in regard to financial stability is supported by inter-community subsidisation, which means that the health care system encompasses the different groups of the population, different areas within the country as well as various economic branches. In equitable schemes contributions from insured persons and in some cases employers are calculated on the basis of their earnings.

In the case of equity there are two main aspects of a health care scheme’s design in which people can be considered to be inequitable: delivery of health care services and financing of health care services. These parts of a scheme’s design can cause equity problems within the target population. To overcome these inequities some countries focus on policies that
provide equal geographic access for everyone (like in the Danish system) or equal treatment for every patient. There can also be policies that try to tackle a certain group within the population, e.g. the risk averse, the vulnerable or the risk seeking insured (Leighton, 2001). The latter example is a measure to bring certain groups in the society up to a higher level, so that they have equal opportunities with the rest of the population.

Equity in delivery of health care services as a function of health systems encompasses two components such as access and utilisation of services. For a long time the term of access has been reduced to distances and collecting medical fees at the point in time of consumption. Furthermore, access was often only considered in connection to utilisation because of difficulties in measuring access to health care services. Access and utilisation have even been used as interchangeable terms. Thiede, Akweongo and McIntyre (2007) have anew raised the issue of access to health care services and spotlighted the importance of freedom to use health care services. In respect to this, affordability, availability and acceptability are of utmost importance when discussing equity in terms of access. The notion of freedom within the concept of access to health care services distinguishes it from the concept of utilisation of health care services. The idea of freedom is also connected to the ability to take into consideration any kind of information before making decisions about medical treatments. Sometimes people in equal need and with the same opportunities to access health care, do not utilise health facilities to the same extent due to different priorities which can have cultural, religious or personal reasons e.g. (McIntyre, Thiede, & Birch, 2009). Compared to that it is unacceptable when people in need of health care cannot access it because of a lack of knowledge and/or information which is considered as a curtailing of freedom by Thiede, Akweongo and McIntyre (2007). Another severe reason why serious access and equity problems can appear is that people especially from poorer segments of the society cannot afford medical care because of out of pocket payments (World Health Organization Regional Office for Europe, 2001). As described by WHO Regional Office for Europe (2009) there are three types of out of pocket payments 1) direct payments, 2) cost sharing/user charges and 3) informal payments. Direct payments include payments for services or goods purely provided by the private sector and not included in any health insurance benefit package. Cost sharing and user charges aim on part payment for the treatment received. The third category includes unofficial extra payments for treatments and goods that are officially covered by the insurance scheme (World Health Organization Regional Office for Europe, 2009). Overall equity of access and utilisation of
health care is also called “horizontal equity”, since the people with the same medical needs should have the same opportunities to access and use health services and also to receive the same medical treatments.

“Vertical equity” deals with equitable financing of health care services. According to this principle patients should pay for health care services according to their ability to pay (Leighton, 2001). That means that higher income groups should contribute a higher amount to a health care fund than lower income groups. This can be ensured when the health care scheme is financed by a progressive tax-system or patients’ contributions according to a certain percentage of their insurable income. A flat-rate contribution can increase vertical inequity.

The following table 1 illustrates the different dimensional equity problems.

Table 1: Dimensions of equity in health care financing and service delivery

<table>
<thead>
<tr>
<th>Equity in Financing</th>
<th>Equity in Service Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equity in Financing</strong></td>
<td>High overall equity</td>
</tr>
<tr>
<td>High overall equity</td>
<td>Horizontal equity: same health need, same treatment</td>
</tr>
<tr>
<td></td>
<td>Vertical equity: different insurable earnings, payment according to ability to pay</td>
</tr>
<tr>
<td></td>
<td>→ NO EQUITY PROBLEM</td>
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<tr>
<td>Low overall equity</td>
<td>Horizontal equity: same health need, same treatment</td>
</tr>
<tr>
<td></td>
<td>Vertical inequity: different income, same payment without taking into consideration the ability to pay</td>
</tr>
<tr>
<td></td>
<td>→ ONE EQUITY PROBLEM</td>
</tr>
</tbody>
</table>

(Sources: Leighton, 2001, p. 4)

The table above can be used to assess if there is an equity problem concerning service delivery and financing in a health care scheme.

Horizontal inequity can be caused by imperfect information of the health care market and unequal power to enforce these decisions. This is mostly reflected in a society’s lower-
income groups, who often have insufficient information. Adequate information is necessary and useful to make rational decisions concerning health care (Barr, 2004, p. 264). Furthermore, the information they obtained might be less useful for them than for the higher-income groups. An example is that there are approved doctors and non-approved doctors. The patients with a smaller disposable income use the low-priced service of the non-approved doctor whereas patients from the higher income-groups use the services of the approved doctor. This can have consequences on the quality of provided services and in the long run on the health outcomes for the patients of lower-income groups.

Furthermore, horizontal inequity can be reduced by government regulation on drugs and medical facilities (Barr, 2004, p. 264). If under-consumption is a result of imperfect information, there are two sorts of intervention which can be applied: subsidies on prices and subsidies on income. Whereas Cotton Lindsay (1969) emphasizes that subsidies on prices are more advantageous because consumption will increase due to an income as well as consumption effect. In the case of far-reaching imperfect information the principle of equity is seriously unbalanced and might be restored by publicly organised production and allocation.

The concept of vertical equity in the health care sector aiming at payments according to ability to pay is influenced by consumption externalities and in-kind redistribution effects. The motive of vertical equity can be driven by the idea that a healthier workforce increases the economic growth. Another explanation might be that vertical equity ensures an increase in productivity and a decrease in social expenditures for the lower-income groups (Barr, 2004, p. 265). The redistributional effects could also be seen as a prevention of social unrest or, more positively, as a result of altruism (Barr, 2004, p. 265). The above mentioned consumption externalities can arise when a person’s utility increases with another person’s positive consumption (Barr, 2004, p. 265). Using the example of medical vaccination the consumption externality can be shown; the vaccination reduces the possibility to infect other people with a communicable disease and can even prevent a spread of a certain disease. Thus vertical equity decreases negative consumption externalities. In-kind transfers compared to pure cash transfers aim at earmarked benefits, which prevent people from spending it on goods and services decreasing their own as well as the rest of the population’s utility. This can be illustrated using the example of a drug addictive that spends a pure cash transfer in drugs and furthermore, hinders the economic growth and the labour force productivity.
By any means, in case of vertical or horizontal inequity the health care scheme’s design features need to be adjusted via government interventions, which will be discussed in the application to the NRCMI.

5. Design of the NRCMI

Figure 2 provides an overview of the NRCMI scheme. In the following the different stakeholders and processes will be discussed in detail.

Figure 2: Stakeholders and processes within the NRCMI

5.1. Benefit package – what is included in the health care package?

As the NRCMI is a decentralised and not a universal system, the benefit package also varies between municipalities, provinces and autonomous regions. Hu (2006) emphasized that some schemes focus on the coverage of serious-disease related health care costs which result from inpatient and outpatient treatments for catastrophic illnesses such as heart attacks and cancer (not always included). Other schemes which are more widely spread
than the former focus on ailment-related cost coverage for outpatient treatments such as examinations, medicines etc. for having a flu or abdominal influenza e.g. reimbursement rates for medical care can vary between 10 and 60 per cent (A. Hu, 2006, p. 131) between the different schemes. In 2004 and 2007 e.g. only one fifth of the insurance members were reimbursed by the NRCMI (Yi, Zhang, Singer, Rozelle, & Atlas, 2009). This reimbursement rate is relatively low and in consideration of the existing deductibles, which are costs paid by the insured in case of exceeding the reimbursement ceiling and costs not included in the scheme’s benefit package. Nevertheless, a reimbursement ceiling of 30000 Yuan for the period 2004/2005 (A. Hu, 2007, p. 136) can be a high amount for a household’s financial relief as the per capita annual net income of rural households in 2007 averaged 4140 Yuan (National Bureau of Statistics of China, 2008).

Another important aspect concerning the improvement of the rural population’s health status, which is not directly connected to the design of the NRCMI’s benefit package, is out of pocket payments. According to the China Health Economics Institute (2005) out of pocket payments as a total expenditure on health have increased from 23.74 per cent in 1981 to 55.87 per cent in 2003.

According to the new draft of China’s Social Insurance Law from the beginning of 2009, changes in the benefit package of the NRCMI are not necessarily intended. Article 25 says that the basic medical care insurance, which consists of the Basic Medical Care insurance for workers and staff members, Basic Medical Care insurance for urban residents and the NRCMI, will cover the costs of items which can be found in the medicine directories, treatment and diagnosis, emergency treatments and rescue care (Ministry of Labour and Social Security of China, 2009). To assess if the benefit package will expand and thus households will have less financial burden in regard to health care spending, it is necessary to wait until the law has been passed. Detailed information on benefits within the scheme will be developed by the provinces, while adjusting the new scheme. The scheme’s voluntary status will change to a compulsory one, which affects the insurance pooling mechanism and reduces the probability of moral hazard and adverse selection effects. A broader coverage of benefits could be provided by the scheme because of an increased health insurance fund.
5.2. Coverage within the population – who is covered?

The NRCMI aims at universal coverage of the rural population until 2010 (S. Hu, 2008). The Chinese Ministry of Health reported this year that 2729 out of 2859 counties have implemented the NRCMI scheme (Ministry of Health of China, 2009). On the whole 815 million rural residents are members of the insurance scheme, which accounts for 91.5 per cent of the target population (Ministry of Health of China, 2009). In 2005 the coverage accounted for 70 per cent of eligible persons (Wagstaff, Lindelow, Wang, & Zhang, 2009, p. 35), but within two years the coverage could be extended tremendously, which can be considered as a successful result at that time, especially in regard to the voluntary nature of the system. Reasons for high participation rates could be high government subsidies and the fact that the government took the lead for the enforcement of the health care scheme. The target population are rural residents (A. Hu, 2006) and especially the large group of self-employed farmers, who are not covered by any other health insurance scheme and mostly had to pay their medical bills out of pocket. In some cases the spending on medical care exceeded the financial capacity so that the whole household fell into poverty. Migrant workers who return to their villages occasionally for work on the family’s farm only account for a small amount of insured (A. Hu, 2006). Contributions for disadvantaged groups such as elderly, disabled, orphans and in some cases veterans who cannot make a living are paid by the local governments. The last aspect will be kept in the new Social Insurance Law but there are no further explanations about migrant workers. Article 28 mentions that insured who are employed in another region can transfer their medical insurance records but this will only be possible if the provinces unify the insurance schemes as suggested in Article 24 (Ministry of Labour and Social Security of China, 2009). So far a mandatory standardisation for both schemes under the Basic Medical Care insurance has not been planned.

5.3. Financing scheme – who pays for what?

First, it is crucial to know that the financing scheme is different across the provinces. There is a distinction concerning the development status of the provinces. Central and Western regions are considered as less developed, whereas the Eastern provinces are economically more developed. In 2007 they contributed with 55.3 per cent to the overall GDP, compared to 18.9 per cent in Central regions and 17.4 per cent in Western regions respectively, the rest is contributed by the North-Eastern regions which are not considered separately in the
following (National Bureau of Statistics of China, 2008). Government subsidies flow mainly to Central and Western regions where the rural population represents at least 70 per cent of the overall population. Furthermore, a few provinces of China’s East were selected to participate in the NRCMI scheme, but with a reduced rate of subsidies.

In general, the scheme is financed through government subsidies and contributions from households, whereas the government share is relatively high, compared to the previous RCMI. A World Bank study conducted in 2005 revealed that every insurance member paid a flat-rate premium of at least 10 Yuan per annum (Wagstaff, Lindelow, Wang, & Zhang, 2009, p. 36). The government subsidy accounted for a minimum of 20 Yuan per insured and was established by the local level in wealthier provinces. In poorer provinces the subsidy was shared between the central and the local governments. According to the study some but not all provincial governments spent the government subsidies as well as their own on supporting poorer counties. Subsidies from the central administrative level were targeted to a larger share to poorer counties than to rich ones. Anyhow this does not fully compensate the regression of county and household contributions (Wagstaff, Lindelow, Wang, & Zhang, 2009, p. 36). At the beginning of 2009 the Central People’s Government of the People’s Republic of China also reported that the contribution rate for members had been raised from 50 to 100 Yuan p.a. between 2007 and 2008 (The Central People's Government of the People's Republic of China, 2009). In the same period of time the subsidy rate from central as well as local government had also increased from 40 to 80 Yuan annually (The Central People's Government of the People's Republic of China, 2009).

Since the 1980ies government spending on public health care as a share of GDP has not increased as it should have in regard to its economic growth rates and rising GDP figures (The World Bank, 2005). Nevertheless, it has to be noted that the overall spending by the central government on health care has increased gradually. In July 2008 the overall expenditures for health care accounted for 1.322 trillion Yuan (Ministry of Health of China, 2009). In 2007 overall health care expenditures as a share of GDP accounted for 4.52 per cent, which can be considered as relatively low compared to other countries in the region like Vietnam (2006: 6.6 per cent), the Republic of Korea (2006: 6.5 per cent) as well as Japan (2006: 7.9 per cent) (World Health Organization Statistical Information System, 2009).
In 2008 NRCMI’s fund received 78.5 billion Yuan through membership contributions which account for around 15 per cent of the overall contributions (Ministry of Health of China, 2009). The central level contributed to around 35 per cent, whereas the local level bore around 50 per cent of the fund’s revenue (Ministry of Health of China, 2009). So far according to the reports of the Ministry of Health the revenues of the NRCMI have always exceeded the expenditures.

5.4. Providers – which entities provide what kind of services?

In the aftermath of China’s economic reforms the landscape of health care providers has been changed enormously, which is also the result of relatively less expenses for public health care compared to Mao Zedong’s era. The consequence is that many village medical cabins and commune medical centres closed due to financial distress (A. Hu, 2006). In rural areas village doctors are predominant, but according to Wang, Xu, & Jiang (2003) 70 per cent of village doctors received at maximum high school education and on average 20 months of medical training before becoming a practitioner at a rural site. This fact can have enormous effects on the scheme’s quality management and in the long run also on people’s health status (I will come back to this in part 8. Challenges and recommendations). The NRCMI encourages its members to go to a village clinic first where they might get a referral to a township hospital or centre. Finally, some patients are still ending up at a hospital on county level, because certain treatments and services can only be provided in better equipped facilities (Lei & Lin, 2009).

Another important aspect which has to be mentioned is that due to the high degree of decentralisation within the NRCMI providers are not subject to severe standardisation processes. Staff in public health institutions is often neither selected under competitive standardised mechanisms, nor contracted under a collective agreement (Wagstaff, Lindelow, Wang, & Zhang, 2009).

5.5. Providers’ payment – on what basis are providers paid?

One reason why health care is quite costly and for some people unaffordable is the provider payment mechanism. As the NRCMI is a highly decentralised scheme also the provider payment methods differ from county to county. Most providers under the NRCMI are reimbursed through fee-for-service payments which can lead to oversupply of
expensive treatments (see Figure 3: Provider payment methods’ and their effects on efficiency, quality and equity). Furthermore, costs for drugs and high-technology care have increased tremendously in the last decades and are disproportionately expensive on the Chinese health care market (Eggleston, Li, Meng, Lindelow, & Wagstaff, 2006). This results in an overuse of these treatments and a disregard of basic medical care, which in some cases could be sufficient. From personal experience I can confirm this fact, as I noticed that for minor serious diseases like a cold or flu hospitals prescribe intravenous antibiotics. The limited government budget for health care can also be “subsidised” by the increased benefit from the use of more sophisticated care (Wagstaff, Lindelow, Wang, & Zhang, 2009). In village clinics and township hospitals the use of these equipments is, of course, less spread, so that the main reason for expensive medical care can be put down to the provider payment method. Some township health centres and county hospitals already use salary payments or capitation fees for outpatient care (Wagstaff, Lindelow, Wang, & Zhang, 2009). In comparison to that in some cities the Basic Medical Insurance schemes successfully introduced case-based payments like diagnosis-related groups for outpatient care (Wagstaff, Lindelow, Wang, & Zhang, 2009). This example shows that provider payment reforms are possible but it is a long process of re-adjustments, monitoring and evaluation. To find a suitable provider payment system, certain requirements concerning technical standards and management capacities which still lack in most of the counties need to be fulfilled.
Figure 3: Provider payment methods’ and their effects on efficiency, quality and equity

### Fee-for-service (fee paid for each treatment act or product according to fee schedule)

**Efficiency:**
- + flexibility in resource use
- + fee schedule does not leave room for arbitrary charges
- - oversupply by provider to increase revenue
- - administration costs relatively high

**Quality and equity:**
- + payment directly related to intensity of service provided
- + increased competition among providers
- - overprovision of unnecessary treatments
- - quality is secured compared to other payment methods

### Global budget (prospective payment to cover a specified period of time; end-of-year adjustments allowed)

**Efficiency:**
- + flexibility in resource use
- + low administration costs
- + possibility to gain profit which can increase an efficient management of the budget
- - artificial spending on health care rather than through market forces
- - not always linkage to performance indicators

**Quality and equity:**
- + no fraud
- - rationing may occur if budget too low
- - cream skimming, refer more complex cases to other medical care institutions to increase profit
- - cost containment can lead to quality loss

### Capitation (payment for services within a certain period)

**Efficiency:**
- + flexibility in resource use
- + the more services included in the benefit package the less the scope for cost shifting
- + resources closely linked to health needs
- + cost containment and no oversupply because provider cannot influence any factor that is related to costs
- + low administration costs

**Quality and equity:**
- + quality improvement if system works well
- + increased competition among providers
- - quality loss in absence of monitoring and quality assurance mechanisms
- - cream skimming

### Case-based payment (fixed payment per case; a) flat-rate or b) patient classification system such as diagnosis-related groups, DRG)

**Efficiency:**
- + flexibility in resource use
- + patient classification system can be used for monitoring purposes
- + low administration costs
- + no oversupply induced by providers
- - fraud possible in case of DRG

**Quality and equity:**
- - cream skimming: less expensive patients are chosen
- - quality loss

### 5.6. How is the NRCMI administered?

Whereas the Basic Medical Insurance in China is administered by the Ministry of Labour and Social Security, the NRCMI is supervised by the Ministry of Health. The MOH is responsible for the development of annual work plans, which are used as guidelines by the provinces. These work plans are further disseminated to the local level, so that in theory the policies of the central government could be implemented at the local level by the Bureau of Health. The Bureau of Health often cooperates with township health centres which support the reimbursement of services and goods (Wagstaff, Lindelow, Wang, & Zhang, 2009). Even if the scheme is administered and managed by the Bureau of Health at county-level, central, regional and sub-regional governments make a contribution of 70 per cent of the total financing on average (Nie, 2007) and therefore also have limited influence on the scheme’s effects.
Managing the NRCMI means to handle high numbers of insured within a complex reimbursement system with various types of providers. Staff in the Bureau of Health is often neither experienced in actuarial calculations nor in administration of social protection schemes. Therefore some counties ask for help from commercial insurance companies (Wagstaff, Lindelow, Wang, & Zhang, 2009). This involvement and contracting of third parties can be advantageous for cost containment, since their expertise in fund management/collection, in reimbursement mechanisms as well as in risk assuming can make the provision of health care less expensive and therefore more efficient. Evidence in regard to efficiency arisen from the counties has not been available yet (Wagstaff, Lindelow, Wang, & Zhang, 2009).

There is also the possibility to hand over the management of the NRCMI to the Bureau of Social Security, which is experienced in administering health insurances, as it is in charge of the Basic Medical Insurance scheme for formal sector workers in cities.

6. Efficiency assessment

As mentioned earlier, one significant aspect of social welfare maximisation is efficiency according to Nicholas Barr (2004). In part 4.1 the importance of four assumptions for a functioning health care market is explained. Now, I will highlight these assumptions against the background of the rural health care market in China. Creating an efficient market highly depends on the pre-conditions and the basis on which the system is built. If certain requirements are not given, the implementation of an efficient health care scheme will face challenges.

6.1. Distortion through perfect information

Perfect information for the consumer side in the health care market is not always given for Chinese rural residents. As Mr. Xiaohua Ying from the School of Public Health at Fudan University, Shanghai, mentions, there was a lack of awareness among the members of the NRCMI. Some rural residents could not balance the pros and cons of entering the health insurance scheme. Furthermore, as we can see in the description of the benefit package and the providers it is still not easy to figure out the health care supplier with the best/worst quality and with the lowest/highest prices. The system’s diversity hampers a clear overview of rights and duties. Therefore the eligible population is not able to decide
whether an entry is worth it or not. Furthermore, they can hardly survey their own health status and the options how to improve it. In most cases he/she has to rely on an expert’s opinion which is influenced by perverse incentives in the case of China’s NRCMI scheme (Wagstaff, Lindelow, Wang, & Zhang, 2009). In general, it has to be said that because of the rural-urban gap the rural population is disadvantaged because they often lack resources to gain information. That means that access to media and health information centres is more difficult than for people in urban areas.

The supplier side of the NRCMI, that is village doctors and clinics, township health centres as well as county hospitals, does not suffer from insufficient information as they are the experts and have influence on the services provided by them. In the case of the NRCMI the provider side even has too much information and influence so that has affected the increasing costs of medical care tremendously during the last years. The providers exploit their advantage to generate demand, that means the asymmetric information problem of provider moral hazard exists within the rural health care market. One reason is that although in some pilot regions capitation fees or diagnosis-related groups are used as payment methods, the prevalent provider payment method is fee-for-service, which creates negative incentives and induces unnecessary treatment, over-billing as well as an increase in the price per contact (The World Bank, 2004). On the demand-side consumer moral hazard could occur which means that there is an increased utilisation rate of health care. It is difficult to survey whether the members of the rural insurance system pay less attention to their health than in absence of an insurance scheme. Most probably, the insurance does not have a big influence on their behaviour because often a whole household depends on one earner and in case of sickness the household would lose its means of existence. In consideration of that good health is even more important for lower income groups such as the rural residents than for higher income groups.

The other action distorting the rural health care market is adverse selection. Since the NRCMI scheme is still on a voluntary basis, people who consider their risks as relatively low compared to the average risk drop out of insurance because the insurance is not worth the benefit according to their perception. This fact causes inefficiency and instability within the fund so that the risk mix of “bad” and “good” risks is not given any more. Mr. Jing Sun and Mr. Xiaohua Ying also refer to the risk-pooling mechanism as one of the aspects which has not been achieved yet. One solution to overcome this problem is to
make the NRCMI mandatory for rural residents (which is envisaged according to the draft for the new Social Insurance Law), so that dropping out would not be possible and risk-pooling would be efficient.

It has to be mentioned that there is no information about cream skimming in the literature which does not mean that it does not exist. Surveys dealing with this topic need to be conducted in the future.

6.2. Distortion by imperfect competition

The rural health care market in China has as every health care market boundaries which can hamper efficiency. The decentralised structure of the health care market curtail regulation processes by the government, however the market is highly subsidized by governments from the local as well as central level. As Gruber (2007) said an efficient output can be produced through regulated maximum prices which are paid to the monopolist or through subsidies with or without a lump-sum tax, which is not the case for the NRCMI. It is regulated but prices still vary, mostly because of fee-for-service as payment method. The other crucial aspect within a perfectly competitive market is the prevention of discrimination which is theoretically given within the NRCMI scheme as it allows access to every rural resident. In practice there are no complaints concerning discrimination in terms of religion, race, gender etc.

In sum, competition within the rural health care market is disrupted and even the involvement of the government does not tremendously contribute to an improvement of high costs, high prices and relatively low quality. A way out of this dilemma would be to further standardise medical care and to regulate the market consistently. In practice this means to standardise prices as well as quality management supported by a monitoring system and binding guidelines. The central government might take into consideration to assume a higher degree of stewardship.

6.3. Distortion by uncertainty

Insurances should also aim at preventing against contingencies because the costs of medical care paid out-of-pocket can cause a serious reduction of people’s disposable income and result in poverty in case the expenses cannot be absorbed by the earned income. In regard to this the NRCMI scheme fulfils the condition of smoothing the fall of a
household’s income by covering the costs for serious diseases and catastrophic illnesses as described above. In the future the benefit package and specifically the reimbursement rate for medical treatments could be increased. Mr. Baorong Yu confirms that the benefit package is too limited due to the low premiums paid by the insured. Increasing premiums can be difficult because some members would not be able to afford the insurance any more. The introduction of wage bands emphasizes the progressiveness of a scheme but is not feasible for providing health care to the informal sector. The biggest challenge for the NRCMI as well as for other schemes in developing countries is to find a way how to include informal workers efficiently and equitably in the social security system.

6.4. Distortion by market failures

In the sense of the NRCMI scheme there is no problem of free-riding because only the people who contribute to the scheme are eligible to receive medical care. The public good problem would only exist, if a few rural residents contributed while all benefited from the health care scheme.

The externalities problem which can also cause a market failure exists in the rural health care market, since one individual can make another one better or worse off without gaining benefit from it or bearing costs for it. Only in schemes, in which e.g. the costs for preventive measures like immunization or regular check-ups are covered, externalities can occur. One good example is the swine flu. In case a serum will be developed, people can be vaccinated against the contagious illness. Externalities occur when only a few people, those who are members of the NRCMI, will receive the vaccination. People who are not covered cause externalities because they contract the disease to others. That is, as long as preventive care is not accessible for everyone, the externalities problem continues existing.

6.5. Efficiency measurement within the NRCMI

Before discussing external efficiency, it is important to keep in mind that the four assumptions of an efficient market were hardly met in terms of China’s rural health care market. This indicates that the full potential of efficiency cannot be tapped because there are already distortions in the preconditions for an efficient performance of the health care sector.
As mentioned in part 2.1.5 “Efficiency indicators” the DALE and DALY indicators are applicable when there is a consistent data base in place which regularly collects statistics concerning morbidity, mortality etc. This study rather focuses on micro-efficiency as well as macro-efficiency. Concerning macro-efficiency the NRCMI should perform better. In 2007 health care expenditures of the overall health care system (including the Basic Medical scheme) as a share of GDP accounted for 4.52 per cent (Ministry of Health of China, 2009). This is a relatively low share compared to other countries in the region as mentioned above and also compared to the health expenditure share of GDP on average across OECD countries, which accounted for 8.9 per cent in 2005 and 2006 (Organisation for Economic Co-operation and Development, 2009).

In regard to micro-efficiency and the use of resources within the NRCMI can be improved in some parts. One aspect is the delivery of services by different providers. Cost can be contained when e.g. township health centres focus on primary health care, whereas specialist treatments and surgeries are moved to county hospitals (Wagstaff, Lindelow, Wang, & Zhang, 2009). Furthermore, the NRCMI can contain costs more efficiently by using drug lists for providers and clinical protocols (Wagstaff, Lindelow, Wang, & Zhang, 2009). From the institutional perspective, one can also argue that more efficiency can be reached by consistently reforming the structure of the NRCMI. E.g. one agency at the county level could bear the overall responsibility including the coordination of providers and other institutions to deliver medical treatment, to survey disease and to enforce public health legislation (Wagstaff, Lindelow, Wang, & Zhang, 2009).

7. Equity assessment

In general equity is rooted in a country’s ideas of social justice. The degree of social justice within a country is a matter of choice and always depends on the political leadership and their views on social justice. In one country equal access and minimum standards of health care systems can be high on the agenda, whereas others focus on efficiency factors.

For the assessment at hand the aspect of social justice within a country is of utmost importance, as China is a country with huge divergent gaps between urban and rural, East and West as well as poor and rich. In the area of health, but also in other areas, inequities still exist and have even worsened, since China has launched its economic reforms in the 1980ies (see also Introduction). To create a socialist harmonious society, the Chinese
government emphasized the importance of improving people’s health through increasing government investment in its Eleventh Five-Year plan from 2006 to 2010, accelerating public health development, resolving the challenge of limited health care resources as well as expensive medical care (National Development and Reform Commission of China, 2009). Besides, the Eleventh Five-Year Plan emphasizes the balanced development of rural and urban areas and among regions, whereas the areas of main interest are not precisely mentioned. With this as a backdrop the principle of social justice and more specifically equity is theoretically integrated in the NRCMI. In practice it is arguable, whether the design of the scheme focuses predominantly on the elimination of inequity within the NRCMI or whether adjustments still need to be made to provide more equitable health care.

Using the definition of the ILO, which says that a social security scheme is equitable, when all members are entitled to the same benefits (Cichon et al., 1999, p. 51), the NRCMI is theoretically an equitable scheme, since every member has the same rights. To deepen the analyses, the concept of horizontal (equity in the delivery of health care services) and vertical equity (equity in financing a health care scheme) is used. Horizontal inequity can be caused as mentioned above by imperfect information and unequal power to enforce decisions. The study already discussed the problem of imperfect information of rural residents caused by lacking infrastructure and therefore hindered access to media, public information centres etc. For them it can be more difficult to make rational decisions concerning medical care. The result can be that they receive minor qualitative care because e.g. they cannot distinguish between a high-skilled and a less high-skilled village doctor.

Furthermore, within the NRCMI the equity factors of affordability, availability and acceptability are not intensely taken into consideration. Fees for medical treatments are in some cases not appropriate which is caused by for the consumer side disadvantageous provider payment methods. Besides, due to closure of several village medical cabins and commune medical centres for some areas health care services are hardly accessible or even inaccessible. In terms of acceptability, it is important to keep in mind that the rural population may dread some kind of medical treatment which is included in the benefit package of the NRCMI, e.g. patients are treated with western-style medicine instead of Traditional Chinese Medicine that can cause refusal of certain treatments among the rural insurance members. As mentioned in 5.1. out of pocket payments have also affected the rural population and low-income households in general. In the case of the NRCMI high
direct payments as well as user charges are caused by inadequate reimbursements and coverage rates of services and goods and therefore undermine the objective of pooling resources to ensure access to health care services and equity especially among the sick and those who cannot afford health care (Lewis, 2000). Information about informal payments is not available but as in the post-communist countries of Central Asia it is probable that they exist to a certain extent (Lewis, 2000). The above-mentioned facts hamper access to health care and disrupt the horizontal equity principle. In the long-run the health outcomes for the poor and less well informed groups will not improve. Like Barr (2004) stated in general, in the case of China Mr. Sen Gong also emphasized the importance of standardisation including detailed operational clinical guidelines and enforcement of the related regulations within the NRCMI.

Concerning vertical equity the NRCMI schemes face different challenges. Regardless of the income all members within the scheme have to pay the same contribution. This regression can enforce the gap between rich and poor members of the NRCMI and also be a cause for impoverishment. Furthermore, low reimbursement rates and high co-payment rates increase out-of-pocket expenditures which mostly affect the low-income groups (Mao, 2005). Moreover, people from richer townships can access health care services more easily than members from poorer ones and their reimbursement rates are also higher (Gao, 2004). This can cause that lower income households frequent health care services less often than higher-income households and therefore have smaller reimbursement rates. Another concern in regard to vertical equity is the targeting of subsidies from the central government. Subsidies should preferentially go to poorer provinces to decrease impoverishment resulting from ill health. Another option to support poorer counties and to increase intra-provincial equity is to pool the funds at the provincial level and not at the county level (Wagstaff, Lindelow, Wang, & Zhang, 2009).

In sum, the NRCMI has a horizontal inequity problem caused amongst others by imperfect information. People with the same health need, get different treatment under the NRCMI schemes. The vertical equity problem mainly consists in same payments by different incomes without taking into consideration the ability to pay. Accordingly the NRCMI faces two equity problems, which are displayed in the table below.
Table 2: Dimensions of equity in health care financing and service delivery in the case of China

<table>
<thead>
<tr>
<th>Equity in Service Delivery</th>
<th>Equity in Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>High overall equity</td>
<td><strong>Horizontal equity</strong>: same health need, same treatment</td>
</tr>
<tr>
<td></td>
<td><strong>Vertical equity</strong>: different insurable earnings, payment according to ability to pay</td>
</tr>
<tr>
<td></td>
<td>→ NO EQUITY PROBLEM</td>
</tr>
<tr>
<td>Low overall equity</td>
<td><strong>Horizontal equity</strong>: same health need, different treatment</td>
</tr>
<tr>
<td></td>
<td><strong>Vertical equity</strong>: different insurable earnings according to ability to pay</td>
</tr>
<tr>
<td></td>
<td>→ ONE EQUITY PROBLEM</td>
</tr>
</tbody>
</table>

(Sources: adjusted from Leighton, 2001, p. 4)

8. Challenges and recommendations

To intensify efficiency and equity within the NRCMI, further adjustments and improvements need to be conducted.

The administration of the urban and rural health care systems in one ministry would enhance the efficiency considerably. By now the NRCMI has been managed by two different ministries, Ministry of Health and Ministry of Labour and Social Security, which can result in high administrative costs. Unifying the administration of the two systems would mean that economies of scale can tap the full potential. Furthermore, it can be a first step to an overall unification of the NRCMI and the Basic Medical Insurance. According to Lu and Hsiao (2003) the experience from Taiwan where three schemes were merged to one showed us that administration costs in the organisation of health insurance as well as in delivery decrease in case of unification. Moreover, bargaining and negotiating can be easier when the purchasers such as central and local governments speak with one voice.
In regard to adjustments in the field of provider payment methods one voice can be useful to change the existent method and to increase efficiency in this way. Mr. Qingyue Meng also emphasized this, when he discussed the main challenges of the NRCMI. In the process of unifying the benefit package, contribution arrangements as well as provider payment methods, it would also be advisable to transform the contribution-based scheme into a tax-based one with supplementary top-up option for certain medical services. This would lead to a more equitable system, in which especially vertical equity can be guaranteed.

One serious challenge which can affect the success of the NRCMI tremendously is the provider payment methods used by the schemes. As mentioned above the method of fee-for-service is predominant within the NRCMI. Prospective payment methods would be an essential contribution to ensure efficiency. Global budgets and case-based payments (see also figure 3) are an opportunity to reduce costs for inpatient care. Inpatient care will account for a large share in the future of the NRCMI, that is why reforms in regard to provider payment methods need to be passed to guarantee financial sustainability and efficiency in the long run. Cost containment in primary health care institutions like township health centres and village clinics can be enhanced, while using capitation or salary payment method (Wagstaff, Lindelow, Wang, & Zhang, 2009). When reforming provider payment methods, it is of utmost importance to take possible side effects into consideration. One example is the coexistence of two different payment systems to smooth the transition to the new payment method. When a fee-for-service system is transferred into a case-based payment system, but a few services are still remunerated by the more profitable fee-for-service method, there might be the incentive for providers to continue with the services that are more profitable for them but maybe unnecessary and maybe even harmful for the patients. By any means, the effects of different provider payment methods and reimbursement rates have to be determined intensely for the case of the NRCMI before introducing them. Moreover, the NRCMI has not had the capacity and the sophisticated technical equipment yet to develop, for example, a case classification system. The provincial and central governments need to assist in this case.

As mentioned in the paragraph above, upper levels such as provincial and central level need to assume more stewardship. Especially the central government must give more direction to the future of the NRCMI in terms of oversight, design and implementation.
An advantage to ensure an efficient and equitable rural health care system would be to install a detailed and comprehensive monitoring system to make sure that policies from the central level are implemented at local level. Furthermore, quality management can only be improved when information and data are collected consistently.

To increase equity especially in regard to access to health care services, the factors of affordability, availability and acceptability in regard to consumer protection have to be taken into consideration. Reimbursement rates within the NRCMI should be increased and a consistent fee schedule shall prevent the insurance members from financially burdened out of pocket payments.

In terms of standardisation and accreditation guidelines, it could be helpful to improve in-service training and a regulated procedure for training of medical staff. Competition concerning hiring of staff needs to be guaranteed to achieve the most efficient results as possible. To prevent fraud and corruption, salaries of people within the health care sector need to be adjusted to predominant living standards. Standardisation processes support an efficient and equitable performance of the NRCMI.

When discussing efficiency issues within the NRCMI, the aspect of privatisation of township health centres e.g. has to be taken into consideration. The impact of privatisation is controversial, however. There are experiences in which privatisation led to cost reduction. But when considering the other way round, that is, privatised institutions were retransferred into public ones there was no evidence that efficiency was negatively affected (Wagstaff, Lindelow, Wang, & Zhang, 2009).

9. Conclusion

To sum up, the design and implementation of NRCMI still lack some important aspects to ensure efficiency and equity over the long run. After six years of collecting experiences, the central government needs to wrap up the findings and decide on adjustments concerning the benefit package especially to reduce out of pocket payments, the administrative structure, the provider payment methods and the future of the NRCMI in general. Improvements of health outcomes for the rural population are a crucial indication of how the system works. Therefore a countrywide database about health outcomes needs
to be installed to judge about the system’s performance and the impact of the rural health care scheme on public health.
10. Appendix

Expert interviews concerning the performance of the NRCMI

1. How is your organisation’s/association’s/ministry’s work related to the New Rural Cooperative Medical Insurance (NRCMI) system? Which role is your organisation playing concerning the NRCMI?
2. What are the aims of the NRCMI? To what extent are equity and efficiency aspects are taken into consideration?
3. Has the NRCMI succeeded in your opinion? Are the goals achieved so far?
4. Can you see a difference (positive or negative) in your field of work since the implementation of the NRCMI in 2003?
5. In your opinion what are the main challenges of the NRCMI (coverage, financing, administration, provider payments etc.)?
6. Do you have a suggestion how to tackle these problems?
7. How does the population assess the NRCMI? According to the population what are the strengths and what are the challenges in everyday life?
8. Is it possible to have a universal health care system in China? Is the NRCMI a useful step towards this?
9. This year a new draft of the Social Insurance Law in China was published. Do you think this new draft is a response to the major challenges that you mentioned above?

Mr. Xiaohua Ying, Associate Professor of Health Economics, School of Public Health, Fudan University

1. Evaluating the NRCMI system, and provide the suggestion to Ministry of health on improvement of NRCMI.

2. The aims of NRCMI are: decrease the out-of-pocket share in peasants’ health care utilization, increase the peasants’ accessibility to health care, improve the health financing protection, and improve the health equity.

Equity: government’s budget is the main sources of NRCMI in low-income regions. Medical aid is also considered in NRCMI. However, the disparities of financing and benefit packages in regions are very large.
Efficiency: Deductible, co-payment system, ceilings are used in NRCMI for efficiency. All kind of ways on purchasing health care, such as FFS, DRGs, capitation and so on are piloting in China.

3. Yes, it is succeed. However, it is just a beginning for risk-pooling for Chinese peasants, and it need improvement.

4. Yes

5. The main challenges of the NRCMI are financing, and provider payment.

6. Make pilot to look for a high-efficient method of provider payment aligning with the Chinese condition. I think capitation, or method similar to capitation may be an alternative of high efficient way in Chinese rural areas.

7. In the beginning of implementation of the NRCMI in 2003, peasants didn’t think that NRCMI was a good way of risk-pooling, and they weren’t willing to join it. Now they are thinking NRCMI is very good program and willing to buy it at current price.

8. Now China has a universal health care system for essential health care. I think it will have a universal health care system in future 10 years. Definitely, NRCMI is a very important step towards this.

9. No.

**Dr. Sen Gong, Director Department of Social Development, Development Research Centre of The State Council of the People's Republic China**

1. I am working at the Development research centre social development research department. The DRC is to provide advisory services for the Government. Health care is one of policy areas under the department mission. My reply to your questions does not necessarily represent my working organisation.

2. To reduce impoverishment.

3. Partially successful.

4. The major difference is that the coverage of the NRCMI has been expanded substantially.

5. Regulation of doctor’s behaviour and provider payments are much more important.
6. Make detailed operational clinical guidelines and enforce the related regulations; Give right incentives to doctors, or delink the incomes of providers with what they earned
7. I don’t have such survey data.
8. It is likely, but it would take a long journey to the universal one. NRCMI is a useful step.
9. The draft law mainly cover the urban schemes or programs.

Dr. Jing Sun, National Programme Officer Pharmaceuticals, WHO WPRO

1. We support some capacity building activities and research.
2. Improving financial access to catastrophics.
3. Outpatient services to be officially included.
4. Great progress in expanding the population coverage.
5. Financing and administration.
6. Increasing fund raising and pooling scale.
7. Good in general but need to be improved.
8. Tired insurance systems.
9. -

Prof. Qingyue Meng, Professor and Director Centre for Health Management and Policy

1. Our organization is a research institution which provides research evidence for designing, implementing, and improving the NCMS. Some researchers in this institution are policy consultants for both central and provincial governments by which policy suggestions are recommended for NCMS.
2. Aims of NCMS are to protect the rural population from financial risks of diseases and to improve access to health care. You can understand this from some international publications. Equity is much considered because NCMS can narrow the gap between urban and rural areas. Efficiency is not much.
3. Yes, overall, it succeed. The gaol of covering all rural population has almost achieved. The gaol of financial risk protection is on the way.
4. Health care utilization has increased, financial burden has been slightly reduce. However, cost of medical care also increased.
5. Cost containment, extended benefit package, and increasing finance from both government and individuals are the main challenges.

6. Payment reforms should be implemented for cost containment and quality assurance. Government needs to have a long-term plan for sustaining and increasing investments in NCMS.

7. You need to check some international publications for answering this question based population surveys.

8. Yes, in the China’s new health sector reform proposal, universal health care system has been suggested. NCMS would be a good approach towards this.

9. This Law is a general legislation for social insurance, not specifically for health insurance plans. However, this law has declared that the NCMS is part of medical insurance schemes and low-income people will receive government subsides, which would be helpful for sustaining the NCMS.

Dr. Baorong Yu, Associate Professor Centre for Health Management and Policy

1. As a research institution, we involve in some policy research projects on the NRCMI. Our role is to find evidence for policy, write academic paper and disseminate our research findings.

2. To provide health insurance to pool the financial risk from disease for rural population. Equity is a complicated concept and there are many dimensions to access it. As the current NRCMI is mentioned, the equity is only embodied in that every insured can access the scheme. The efficiency issue is far to be achieved or considered by the related health policy makers.


4. Be lack of effective cost constrain mechanism is the major problem faced to the NRCMI.

5. Administration and payment system.

6. 1) To reform the payment system and 2) To transfer the administration department from the health department to the social security department.

7. In most areas, the population can access the NRCMI easily. The biggest strength is that the insured patient can get some reimburse from the scheme. The biggest challenge is that the benefit package is too limited, partially due to the low premium.
8. Yes, it is possible. In fact, it is approaching towards this goal. Of course, the NRCMI is a useful step towards this.

9. Yes, it is.
11. Bibliography


