Health Insurance in China

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Chapter 5: Health insurance in China

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In urban areas…

The *Labor Insurance System*….

In urban areas, from 1949 to 1980, access to treatment was largely organized by and within state-owned enterprises. Each enterprise managed access to treatment on behalf of its employees and their children, as well as setting up a pension in preparation for retirement. These enterprises were gargantuan in size, and their sheer scale made it possible to pool risks of illness. Just as in rural areas, the system was extremely decentralized.

To be more accurate, in 1951, the Labor Insurance System (LIS) was set up for employees of State-Owned enterprises (SOEs), the collectively-owned enterprises and their dependents. The Medical Insurance System for Urban Employees was part of the labor insurance package of these firms. It covered in-patient and out-patient care, free of charge for the employee and at 50% of the costs for their dependents. This insurance was financed by the firms.

As far as healthcare facilities were concerned, each patient was cared for by the establishment that was affiliated to their enterprise. Then, according to the severity of the patient condition and the establishment ability to treat him, the patient would be sent either to a district hospital, a municipal hospital, or a provincial hospital. At the highest level was the central hospital.

With the economic reforms, this social protection system has been wearing away, and eventually disappeared altogether in some places. The root causes of this evolution are quite different from those found in rural areas. In cities, many state enterprises have been turned into private firms or semi-private firms. Simultaneously, they were divided up into smaller-scale units or just dismantled. The collective aspect of social welfare, managed independently by each enterprise, was thus seriously weakened: enterprises that were now smaller in scale soon found they were struggling to fund their own social welfare. Two main reasons accounted for this: firstly, since the units were smaller, the insurance was supported by a smaller number of individuals; in addition, these units were then supposed to turn a profit without any support from the State. However, a portion of their profits was used to provide social welfare for their employees. Bankruptcies piled up and threatened to destabilize the whole system, as employees lost their jobs and health

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insurance package. User fees were implemented as public funding declined and out-of-pocket payments progressively increased.[1]

The *Government Insurance System*

For workers in government organisations and public institutions, there was a specific insurance system before the economic reform that is still used partially today. In 1952, the Government Insurance System (GIS) was established for government staff and retired government staff, as well as university students. It has been progressively dissolved into the new schemes being set-up but the process is very long and GIS is still partially in use in some areas.

From 1998, *Urban Employees Basic Medical Insurance System*

Threatened with impending economic collapse, the government was forced to take action, and decided to relieve the enterprises of the financial burden that came with social security. At the same time, the government introduced a public form of social protection. This was much less extensive than its previous incarnation, but had the advantage of at least existing, in contrast to the situation in rural areas. As a result, urban residents were subjected to a decline in quality within their social welfare system, while the overall structure was preserved.

From a series of pilot programs, the State Council released the 1998 Decisions in establishing the *Urban Employees Basic Medical Insurance System* (UEBMI). People eligible to this new urban insurance are those eligible for LIS and GIS[2] as well as employees of private sector companies and small public firms.

One major change of this new system is to pool the health insurance at city level or county level and not at firm level as before. The funding of this scheme is based on social pooling plus individual accounts, to which employers contribute 6% and employees 2% of their wage. This funding is split into these two accounts

- Individual accounts are funded by individual contributions plus 30% of the contributions made by enterprises
- Social accounts are funded by the rest of the firms' contribution

Medical expenditure is covered according to a floor that depends on the discretion of the local governments. Healthcare costs below the floor can be covered either by the individual accounts or by the individual's out of pocket. Local governments had discretion to determine the exact rates for the floor and the ceiling, as well as the percentages for reimbursement. Besides, depending on the area, no money left on individual account was a condition to become eligible for social pooling account. In 2004, one in-patient episode was estimated to amount to two-thirds of average annual household expenditures in urban areas. [3]In the same time, employees are encouraged to enrol in private medical insurance.

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[1] Blumenthal D and Hsiao W.N. « Privatization and its discontents --- the evolving Chineses healthcare system », New england of Medecine 2005 ; 15 ; 353(22) : pp1165-70

[2] Government Insurance system. See further in this section.

[3] Center for Health Statistics and Information, 2004.

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From 2010, *Urban Residents' Basic Medical Insurance Program*

In 2008, this insurance was covering 64% of the active urban population. However, only 31% of the urban population was eligible to this health insurance system.

For the residents who are not urban employees, a medical insurance system was implemented nationwide in 2010, with pilot cities from 2007. It is called the *Urban Residents' Basic Medical Insurance Program* (URBMI). This public health insurance is designed for household subscription on a voluntary basis. This system is funded by contributions from household participants and government subsidies (from central government and local governments). Since then, the eligible people include college students, workers with an informal occupation who are not eligible to the UEBMI and migrant workers who are not eligible to the UEBMI[4] either. In short, the URBMI is for those living in urban areas without being eligible to the UEBMI. Today, these programmes cover around 95% of the urban population, including part of the migrant workers, i.e. those who both are eligible and chose to participate.

A very important point is that there is **no portability of rights**. In other words, rights acquired are available only on geographically definable areas.

.... In rural areas

The Community Medical System

Up until the 1980s, the communities (a village or a group of villages) were managing the social welfare of their local inhabitants. The system was extremely decentralized. The profit generated from the farmlands was managed by a local authority that was spending for public goods including social welfare with health and retirement. This system was set up in a context of strict control of the population's movements, particularly between cities and rural areas.

As explained in this book, each Chinese citizen has a residence permit, which is associated with a specific area. These permits can be split up into two broad types: urban and rural. An individual with a rural permit is constrained in terms of what he/she can do in urban areas, and his/her social and civic rights do not extend to the urban area. An individual with a rural permit moving to an urban area is designated in China as a "migrant", which corresponds to what is elsewhere designated as an "illegal worker". As industrial jobs are most often found in urban areas, workers with rural permits have to circumvent the rules, with the risk of becoming a "non-citizen" and thus losing their social and civic rights. Migration in China (from rural to urban areas)[5] thus involves not only the loss of the home social network, but also the loss of some rights.[6] This control also ensures the sustainability of social welfare system.

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[4] Wang, H., Gusmano, M and Cao, Q. (2011), « An evaluation of the policy on community health organizations in China: Will the priority of new healthcare reform in China be a success ? » *Health Policy*, 99(1), 37-43

[5] In this paper, the term "migration in China" refers to internal migration between rural and urban areas. This abuse of language is very frequent in the literature on migration in China.

[6] The central government has considerably relaxed the residence permit system in order to encourage economic growth.

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As highlighted by Therese Hesketh and Wei Xingzhu,[7] and also by Winnie Yip and William C. Hsiao,[8] between the 1950s and the start of the 1980s the structure of China's healthcare system allowed the country to make clear improvements to the health of its population. A number of indicators (presented in the introduction) attest to this. Treatment was mostly guaranteed free of charge. However, the level of care available was relatively low, using equipment of mediocre quality.

The Chinese healthcare system was divided into three levels of treatment access.[9] The first level was equivalent to free clinics in villages called *Tier I*; the second comprised health centres for the township, called *Tier II*; the third was represented by the county hospital, called *Tier III*.[10] This was the structure that made up the public healthcare system for each community.[11] In addition, there was an obligation to pass through *Tier I* organisations in order to reach *Tier II* and *Tier III*.

From 1991 onwards, the Chinese government promoted the creation of private organisations. The services provided by these private establishments were, overall, of higher quality than those offered by public healthcare establishments.

In parallel, the progressive privatisation of land allowed workers to generate profit from its exploitation. However, communities were deprived of a portion of the profit from farms which had helped to finance social protection. This harmed the capabilities and quality of service of public institutions, leading to a considerable degree of protest. The poor quality of healthcare was no longer counterbalanced by the perception of free care, as taxes were levied to pay for healthcare.

At the same time, demand for healthcare was changing. The emergence of more middle-class farmers led to the development of demand for better-quality healthcare. An analogous rise in healthcare demand came from rural inhabitants with industrial jobs in urban areas, who had greater than average income. At the government's instigation, some of those living in rural areas turned to private healthcare offered by private health centres. In the end, the social protection system was financed only by those whose income was too low to afford the healthcare available in private clinics, but high enough to pay social insurance contributions. This subset of the population being small, the social protection system ended being either drastically reduced in size or entirely wiped out.

The disappearance of any health insurance

The community medical system found its funding cut dramatically, and sometimes this funding even disappeared completely. Existing public establishments were either replaced by private ones, or put into competition with them. As a result, *Tier I* public establishments began to collapse due to a lack of funding, leaving rural areas without public healthcare treatment. This meant that in rural areas, people had to cover in average a shorter distance to reach the nearest health centre,

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[7] Therese Hesketh and Wei Xingzhu, "Health in China: From Mao to Market Reform," *The British Medical Journal*, No. 314, 1997, pp. 1543-1545.
[8] Winnie Yip and William C. Hsiao, "What Drove the Cycles of Chinese Health System Reforms?" *Health Systems & Reform*. Vol. 1, No. 1, 2015, pp. 52-61.
[9] Xingzhu Liu and Junle Wang, "An Introduction to China's Health Care System," *Journal of Public Health Policy*, Vol. 12, No. 1, 1991, pp. 104-116.
[10] This *sanji zhi* system is often translated as "county-township-village three-tier healthcare system."
[11] See Chapter 2 for more details.

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but in order to reach a public establishment they would have to travel further, as attested by John S. Akin *et alii*.[12] The overall effect of this was that local populations discovered that the sources of treatment made available to them had become private, and more expensive.

At the same time, *Tier II* and *Tier III* public healthcare providers acquired an increasing level of autonomy, including the management of their profits. This allowed them to develop their equipment and acquire new medical technology. This was coupled with a rapid withdrawal of funding from the State and the provinces.[13]

Now they had little or no public subsidy to rely on, public establishments were no longer subject to a duty of public service. Moreover, with public health establishments now behaving like commercial enterprises, economic theory dictated that the supplier should seek to maximise its profits.[14] They were helped in that by the fact that they had an effective monopoly over their local geographic area, allowing them to set their own prices.

As the price of healthcare (consultations treatment and medication) was skyrocketing, average income also increased steadily, but with huge inequalities. The differences in the quality of treatment on offer between the cities and countryside became more pronounced. In addition, there was no longer an obligation to pass through Level-1 organisations in order to reach Levels 2 and 3. *De facto*, the rural population found itself offered a choice of establishments at which to seek medical consultation.

As a result, the rural population developed a preference for establishments in urban areas, especially those that offered an excellent level of quality. This was also facilitated by greater mobility among a certain sector of that population: there was a rapid decrease in the proportion of rural residents within the total population, and a growing number of them began commuting and working further from home. One possible correlate of this phenomenon was a considerable improvement in the state of the roads, and because of those improvements, journey times were reduced. The population became progressively less reluctant to traverse long distances and spend hours, or even days waiting in line for outpatient treatment.

In 1998, only 9.5% of the Chinese population was covered by an health public[15] and this figure dropped to 7% one year after. Private health insurance market was next to nil. [16]

For financial reasons, the lack of access to treatment became a major problem, first for the most vulnerable among China's population, and then for a greater and greater proportion of rural dwellers.[17]

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[12] John S. Akin, William H. Dow, Peter M. Lance and Chung-Ping A Loh, "Changes in Access to Health Care in China, 1989-1997," *art. cit*.

[13] Chinese Ministry of Health, *Research Report on china National Health Accounts*, Beijing, 2004; Winnie Yip and William C. Hsiao, "The Chinese Health System at a Crossroads," *Health Affairs*, Vol. 27, No. 2, 2008, pp. 460–468. See the section on how the establishments were funded for further details.

[14] Profit maximization under nul profit constraint

[15] Liu, Yuanli, and Rao, Keqin. (2006). Providing Health Insurance in Rural China: From Research to Policy. Journal of Health Politics, Policy and Law, 1, 71-92.

[16] Barber, S. L., & Yao, L. (2011). "Development and status of health insurance systems in China" *The International Journal of Health Planning and Management*.

[17] Carine Milcent, "Healthcare-seeking Behaviour Changes in Rural China: The Situation of Farmers," working paper, PSE No. 201423, 2015; Gerald Bloom and Gu Xingyuan, "Health Sector Reform: Lessons from China," *Social Science and Medicine*, Vol. 45, No. 3, 1997, pp. 351-360; Therese Hesketh and Weixing Zhu, "Health in China: The

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The *New Cooperative Medical Scheme*

Along with the economic reforms of the 1980s came the dissolution of the rural Cooperative Medical System, and illness emerged as a leading cause of poverty in rural China. The high cost of healthcare has deterred many families from obtaining necessary healthcare. In response, the Chinese government started pilot programs of the New Cooperative Medical System in 2003. NCMS programs have several key features: 1) the program is targeted at rural residents;[18] 2) participation is voluntary but must be at the household level; 3) participants are required to pay flat-rate premiums, but their contributions are heavily subsidized by governments; 4) the programs mainly reimburse large expenses so as to ease the economic burden resulting from catastrophic disease and alleviate illness-caused poverty; 5) the programs are operated at the county level rather than the township or village level. The primary goal of the NCMS is to reduce impoverishment resulting from illness and improve the affordability of healthcare (Central Committee of CPC, 2002). Local governments have been granted autonomy to design, implement and supervise the programs.

While local governments have some discretion over the level of financing of the program, the standard in 2003 was for each participating household to pay at least 10 RMB (about $1.2) for each household member every year, with the local government providing more than 10 RMB for each person per year. The central government would also match with 10 RMB per year for each beneficiary living in the central and western provinces. As of 2006, while individual contributions generally remained at the existing level, subsidies from local and central government increased (Wagstaff et al 2007). NCMS insurance mainly provides financial risk protection to patients with catastrophic health problems. Many services—particularly outpatient care—are not covered, deductibles are high, ceilings are low, and coinsurance rates are high.

There are more than 2800 rural counties in China. The NCMS pilot program began in 310 rural counties in 2003. It expanded to 617 counties in 2005, 1451 counties in 2006—i.e., 50.7% of the total number of counties—and started to spread across the country in 2007. By the end of June 2007, the program had expanded to cover 84.9% of all rural counties and 82.8% of all rural residents. It has covered the whole rural population since 2010. Provincial and county governments retain considerable discretion over the details of the pilots, including the placement of the pilot program.

NCMS pilot counties were not randomly selected. A complex set of criteria, including local interest and capacity, level of economic development, and the status of the delivery system were considered. It allowed to analysis the effect of this health insurance program on diverse socio-economic conditions of the Chinese territory and thus, to insure its success.

Along with the NCMS, local governments provided some supporting policies, such as improvements in rural healthcare (delivery) networks and health service provision, the strengthening of pharmaceutical governance, and supply chain construction. These measures made possible improve the quality and delivery of healthcare service and also benefit families

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Healthcare Market," *The British Medical Journal*, No. 314, 1997, pp. 1616-1618; Jun Gao, Shenglan Tang, Rachel Tolhurst and Keqing Rao, "Changing Access to Health Services in Urban China: Implications for Equity," *Health Policy and Planning*, Vol. 16, No. 3, 2001, pp. 302-312.

[18] The program will also be offered in urban districts and county-level cities that include rural residents.

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who choose not to participate the NCMS. Therefore, the adoption of the NCMS program by the county had an effect on healthcare access for both the NCMS-insured and the NCMS-uninsured.

Brief conclusion of public health insurances launched

By 2009, 94% of rural counties implemented the NCMS (Barber and Yao, 2011)[19] and more than 94% of eligible rural residents (833 million people) were covered by the NCMS (China Statistical Yearbook 2010). In 2012, the medical insurance system (including the rural NCMS, the urban UEBMI and the urban URBMI) covered 1.34 billion participants.[20]

As the question of healthcare costs causing widespread poverty became a pressing issue, a rural public health insurance program, the New Cooperative Medical Scheme (NCMS), was implemented beginning of 2003. The introduction of a public insurance system brought a momentary respite, although it did not resolve the issue in any lasting sense.[21] Furthermore, this health insurance system only made minor inroads into the healthcare network. In fact, if patients went to a hospital outside their local area, the rural public insurance system penalised them with a lower reimbursement (or none at all) for treatment.[22] Even now, repayments for consultations remain very low, meaning that patients and their families are usually prepared to relinquish them.

All this has meant that in recent years, the very best hospitals in urban areas were, and still are, forced to deal with significantly higher demand than was intended.

Medical (Financial) Assistance Program

First piloted in some rural areas, the medical assistance program aims at protecting rural households against poverty caused by serious illness. This program was established with a focus on the estimated 5% of the population covered by the main social assistance programs:

- *Wubao*: five guarantees' Program established in the mid-1950s with a minimum level of food, clothing, shelter, medical care and funeral expenses. In 2013, it was covering 5.37 million older people of whom 1.8 million were cared for collectively in homes for the aged and 3.5 million in their own homes in villages (Leung J. and Xu, Y., 2015)[23].
- *Dibao*: for people under the poverty line, 2,300 Yuan per person per year, close to the international level. In 2013, the national average assistance standard for rural dibao was 203 yuan per person per month with variability through the Chinese territory, from 100 yuan to more than 300 yuan, reflecting partially the local financial capacity. (Leung J. and Xu, Y., 2015)

In 2003, the Ministry of Civil Affairs, the Ministry of Finance and the Ministry of health jointly issued the *opinion on the implementation of rural Medical Assistance*. This system provides cash assistance for poor people to cover expenses for in-patient services and treatment of major

[19] Barber, S. L., & Yao, L. (2011). Development and status of health insurance systems in China. The International Journal of Health Planning and Management
[20] MoHRSS, 2013
[21] In rural areas, the public health insurance mentioned here is known as NCMS, or New Cooperative Medical Scheme.
[22] Here, we are referring to the period after the NCMS was introduced to the countryside.
[23] Joe C. B. Leung et Yuebin Xu, China's Social Welfare: The Third Turning Point, ed. China Today.(2015)

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illnesses. Funds are also used to support poor households' participation to the NCMS. This system is funded by the central government and local ones, from welfare lottery funds administrated by civil affairs de departments, charity donations. Between 2003 and 2007, 22 out of 34 provinces received subsides from central government.[24]

As for the public health insurance system, implementation of the programme was delegated to county authorities, with considerable discretion over both policy design and execution. As a consequence, from one county to the other, there is variability in terms of funding eligibility, types of illness or services to be covered. In the same way, the levels of benefices and the payments methods differ from one place to the other.

In the end, the Medical Assistant System was less efficient than expected[25]. One reason could be that patients must cash the money out before being reimbursed. The audience for this program being the poorest of the poor, they often cannot afford to pay for medical care even if they get a reimbursement for the expenditure. From 2007, some changes have appeared. Direct payments to hospitals by the civil affairs departments were adopted in some localities; eligibility for Medical Assistance was expanded to outpatient services, the ceilings and the reimbursement rates have been raised. The fixed payment floors have been removed in some other areas, at least for the poorest part of the population.[26] By 2012, a total amount of 13.29 billion yuan had been allocated for Medical Assistance by governments at different levels. Nationally, in 2010, reimbursement rates changes from 30% to 50% of the rest healthcare expenditure after the NCMS payment.[27] Today, the covered population stands at over 95%. [28]

Current status of public health insurance schemes

Before the « *Open Door Policy* », different types of programmes were covering the population according to the locality and their residence's permit: *Free Medical Service*, *Labor Insurance Schemes (LIS)*, *Government Employee Schemes (GIS)*… With the economic reforms, the social welfare system collapsed, leaving a large number of residents uninsured. In parallel, public hospitals have fostered the level of healthcare quality they provide, but this supply is located mainly in the urban areas. From the early 2000s, extending the proportion of the population covered by public health insurance is one of the principal objectives declared by the Chinese government. From then, three systems (NCMS, UEBMI, URBMI) have been developed in both urban and rural areas, providing coverage for more than 90% of the population. The 12th Five year National Healthcare Service System Plan 2015-2010 announced a universal « safe, effective and affordable basic healthcare services » for 2020. One of the five major issues pointed out was to expand basic Medical-Insurance programs. Between 2001 and 2013, the share of public and social funds in

[24] China has 34 provincial-level administrative units: 23 provinces, 4 municipalities (Beijing, Tianjin, Shanghai, Chongqing), 5 autonomous regions (Guangxi, Inner Mongolia, Tibet, Ningxia, Xinjiang) and 2 special administrative regions (Hong Kong, Macau).

[25] Xu Y. B. and Song, X.M. (2006) A study on the design and implementation of the rural Medical Assistance Program in China: consultation report to the Ministry of health, unpublished.
[26] Xu Y.B. and Zhang X.L. (2010) Rural social protection in China : reform, performance and challenges, in J. Midgley and K.L. tangs (edes), Social Policy and Poverty in east Asia : The role of Social security. London Routeledge, pp. 116-27.
[27]Ministry of Civil Affairs, 2012 Annual Statistical Report on social service Development,
[28] Meng Q, Tang S. Universal health care coverage in China: Challenges and opportunities. Procedia—Social and Behavioral Sciences 2013 ; 77(0):330–40, 2013

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healthcare financing increased from 40 to 66.1% bringing out-of-pocket spending close to levels observed in OECD countries. [29, 30]
The 13th Five-Plan, released in 2016, aims at deepening the healthcare reform, focusing and strengthening the major points underlined in the12th Five-Year Plan.

Behind this picture, the reality is more complex with widening rural versus urban disparities in health insurance coverage and related healthcare services and costs, leading to tremendous variability in the out-of-pocket amount. The conditions of healthcare expenses eligible for refunds also differ. All these differences drove to increase the geographical inequity.

Differences between the three systems of public health insurance

There are two types of inequity. First of all, according to the public health insurance form, the coverage differs. Figure 1 displays the reimbursement rule in the three medical insurance systems. If the NCMS insurance form reimburses in priority the outpatient, we observe that the UEBMI covers the expenditures for inpatient care as well as outpatient, with a high level of reimbursement rate.

Figure 1: Public Healthcare Insurance forms

Scheme	**Urban Employees Basic Medical Insurance System (UEBMI)**	**Urban Residents' Basic Medical Insurance Program (URBMI)**	**New rural Community Medical System (NCMS)**
Targeted population	Employees and retirees with regular employment in all institutions	Children, seniors, students, unemployed, underemployed and self-employed	Rural area residents
Type	Mandatory	Voluntary	Voluntary (family-based)
Inpatient reimbursement	80-95%	50-70%	50-70%
Outpatient reimbursement	Diseases : 100% Severe diseases : 80-95%	Diseases : 40-60% Severe diseases : 50-80%	Diseases : 50-60% Severe diseases : 50-80%

Source MOHRSS (2014); Citi Research (2012); Baidu Baike (2014)

Migrant workers (from rural areas to city) are eligible to the NCMS program and to the URBMI program. In some localities, they are also eligible to specific programs with additional advantages. As shown in Figure 1, being covered by the URBMI provides overall a better reimbursement rate than the NCMS insurance forms. Specifically for drugs expenditures of outpatients, subscribers of the UEBMI are better covered than those covered by the NCMS.

[29] Pan, J and D. Shallcross« Geographic distribution of hospital beds throughout China: a county-level econometric analysis », International Journal for Equity in Health, 15 (2016)
[30] Stabile M, Thomson S. The changing role of government in financing health care: an international perspective. J Econ Lit. 2014, 52(2)

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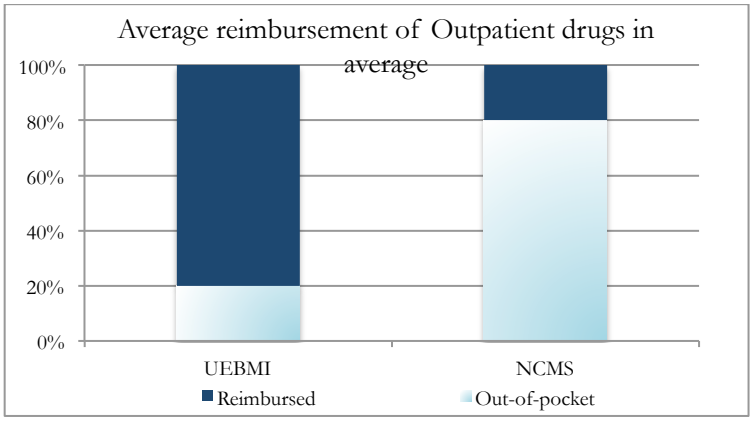
Figure 2 – Average reimbursement level of outpatient drugs under UEBMI and NRCMI



Source: Deloitte report, 2014

However, even for migrant workers, a very important feature of these public health insurances schemes is that there is no portability of rights. In other words, rights acquired are available only in specifically defined location.

Until 2015[31], each insurance program was independently managed and operated. Presently, Chinese authorities are planning to merge the NCMS program and the URBMI program. The inclusion of the UEBMI programme is still under debate. The major problem lies in the lack of consensus on the primary purpose, as different agencies and ministries are in charge if these public insurance programs or part of them, with very different agendas and priorities.

One of the purposes of this merger is an improvement in management efficiency. The statutory requirement set down that a policyholder of one program cannot be eligible to any other public health insurance program. However, some migrant workers subscribed to more than one public health insurance program. That was a way to circumvent the lack of portability of rights[32] (rights acquired available in a restricted locality). As a result, it may reduce the coverage of part of the migrant/commuter population and, in the end, their healthcare access.

The geographical inequity

The second type of inequity is purely geographical, as shown in a study on NCMS by Wang (2009)[33]. He shows an important correlation between NCMS package and local GDP per capita, with variability through the Chinese territory. Indeed, local governments provide the main part of the funding. Because of the huge GDP heterogeneity over the Chinese territory, the advantage offered by the NCMS package varies from one county to the other. There is variability not only in terms of funding eligibility, types of illness or services to be covered, but also in terms of levels of benefits and payments methods.

[31] Excluding pilot programs
[32] The no portability of rights is partially due to the decentralized level of the public healthcare system implemented.
[33] Wang, H. (2009). A dilemma of Chinese healthcare reform: How to re-define government roles? China Economic Review, 20(4), 598-604.

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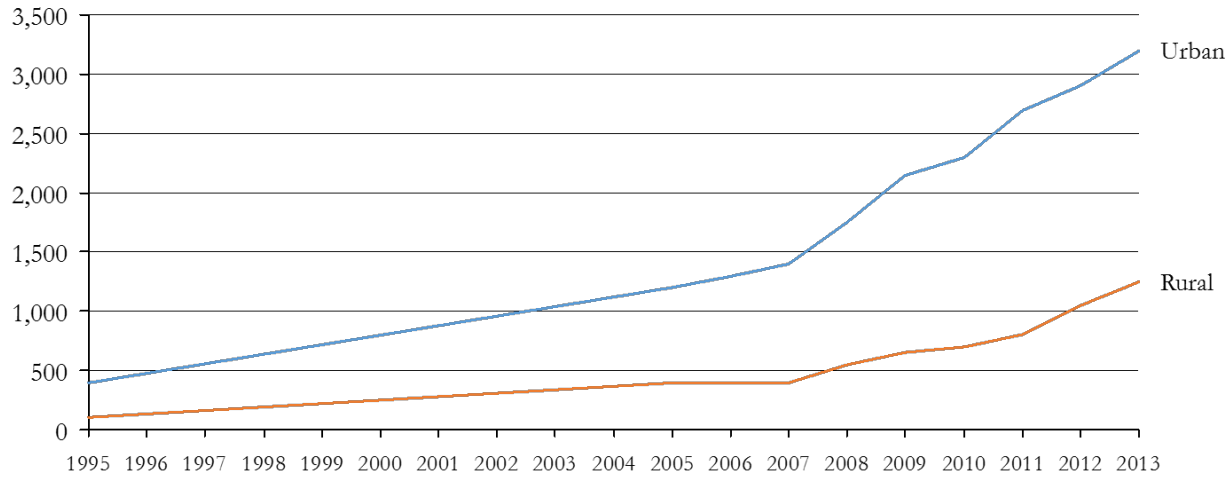
Overall, the basket of services covered by a given public health insurance program varies across the Chinese territory. This basket depends on the level of funding that itself depends on the locality wealth. It led to inequality in healthcare access from one county to the other

Dong and Song (2009) [34] illustrate this phenomenon with an example, and how it drives inequality to healthcare access[35]. They show that Diabetes patients in Huangshui, Hubei, face no deductibles, 75% reimbursement rates, and an annual reimbursement cap of 1680 RMB (US$ 250). In contrast, diabetes patients in Shantou, Guangdong, face a deductible of 1000 RMB (US$ 150), a reimbursement rate of 50%, and a cap of 6000 RMB (US$ 880).

The health risks are pooled at the county level, this inequality is particularly strong between rural versus urban localities[36],[37]. Figure 3 displays the difference in healthcare spending per person between urban and rural regions. It shows an increase in the difference over the last twenty years.

Figure 3: Healthcare spending per person in urban and rural regions (in RMB)



Source: Healthcare in China, A Kieger Report on the Chinese Healthcare Market, 2015
Figures from National Bureau of Statistics of china, 2015

[34] Dong C, Song Y. Impacts of different insurance schemes on non–communicable diseases services utilization. Beijing: World Bank, 2009.
[35] Wang, H. (2009). « A dilemma of Chinese healthcare reform: How to re-define government roles? » China Economic Review, 20(4), 598-604.
[36] Liu, H., Gao, S., & Rizzo, J. A. (2011). The expansion of public health insurance and the demand for private health insurance in rural China. China Economic Review, 22(1), 28-41
[37] Wang, H., Gusmano, M. K., & Cao, Q. (2011). An evaluation of the policy on community health organizations in China: Will the priority of new healthcare reform in China be a success? Health Policy, 99(1), 37-43

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Adverse selection

It is said adverse selection appears if people who do not participate to the public health insurance program are those with excellent health and people who do participate to the public health insurance program are those with bad health.

Participation to NCMS insurance or URBMI insurance is voluntary but the unit of participation is the household. There is reason to assume that household subscriptions are based on the average health status of the members of the household, but not that they are based on each member of the household having a poor health status: the system should theoretically reduce adverse selection bias. However, although rural inhabitants are required to participate as household units in order to reduce adverse selection, the elementary conclusion drawn from previous studies is that the system does not totally prevent adverse selection (Wagstaff *et alii*, 2007; Milcent and Wu, 2015)[38,39]. Due to the voluntary nature of NCMS insurance or URBMI insurance, concerns about an adverse selection remain, representing a threat to the financial sustainability of these programs in the long run.

Those with the highest risk of getting sick are those that are the most likely to be early adopters of a health insurance[40]. As a consequence, if the subscription ratio is low, the pool of subscribers will be composed of a population with high risk of getting sick. In the case of a private insurance, it means that the premium will be expensive, at it covers an event whose likeliness is high. In the case of a public insurance, as for NCMS or URBMI, the insurance premium is fixed *ex-ante*, independently from the number of subscribers and their characteristics. It is then possible that the insurance premium that is charged may not be sufficient to cover the healthcare reimbursement level required for the pool of subscribers. This can explain the failure of previous attempts to set up public insurance at local level prior to 2003. In addition, this shows the importance to have a large part of the population to subscribe for the scheme to work successfully. One of the particularities of the Chinese model is that it is much decentralized, with insurance funds pooled and managed at county level. This explains why there is need for a large number of subscribers in each municipality and not only at global level. Said otherwise, this implies a low variance in the subscription ratio between municipalities. This is necessary condition to ensure a relatively homogeneous cost of this public insurance across the territory.

Impact of insurance on demand and prices

The development of insurance schemes has an impact of the market equilibrium:

- It increases demand both by extending the pool of potential customers and through induced demand mechanism
- Ultimately, it tends to drive the prices up

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[38] Wagstaff, A. and S. Yu (2007), "Do health sector reforms have their intended impacts? The World Bank's Health VIII Project in Gansu province, China", Journal of Health Economics 26 (3): 505-535

[39] Carine Milcent and Binzhen Wu, "How Do You Feel? The Effect of the New Cooperative Medical Scheme in China," The Journal of Development Studies, 2015. Vol 51(12).

[40] Pour plus de détails, il faut se référer aux modèles d'assurance. L'un des premiers modèles sur la sélection adverse est le modèle d'Akerlof. Akerlof G., « The Market for "Lemons": Quality Uncertainty and the Market Mechanism ». 1970. The Quarterly Journal of Economics, Vol. 84, No.3

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Induced demand: Following the definition of McGuire (2000)[41], under induced demand, a physician takes an action to shift the patient's demand curve in the direction of the physician's own interests. Physicians can affect such a shift, because they have more information regarding the patient's condition and treatment options than the patient. This is what is defined as asymmetry of information.

Given the way public hospitals currently operate (as described earlier), doctors and staff of public hospitals can receive supplementary income, via a series of opaque rules. This supplementary income is reliant on both the hospital activity, as a profit-making business, and public health insurance making patient affordable to healthcare access.

It is therefore easy to understand why doctors might be encouraged to take steps to increase their most lucrative practices: increasing the number of appointments, over-prescribing, over-diagnosing. Consequently, the "operational objective" for treatment personnel and for doctors includes maximizing profits. Within this setup, both hospital management and medical staff benefit from the increased activity. An occupation whose remuneration was, until recently, disconnected from any profit-driven influence becomes a race for financial gain. Today, medication sales make over 40% of turnover for public health establishments. On the flip side, patients have bear with the cost of healthcare increasing drastically in parallel with the overconsumption of treatment, creating a climate of ever-growing tension between medical staff, doctors and the patients.

The healthcare price increase: Besides, NCMS insurance programs make healthcare services accessible to those who were previously not able to afford them due to not being covered by any insurance scheme. As a result, providers have a greater population of potential patients. According to the theoretical literature, these healthcare providers may have an incentive to increase the price of their healthcare services to maximize profits to the greatest extent compatible with the continued financial viability for patients of being treated in their facilities. Feldstein (1970) [42] showed that physicians raise their fees when insurance becomes more extensive—i.e., when a large part of the population comes to be covered by health insurance. Chiu (1997) [43] uses a formal model to show that the introduction of insurance increases the equilibrium price of healthcare. In such cases, it is uncertain whether or not insurance will reduce the financial burden of sick people. Chiu (1997)44 shows that if the supply of healthcare is sufficiently price-inelastic, this increase in price always leads to a reduction in consumer welfare.

These mechanisms explain the tremendous increase in healthcare expenditure over the last decade (Table 1).

Table 1 : China GDP and Healthcare Spending (billion $)

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[41] McGuire, T. (2000). Physician agency. In Culyer, A. J. and Newhouse, J. P. (eds.) The handbook of health economics, vol. 1, pp. 462–536. Amsterdam: Elsevier.

[42] Feldstein, M. (1970), "The Rising Price of Physicians' Service", Review of Economics and Statistics 52,121-133.

[43] Chiu, W. (1997), "Health insurance and the welfare of healthcare consumers", Journal of Public Economics, 64(1), 125-133.

[44] Ibid

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Year	GDP	Healthcare Spending (Billion$)	Healthcare Spending (% GDP)
2004	1,93	90,8	4.70%
2009	4,990	254.5	5.10%
2014	10,355	590.2	5.70%

Out-of-pocket

The out-of-pocket is the amount the patient has left to pay that is not covered by health insurance.

There is no full consensus in literature on the impact of insurance scheme on out of pocket payments. Liu and Zhao (2014) [45] found that the Urban Resident Basic Medical Insurance (URBMI), designed for urban residents without formal employment contract, has not reduced total out-of-pocket health expense but Babiarz et al. (2010) found [46] a reduction in the total out-of-pocket health expense. Wang (2005)[47] suggests that the government's financial support to the NCMS does not help rural inhabitants, as this support actually passes directly to healthcare providers via higher prices, over-prescription, and the over-use of high-tech equipment. However, the literature tends to find a positive effect for the low-income families total out-of-pocket.

Overall, in both rural and urban areas, the introduction of various forms of public health insurance led mechanically to reduce the percent of out-of-pocket charges for patients on the total expenses (without health insurance, this percent is mechanically of 100%). Between the 1990s and the present day, the percentage of out-of-pocket charges has decreased in relation to total expense. According to a report by the World Health Organization (WHO)[48], in 1995 the figure was 46.4%, then rose to 59% in 2000, and now stands at 34.9% (Figure 4). However, on one hand, this figure does not take into account the significant geographical inequalities, particularly between cities and rural areas. On the other hand, at the same time there has been a considerable increase in expenditures, both as a percentage of GDP (from 4.55% in 2006 to 5.15% in 2011)[49] and per capita. These expenditures went up from 178 RMB in 1995 to 362 RMB

[45] Hong Liu, H. and Zhong Zhao, Z. Does health insurance matter? Evidence from China's urban resident basic medical insurance, Journal of Comparative Economics, 2014, vol. 42, issue 4, pages 1007-1020

[46] Babiarz, K. S., Miller, G., Yi, H., Zhang, L., & Rozelle, S. (2010). New evidence on the impact of China's new rural cooperative medical scheme and its implications for rural primary healthcare:
Multivariate differencePinPdifference analysis. British Medical Journal, 341-350.

[47] Wang H. "Impacts of medicine price on New Cooperative Medical Scheme", (2005) China Price, 11:23–4, in Chinese.

[48] Shyama Kuruvilla, Julian Schweitzer, David Bishai, Sadia Chowdhury, Daniele Caramani, Laura Frost, Rafael Cortez, Bernadette Daelmans, Andres de Francisco, Taghreed Adam, Robert Cohen, Y Natalia Alfonso, Jennifer Franz-Vasdeki, Seemeen Saadat, Beth Anne Pratt, Beatrice Eugster, Sarah Bandali, Pritha Venkatachalam, Rachael Hinton, John Murray, Sharon Arscott-Mills, Henrik Axelson, Blerta Maliqi, Intissar Sarker, Rama Lakshminarayanan, Troy Jacobs, Susan Jacks, Elizabeth Mason, Abdul Ghaffar, Nicholas Mays, Carole Presern, Flavia Bustreo, "Success Factors for Women's and Children's Health Study Groups," *Bulletin of World Health Organisation*, Vol. 92, No. 7, 2014, pp. 533-544. www.who.int/pmnch/successfactors/en (accessed September 2017). The source data are drawn from the China Health Statistics Yearbook.

[49] China Health Statistical Yearbook, 2012.

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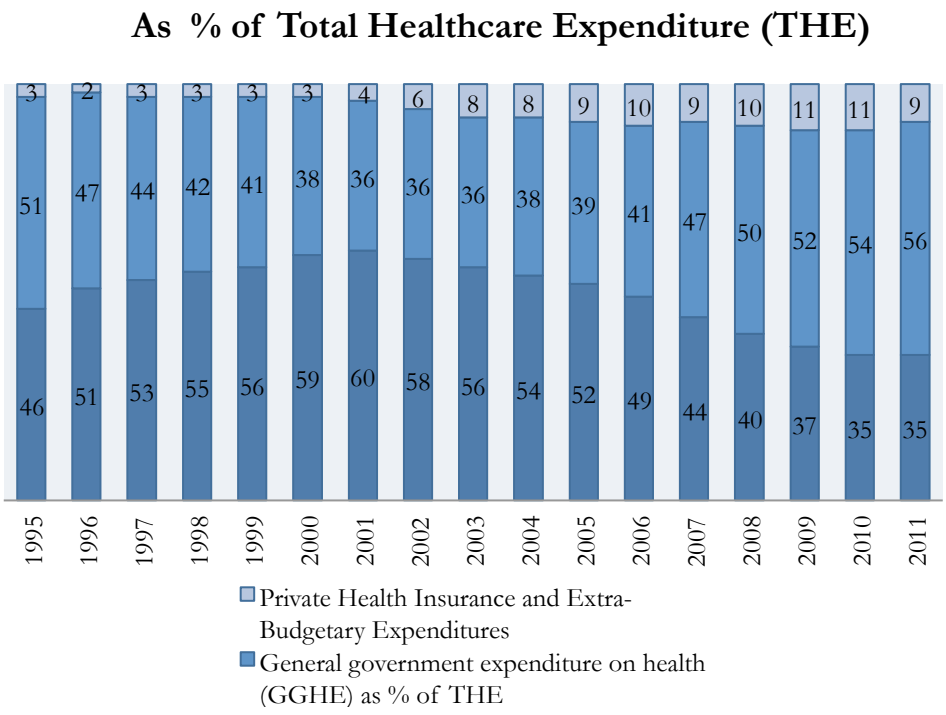
in 2000, and now stands at 1801 RMB. The result of this is that, despite an appreciable improvement in health insurance cover, the out-of-pocket charges have risen considerably.

Figure 4: Healthcare expenditure in China, 1995-2011[50]



Public Health insurance as a response to a concentrated demand

A direct consequence of this concentrated demand to level-3 hospitals was that they became overburdened, leading to incredibly long queues and very short consultation times. The situation was exacerbated all the more by the fact that these establishments were able to offer high-performance equipment and quality treatment. At the same time the primary care centres, along with level-1 and a number of level-2 hospitals, found their range of facilities, including their equipment, were being underused. The proportion of beds in use was above 100% in the top-ranked hospitals, while it was at 80% in level-2 establishments, and 55% in level-1 establishments[51]. All this occurred at a time when a large proportion of the population was in a situation of financial instability. With expenditures increasing rapidly, making healthcare less financially accessible, this created a certain amount of tension between patients and medical staff at the top-ranked hospitals.

When public health insurance was introduced in rural areas in 2003, its implementation was supposed to condition the level of reimbursement to the establishment attended by the patient, with the intention to re-create a smoother patient trajectory.

This scheme encountered various obstacles:

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[50] World Health Organization (see http://apps.who.int//nha/database)
[51] http://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/healthcare%20systems%20and%20services/health%20international/hi10_china_healthcare_reform.ashx
accessed September 2017

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- The range of treatments covered by NCMS and the level of coverage were, and still remain, extremely limited.[52]
- There was higher demand among those seeking quality treatment, who were willing to sacrifice accessibility in both geographical and financial terms. The reform measures were not sufficient to cope with the geographic upheavals among the patient base. Free clinics, primary care centres and level-1 hospitals were shunned, in favour of level-2 and especially level-3 hospitals.

As a consequence, the launch of public health insurance programs and in particular the NCMS program, was not sufficient to force a new pathway of healthcare to the patient, even with the huge increase in the reimbursement rate observed during the last decade.

First results: effect on health and healthcare access

Evidence in the literature on the effect of these public health insurance programs on healthcare utilization is actually mixed. Wagstaff et al., 2009[53]; Lei and Lin, 2009[54]; Liu and Zhao, (2014) [55] have found that these programs have significantly increased the utilization of formal medical services, including both outpatient care and inpatient care. Liu and Zhao, (2014) also found that this program has improved medical care utilization especially for children, members of the low-income families, and the residents in the relatively poor western region.

Despite the fact that the main purpose of the NCMS is to improve the affordability of healthcare services, empirical evaluations have not found solid evidence of a decrease in out-of-pocket health expenditures (per visit) owing to the NCMS (Wagstaff et al., 2009; Lei and Lin, 2009). It has been suggested that suppliers may have exploited the benefit by increasing the price of healthcare services or increasing the number of visits or unnecessary tests or procedures for each patient, resulting in an increase in total healthcare expenses.

Besides, it is not clear whether more (less) healthcare utilization means better (worse) self-assessment of health status. On one hand, more healthcare utilization can lead to better objective and hence subjective health status; on the other hand, more utilization of the healthcare may lead to more awareness or anxiety of latent diseases (Koszegi, 2001)[56]. Lei and Lin's (2009) found no significant improvement in self-reported health status or sickness or injury in the past four weeks after families acquired insurance coverage. Milcent and Wu (2015) [57]found a positive extensive margin: individuals feel better about their health status when covered by the NCMS. However, there is no intensive margin: an individual's self- assessed health status does not improve with the

[52] Carine Milcent and Binzhen Wu "How Do You Feel? The Effect of the New Cooperative Medical Scheme in China," *The Journal of Development Studies*, Vol. 51, No. 12, 2015, pp. 1585-1602.
[53] Wagstaff, A., M. Lindelow, J. Gao, L. Xu and J. Qian (2009), "Extending health insurance to the rural population: An impact evaluation of China's new cooperative medical scheme", Journal of Health Economics 28, 1-19.
[54] Lei, X. and S. Lin (2009), "The New Cooperative Medical Scheme in Rural China: Does more coverage mean more service and better health?", Health Economics 18, 25-46.
[55] Hong Liu, H. and Zhong Zhao, Z. Does health insurance matter? Evidence from China's urban resident basic medical insurance, Journal of Comparative Economics, 2014, vol. 42, issue 4, pages 1007-1020
[56] Koszegi, B. (2006), "Emotional agency", The Quarterly Journal of Economics, 121(1), 121-155

[57] C. Milcent and B. Wu (2015) How Do You Feel? The Effect of the New Cooperative Medical Scheme in China, Journal of Development Studies, Volume 51(12): 1585-1602

number of years enrolled in the program. Second, they found a positive general equilibrium effect of introducing the NCMS program on non-participants in NCMS counties. This effect accumulated over time.

In parallel, the government has to deal with two major issues:

- The increase in elderly people that restricts the share of public funding allocated to health expenditures, with the rising burden of chronic non-communicable diseases
- The increase in medical healthcare costs due to local suppliers in monopoly position, over-prescriptions and innovative treatments

Private Health Insurance

Among the series of healthcare system reforms, the NDRC announced in March 2012 its clear intention to expand the private health insurance.
A new regulation in 2014 enabled insurers, domestic and foreign, to invest and own more than one company in the same segment of the industry. Foreign companies (as well as domestic investors) may now own a stake in more than one insurance company that sells similar types of products. In addition, investors are now allowed of their stake, alleviating foreign enterprises of the burden to rely on hard cash to finance acquisitions. In July 2015, newspapers articles including China Daily mentioned a press conference where Ma Xioawei, NDRC vice-minister, declared the Chinese government supported to the commercial health insurance, particularly for older people, whose number reached 202 million by 2013. This speech echoed the official document published by the State council one year earlier.

What is the importance of private health insurance on the market? As we said, the reimbursement rate and the basket covered by public health insurance schemes are insufficient to fully satisfy the healthcare demand. The Chinese population faces a contradictory situation. Even if 95% of the population is covered by one of the three major public health insurances, the reimbursement rate is still insufficient leading to excessive out-of-pocket. The important effort of increase in the reimbursement rate by the central government was not enough to offset the increase in healthcare price (in absolute value). Unlike public health insurance, private health insurance adjusts the premium to the willingness-to-pay and the intended healthcare basket covered according to the policyholder's characteristics. Private health insurances are more flexible in the healthcare package offered. They can propose supplementary share of reimbursement to healthcare covered by a public insurance and cover additional package of healthcare not covered by the public health insurance.

The rise of Private Health Insurances

In today's China, the rise of Private Health Insurances is supported by the emergence of an upper middle class and self-employed workers. The upper middle class is defined by a monthly disposable income between 10 000 RMB and 40 000 RMB. [58]. They live mainly in urban areas and account for around 6% of the total urban households. They are the core target for private insurance companies, that reach out to them through direct marketing, as anyone traveling in Chinese cities will have experienced, receiving SMS ads for health insurance policies on their mobile phone.

[58] China Yearbook, PwC Analysis 2015, www.pwccn.com , accessed May 2016

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The market of insurance of persons was representing a turnover of 1,02 thousand billions RMB (or US $167 billion) in 2012, and it reached 1,3 thousand billions RMB (or US $210 billion) by 2014[59]. There are two predominant players on this market, Ping'an Life and China Life, with 40% of market share.[60]However, this market includes life insurance and the accident insurance. The healthcare insurance market itself is very recent and still remains quite small with 79 billion RMB in 2010[61] up to 241 billion in 2015[62] (for total medical insurance premium)

The current obstacles to the rise

The first obstacles to the development of the private insurance market are quite structural: i) the existence of a universal coverage through the 3 main public insurance schemes ; ii) the lack of unified reliable database covering the full patient base with their medical record, which creates huge limits to the forecast of the health risk.

On top of this, it seems that services offered by insurance companies only partially meet demand. They are to a large extent designed mainly to ensure market solvability, when customers expectations tend to become increasingly inclined toward healthcare quality. A study from McKinsey Consulting Group[63] shows that the biggest unmet need of upper middle class consumers (with yearly income above 80,000 RMB) is quality of healthcare, of which more than 2/3 of respondents are not satisfied.

Private healthcare insurance schemes sometimes allow to reduce the waiting list to visit a doctor (through services such as the green lane), direct billing and the provision of second opinion, but this is at a very early stage compared to customer expectations.

It seems that available products are still pretty much undifferentiated. Market leaders (such as PICC Health, Ping An Health, Kunlun Health, Hexie Health) have very similar product addressing the same market segments, hence mainly competing on price, leading to profit margins too thin to really developp the market.

Besides, a healthcare private insurance is still often part of a more global package including critical illness insurance, disability insurance and elderly insurance for instance. As a consequence,

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[59] China Insurance Regulatory Commission, 2014
[60] Barber SL, Yao L. Health insurance systems in China: A briefing note. World Health Report (2010). Background Paper 37. Geneva, Switzerland: World Health Organization; 2010.
[61] China Insurance Yearbook, 2010
[62] China Insurance, Yearbook 2014
[63] Ng Alexander, and Süssmuth Dyckerhoff Claudia, « Private health insurance in China: Finding the winning formula », Health International is published by McKinsey's Healthcare Systems and McKinsey & Company, 2012 Results from the 2012 McKinsey Patient & Physician survey among more than 1 000 upper middle class consumers (yearly income greater than 80'000 RMB).

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consumers have a very unclear understanding of what their insurance subscription actually includes.

In summary, the market of private insurance has been recently booming but still falls short of expectations. Their offers are progressively getting more advanced and refined, but solely targeted at urban upper middle class, participating to the increasing split of the Chinese healthcare market into different silos (see conclusive Chapter).