The Effort to Cut Out-of-Pocket Medical Expenses and the Political Constraints: Examples from the New Cooperative Medical Scheme in China

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ABSTRACT

This master thesis examines the impact of the New Cooperative Medical Scheme (NCMS) on rural residents’ out-of-pocket medical expenses (OOP) in China. The thesis first uses quantitative methods to identify the statistical relationships between NCMS and rural OOP and finds that enrolling in NCMS is associated with higher OOP. Then, using the 2009 reform, also known as Healthy China 2020, as a starting point, the thesis further explores the factors behind the resistance to the reform efforts to cut down OOP. By utilizing two political science theories — institutional layering and policy feedback — the thesis finds that the 2009 reform has so far failed to achieve noticeable reductions in OOP because, on the one hand, fierce institutional competitions has transformed NCMS into a fragmented program with too many veto players; on the other hand, policy feedback effects, under which previous policies continue to influence the trajectory of future policy-making decisions, strengthen particular interest groups and force the reform to make compromises.

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Chapter I: Introduction

The Chinese healthcare system began in rural areas as the Cooperative Medical Scheme (CMS) in the 1950s, supported by large numbers of barefoot doctors (Chen, 2014). When, in 1978, the planned economy was largely replaced by market reforms, the healthcare system also underwent dramatic changes. The focus of healthcare shifted to urban centers, reallocating resources from the countryside to cities (Ke, 2014). In 2003, a new type of rural public health insurance came out – the New Cooperative Medical Scheme (NCMS). It replaced the CMS, yet the new insurance did not lower but greatly raised rural residents’ out-of-pocket medical expenses (OOP). Concerned with rising OOP, the central government launched Healthy China 2020, a comprehensive healthcare reform started in 2009 with the goal of lowering costs to patients, including the “zero-profit drug policies”, which aimed to prevent hospitals and doctors from making profits through the over-prescription of medication, as well as the goal of encouraging rural residents to utilize local clinics rather than travelling to cities to seek care at hospitals. However, even though the reform has been ongoing for almost seven years, there has been little progress in terms of lowering rural residents’ OOP. This thesis focuses on rural areas in China and proposes two factors limiting the effectiveness of the 2009 reform efforts – institutional layering and policy feedback effects.

Due to institutional layering, the NCMS has grown excessively, resulting in a fragmented system in which several institutions all claim responsibilities. In each province, the NCMS started at the Department of Health (now called the “Health and Family Planning Committee”), but other Departments, Committees, and Bureaus soon became involved, adding complexity to
the system. *Medical Rescue*¹, for instance, is a component layered upon NCMS launched in 2003 and managed by the Department of Civil Affairs in each province; *Serious Disease Insurance*², moreover, was initiated in 2012 by the Insurance Regulatory Commission and became a mandatory component purchased using NCMS funds. What is more, the Health and Family Planning Committee and the Department of Social Security have both long been fighting to play the leading role in managing the NCMS as the fund grows, since the central government allows whichever Department that manages NCMS to use the fund for investment. The entangled interests make the reform a complicated effort coordinated by several Departments. Therefore, when the central government considers further reforms, they must to cater to various, sometimes conflicting, institutional interests. Consequently, the fragmentary nature of the NCMS renders reform efforts difficult, as conflicting interests result in internal conflicts and extraneous veto players in the game. Departments that may lose influence and funding due to reform efforts may doggedly resist reform efforts.

Additionally, healthcare policies in effect since the 1980s have created a momentum that is difficult to stop or reform. The feedback effects on the NCMS can be traced back to the 1980s when China first introduced the market economy. Since then, public hospitals that were previously entirely funded by the government became only partially funded and are responsible for their own profit-making. This change has altered public hospitals’ operating model to one in which doctors have significant shares in hospitals’ overall profits. Hsiao (2014) also contends that the change in the 1980s changed the character of public hospitals from non-profit to for-profit. As a result, doctors’ behavior has changed. Over-prescription of drugs greatly escalates

¹ This component will be explained in detail in later chapters
² See 1
their overall income and they have gradually gotten used to this new income level. The role of doctors has changed from uninterested practitioner to salesman and the interest group of medical professionals has been greatly strengthened due to increased financial capacity. They have become focused on profits instead of the efficiency and effectiveness of medical treatment (Hsiao, 2012, 2014). This transformation has become entrenched in the medical profession and has proved resistant to reform efforts. As the 2009 reform sought to abolish the fee-for-service system and implement a zero-profit drug policy, which requires hospitals to sell drugs at their cost and thus preventing medical professionals from profiting from prescribing medicine, doctors and hospitals pushed the central government to eventually compromise, permitting hospitals to raise registration fees, doctors’ service fees, as well as diagnostic test fees to compensate for the decreases in drug prices. Clearly, the public hospital reform in the 1979 has changed hospitals’ nonprofit character as well as doctors’ interest orientation. This policy exerts a feedback effect on the 2009 reform that strongly resists any plans to modify the current profit-making model. The policy feedback not only strengthens the power a particular interest group – medical professionals but also creates a huge momentum that raises the reversal cost and makes the system self-reinforcing.

In summary, this thesis studies the persisting obstructions behind the 2009 reform (Healthy China 2020) to lower rural residents’ out-of-pocket medical expenses. It attempts to identify the trend of rural OOP spending since the implementation of NCMS as well as the momentum behind the skyrocketing cost that makes the reform difficult to proceed. To achieve these goals, this thesis will first identify the relationship between NCMS and OOP. As the 2009 reform has implied, rural OOP greatly increased since NCMS. Thus this study will first test if
this implication is correct. The second step is trying to explain the identified trend by utilizing two political science theories – institutional layering and policy feedback.
Chapter II Background Information

The current national Healthcare system of the People’s Republic of China traces its roots back to the Rural Cooperative Medical Scheme (CMS), a program established in the 1950s soon after the country’s founding. According to Chen (2014), the Rural Cooperative Medical Scheme (CMS) was largely a state-operated system under the planned economy, supported by a large number of barefoot doctors. Healthcare at that time was universally free, and barefoot doctors, who delivered medical services house-to-house, formed a comprehensive, if rudimentary, network in the nation’s rural areas. Having emerged only recently from years of bloody peasant-led revolution, the focus of the government at that time lay on the countryside instead of urban areas.

That focus, however, shifted dramatically in 1978 as China launched its market reforms and opened its door to foreign investments. To aid economic development, the central government began to emphasize urbanization, encouraging migration and supporting expansion of urban healthcare facilities (Ke, 2014). In the following decades, the central government constructed and modernized a great number of urban hospitals and passed a series of new benefits for Urban Residents, including in 1998 providing public insurance for all urban workers working under legal contract. Meanwhile, lacking both medical and human resources to sustain CMS, rural areas were barely supported by the remaining barefoot doctors with no modern healthcare facilities.
Graph 1

Source: China Health Statistical Yearbook 2013

It was not until 2002 that the central government once again began to focus on rural healthcare. On October 19, 2002, the Central Government and State Council issued Central Government [2002] No.13 – Decisions on Further Strengthening Rural Public Health³, requiring that 1) rural healthcare reform be written into local governments’ main agenda, 2) the central government increase healthcare spending directed to rural areas, and 3) that all provincial governments pay more attention to rural public health conditions and health spending. A few months later, on January 10th, 2003, the Departments of Health, Finance, and Agriculture together issued Opinions on Establishing the New Rural Cooperative Medical Scheme⁴. This document was forwarded as General Office [2003] No.3 by the General Office of the State Council to all local governments, Departments, Committees, and Bureaus on January 16⁵. The

³ Original Chinese name of the bill (same for other footnotes in Chinese): 中发[2002]13 号 中共中央、国务院关于进一步加强农村卫生工作的决定
⁴ 卫生部、财政部、农业部关于建立新型农村合作医疗制度的意见
⁵ 国办发[2003]3 号 国务院办公厅转发卫生部等部门关于建立新型农村合作医疗制度意见的通知
bill includes several key decisions including: 1) establishing NCMS and starting pilot programs in the second half of 2003, 2) requiring that the total budget for NCMS be funded by both individual contributions as well as the central government and local governments, and 3) announcing that the Department of Health would play the leadership role. This marked the beginning of the modern rural healthcare system in China. The new insurance replaced the old CMS and the coverage expanded swiftly, covering almost the entire rural area by the end of 2007.

Although the official document stipulates that NCMS is a program which allows rural residents' voluntary participation), it is, in practice, mandatory. First of all, as the first pilot program ended in 2005, the Department of Health issued Health [2006] No. 13 On Further Accelerating the Pilot Programs of NCMS on January 9th, 2006 and made further arrangements regarding NCMS. It required the proportion of towns and villages covered by NCMS to reach 40% by the beginning of 2006, 60% by the beginning of 2007, and near 100% by 2008. While the Department of Health did not forget to emphasize the voluntary nature of NCMS, the wording nevertheless revealed that NCMS coverage was assigned to local governments as a political task and used as a criterion to measure local leaders' capabilities. Because of this, local leaders will try everything they can, legally or illegally, to persuade residents to enroll. Secondly, those targets set by the central government were all achieved on time. The Introduction that precedes NCMS Management Regulations, which was first printed in 2010, writes that in the beginning of 2009, NCMS had achieved full coverage in rural areas and had become the health

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6 为卫发出[2006]13 号 宫卫、国家发展改革委、民政部、财政部、农业部、国家食品药品监管局、国家中医药局关于加强推进新型农村合作医疗试点工作的通知
7 《新型农村合作医疗管理条例（送审稿）》起草说明
insurance that covers the largest number of people in the world. In general, the mandatory nature makes NCMS different from most other insurances that may have adverse selection bias.

In terms of financing, NCMS requires residents to contribute annually, but these funds are matched by governmental funding. According to General Office [2004] No.3 Suggestions on the Pilot Programs of NCMS, the minimal annual contribution in 2003 was 10 Yuan (less than 2 US dollars) per year, matched by 10 to 20 Yuan from both the local and central government. The real amount varies depending on local economic conditions – residents of less developed western provinces are allowed to contribute the minimum, whereas residents of more developed eastern provinces are required to contribute more. Thus the total minimal annual contribution in 2003 was 30 yuan (less than 5 US dollars). Currently, according to Health [2016] No.16 Notice of NCMS's Arrangements in 2016 the minimum contribution level is 150 Yuan from individuals (less than 25 US dollars) and 420 Yuan (less than 65 US dollars) from the local government. For western provinces, 80% of that 420 Yuan comes from the central government and for eastern provinces 60% of that 420 Yuan comes from the central government. In terms of reimbursement, the amount people that are reimbursed under NCMS for each visit is calculated based on the amount and type of medication used, the number of diagnostic tests prescribed, as well as the tier of the hospitals visited – the better the hospitals the lower the reimbursement rate. Since NCMS is a rural-based public insurance, the reimbursement rate decreases substantially if residents seek care in urban hospitals. For instance, according to NCMS Documents and Policies 2002 to 2011 published by the national Department of Health, costs incurred at rural clinics will be reimbursed up to 80%, yet at most public hospitals in major cities the rate is 55%. Due to budgetary

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6 国办发[2004]3号 国务院办公厅转发卫生部等部门关于进一步做好信息系你给弄农村合作医疗试点工作的指导意见的通知
9 国卫基层发[2016]16号 关于做好2016年新型农村合作医疗工作的通知
restrictions, NCMS has an annual maximum which is capped at five times the provincial average annual disposable income in rural areas, usually at around 100,000 Yuan (about 15,000 US dollars). This maximum is enough for normal utilization yet for serious illnesses it is far from sufficient.

Today’s NCMS has developed into a complex system. It is operated under the Health and Family Planning Committee but is comprised of additional components managed by the Department of Civil Affairs and the (Commercial) Insurance Regulatory Committee. Moreover, the Department of Social Security, which declined to manage NCMS in 2003 has sought to increase its role since 2010. In addition to institutional layering, a series of policy feedback effects have made the system self-reinforcing as well. The overall outcome is a reform goal that is difficult to realize.
Chapter III Literature Review

A large body of literature suggests that ever since the launch of NCMS, rural residents’ OOP has increased, rather than decreased, substantially (Yang and Wu, 2014; Yip and Hsiao, 2014; Yip, Hsiao, Chen, Hu, Ma, Maynard, 2012; Yip, Hsiao, Meng, Chen, and Sun, 2010; Wagstaff, Yip, Lindelow, and Hsiao, 2009; Yip and Hsiao, 2009; Hu, Tang, Liu, Zhao, Escobar, and de Ferranti, 2008; Wagstaff, Lindelow, Jun, Ling, and Juncheng, 2008; Wagstaff and Yu, 2007). Some authors further point out that NCMS has failed to lower rural residents’ financial risk and has not lessened the risk of catastrophic medical expenditures (Babiarz, Miller, Zhang, and Rozelle, 2010; Sun, Liu, Meng, Tang, Yu, and Tolhurst, 2009; Sun, Jackson, Carmichael, and Sleigh, 2009; Yi and Hsiao, 2009; Lei and Lin, 2009; You and Kobayashi, 2009; Yi, Zhang, Singer, Rozelle, and Atlas, 2009; Chamon and Prasad, 2008; Wagstaff and Lindelow, 2008).

Scholars suggest two main reasons for the escalation of OOP – enrollees’ increased utilization of health services (Yang and Wu, 2014; Wagstaff et.al, 2009; Yip and Hsiao, 2009; Wagstaff et.al, 2008) and an improper incentive structure that motivates doctors to over-prescribe drugs (Yip and Hsiao, 2014; Qin, Li, and Hsieh, 2013; Yip et.al, 2012; Yip et.al, 2010; Li and Yu, 2011; Sun, Jackson, Carmichael, and Sleigh, 2009; Hu et.al, 2008; Fan, 2007). The former indicates that due to the NCMS, enrollee behavior and expectations have changed, while the latter suggests that doctors are taking advantage of the system for financial gain. Rural residents, covered by the new public insurance, are now using health services more often and may visit hospitals for small illnesses that used to be solved at home or local clinics. This behavioral change has led to two major outcomes. On the one hand, as utilization rate increases, indirect costs associated with healthcare have also increased significantly – such as transportation to hospitals – thus increasing their overall financial risk (Jian, Chan, Reidpath, and
Xu, 2010). On the other hand, the reimbursement rate for hospital visits is much lower than clinic visits, which again increases rural residents’ OOP. For medical professionals, the reforms have had the result of increasing their dependence on fees, rather than government income. Doctors’ share in hospitals’ drug sale profits has powerful influences over service providers’ behavior, driving them to prescribe more tests and drugs than what patients truly need simply because the profits are a major component of their salaries. A survey conducted by Lim, Yang, Zhang, Zhou, Feng, and Chen (2004) shows that a random sample of 656 doctors rely on drug sale for more than 50% of their monthly income, and the phenomenon of relying on over-prescription for extra revenue is even more serious in rural areas where doctors’ basic income is the lowest nationwide.

The existing literature, however, has two key problems. First of all, most of them are not up-to-date, as few examines the impact of the 2009 reform on NCMS enrollee’s OOP. For the limited number of articles that study the 2009 reform, for instance Yip and Hsiao (2014), Hsiao (2012), Yang and Wu (2014) and so on, almost all of them concentrate on the immediate reasons for the policy failure and fail to elucidate the political environment that has affected the effectiveness of the reform efforts. In general, Existing literature has neglected two political science theories – institutional layering and policy feedback effects. The former increases the number of institutional veto players and hinders the policy-making process, while the latter prevents the resulting policies from being realized.

Institutional Layering

Institutional layering refers to superimposing new institutions on preexisting institutional frameworks (Thelen, 2004; Thelen, 2003). This can be triggered by many factors. For instance, the existing institutional framework might be politically unchallengeable; hence adding new
components onto it may be the best option left to reformers. Layering can thus be regarded as a conservative policy change (Beland, 2007). Ewig and Kay (2011) and Dion (2009) have both described the process of layering new welfare institutions on old ones when strong veto players block the government’s wholesale reform. Ewig and Kay in particular argue that institutional layering of Chilean welfare system during the retrenchment period makes any reform in the post-retrenchment period difficult. In addition, competing interests may also lead to the layering of new elements onto existing structures (Schickler, 2001). Since their interests differ, new components may serve slightly different purposes (Orren and Skowronek, 1994). Yet because they are all attached to a preexisting framework, which already has a stable population support, the layering is particularly convenient and easy to achieve compared with establishing and stabilizing something new from scratch (Remington and Smith, 1999).

Today’s NCMS is also a product of institutional layering. In each province, NCMS started at the Department of Health, but different departments quickly established new branches which then added several extra components to NCMS. The Insurance Regulatory Commission, the Departments of Finance, of Social Security, and of Development and Reform have all established new branches that are partially responsible for NCMS, and none of them is willing to give up the share. The outcome is a fragmented program and entangled interests. In this chaotic and long-lasting competition, the policy that may satisfy one institution angers the other. Thus the policy-making process becomes particularly ineffective because any decision requires agreement from a great number of institutional veto players (Kay, 1999; Steinmo and Watts, 1995; Tsebelis, 1995).
Policy Feedback

The approach of policy feedback looks at the effect of policy design on public preferences and behaviors and how they in turn shape subsequent policies and political environment (Campbell, 2011; Beland, 2010; Immergut, 1998; Hall and Taylor, 1996; Orloff, 1993; Skocpol, 1992; Steinmo, Thelen, and Longstreth, 1992). This method stresses that policies are not only outputs but critical inputs that may influence the social environment (Pierson, 1994; Pierson, 1993). Social welfare policies, in particular, shape the way the public, politicians, and interest groups participate in politics, their awareness and interpretation of political information, as well as their relevant resources and capabilities to reach their political goals (Campbell; Ewig and Kay, 2011; Bruch, Ferree, and Soss, 2009). All of these then condition what next policy design would be like, and this is why many aspects of social welfare are self-reinforcing (Campbell, 2012), for series of policy feedbacks have created “lock-in effects” that favors strengthening current institutional characteristics (Pierson, 1994, 1996).

Policy feedback in general shapes the subsequent political environment from three directions – changing state capacities (Berkowitz, 2003; Schieber and Shoven, 1999; Tynes, 1996; Skocpol, 1992; Balogh, 1988; Freeman, 1988), forming interest groups (Howard, 2007; Rother, 2005; Morris, 1996; Pierson, 1993, 1994; Skocpol), and helping the existing structures become self-reinforcing (Hacker, 2005; Pierson, 1993, 1994, 2000; Light, 1995). Not matter taking which approach, the study of policy feedback is primarily concerned on how previous policies resist any attempts to try to modify the current framework under which they rely on. This path-dependent outcome makes future reforms particularly difficult to proceed.

The major feedback effect on NCMS can be traced back to 1980s when China first introduced market economy. Since then, public hospitals have been funded by governmental
funding only partially and are responsible for their own profits. This policy change has altered public hospitals’ operating model, under which doctors have significant shares in hospitals’ overall profit. As a result, doctors’ behavior has changed. Over-prescription of drugs greatly escalates their overall income. Gradually, they have gotten used to the new income level, starting to aggressively resist any reform policies that attempt to take away their extra income. Due to this feedback effect, the reform cost escalates. The public hospital reform that came with the market economy reform has altered healthcare institutions’ nonprofit character as well as profit-making model. As a result, the zero-profit drug policy, as part of the 2009 reform, has difficulties to lower OOP because the cost of abolishing hospitals’ for-profit inclination requires huge amount of additional healthcare spending to compensate the loss on the one hand, and the political capacity to persuade the interest group of medical professionals on the other.

However, not every feedback effect can succeed in exerting influence over subsequent policies and blocking reform decisions. Patashnik (2009) argues that three factors may contribute to weak feedback or no feedback at all – weak policy design, inadequate or conflicting institutional supports, and poor timing. In general, when the initial policy itself has little impact on society, when it lacks strong institutional support or that strong support has withdrawn, or when it was implement in a politically unprepared time, feedback effects that have discussed earlier may fail to arise. In case of NCMS, there is also an instance when the feedback effect has been cutoff. In later chapters, the paper will compare the successful feedback and the failed feedback and summarizes the differences, contributing to the literature of policy feedback by adding examples from non-democratic settings.
Chapter IV Methodology

To identify the relationship between the implementation of NCMS and OOP, this paper conducts statistical analysis at both the provincial and national level, using a self-collected dataset covering 1986 to 2014. The data come from major statistical yearbooks, which are all listed in the appendix.

Since this study relies on the definition of the term rural, there are two important assumptions – the official definition of rural used in the statistical yearbooks remain unchanged and the size of the rural areas remain relatively unchanged from 1986 to 2014 as well. The first assumption is easily satisfied. According to China Statistical Bureau the term rural always includes villages and townships only. Counties, districts, and cities, on the other hand, are recorded as urban. It is also very unlikely that national yearbooks will change definitions frequently. The other assumption is more difficult to satisfy, since the pace of urbanization is by no means slow in China. However, State Council [1984] No. 65 Notice on the Report of Adjusting Standards for Establishing Counties states that, “since the market economy reform there has been 2000 new counties, and there are now in total 5698 counties in the country… Most counties, originally townships, were established based on economic development…but this standard may easily leave villages underdeveloped.” The document thus stipulates that after 1984 new counties could only be established based on total population that is living in that area and not on the degree of economic development or urbanization. Since it is reasonable to assume that major population will flow from the countryside to the cities, it is unlikely that the size of the rural area, by definition, will increase to an extent that casts doubt on the validity of this study. This new standard thus excludes the potential impact of urbanization on the size of the rural areas.
A widely used dataset that also sheds light on the relationship between public insurance and medical treatment cost comes from *China Health and Nutritional Studies*, launched in 1989 by the University of North Carolina Chapel-Hill. It is an ongoing project started in 1989 and conducted every a few years, covering health conditions and nutrition as well as family planning policies. The survey randomly samples about 30,000 individuals from 15 sample provinces and municipal cities, which are intentionally chosen to ensure diversity.

Although a number of scholars have used CHNS data to explore the relationship between public insurance coverage in rural areas and residents’ OOP, the majority of the studies focuses on urban areas. All of the studies on urban areas find that insurance coverage triggers cost inflation and fails to compromise cost-sharing (Liu and Zhao, 2006; You and Kobayashi, 2011; Liu, Shi, Lhan, Xu, and Wang, 2012). The few that focus on NCMS insurance coverage find different results. Luo and Han (2011), for instance, argue that enrolling in NCMS reduces OOP for rural residents and increases their use of preventive care. Yang and Wu (2014), on the contrary, find that NCMS leads to higher OOP.

The disagreement among scholars who study rural areas may be attributable to a major limitation of the dataset. Because the CHNS study began in 1989, researchers did not distinguish between the Rural Cooperative Medical Scheme (CMS) and the New Rural Cooperative Medical Scheme (NCMS). In the healthcare section of the CHNS data, even after 2003, researchers only asked if the respondent is covered by CMS or not and did not specifically ask about NCMS enrollment. This may result in residents who are not yet enrolled in NCMS believe that they are enrolled because they may consider NCMS and CMS as the same thing; or it may also result in residents who are enrolled in NCMS answering NO to the question because they do distinguish
between these two types of insurance. As a result, the impact of NCMS could not be perfectly isolated.

This paper offers a macro-level dataset that measures the relationship between the NCMS and OOP, avoiding the problems that would result from using the UNC dataset. While this dataset has many fewer details than the micro-level CHNS data, it can be utilized to more accurately measure impact of NCMS at a national level.

To measure both the national trend and regional variations, the dataset has two major components – provincial data and national data.

**Provincial Level Analysis**

*Provincial* refers to the unit of analysis, and the resulting dataset contains observations for 31 mainland provinces in China every year and for 32 years, and each observation is further divided into a rural component and an urban component. Thus in fact every year there are 62 observations for 31 provinces. Each covariate is also measured at provincial level and divided into rural and urban sectors. This provincial level study hypothesizes that the implementation of NCMS will lead to higher out-of-pocket spending in rural areas. The study uses time and unit fixed effects with panel data, and the formal model is given as followed:

\[
\text{OOP}_{it} = \tau \text{Enrollment}_{it} + \beta_1 \text{Population}_{it} + \beta_2 \text{Clinics}_{it} + \beta_3 \text{Water}_{it} + \beta_4 \text{Income}_{it} + \delta_t + \eta_i + \epsilon_{it}.
\]

\( \delta_t \) is the year fixed effect that absorbs common shocks in each given year for all provinces; \( \tau \) is the causal coefficient; \( \eta_i \) is the unit (province) fixed effect that absorbs time-invariant variables for each province; \( \epsilon_{it} \) is the time-variant error term.
The quantity of interest is rural OOP, measured by deducting the covered expenses from total health expenditure in a given year. A list of variables with their definitions are shown in the table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>From 1980 to 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Province</td>
<td>Each of the 31 provinces are coded, from 1002 to 1032</td>
</tr>
<tr>
<td>OOP</td>
<td>Average annual out-of-pocket medical expenses at provincial level</td>
</tr>
<tr>
<td>Water</td>
<td>The percentage of the population that has access to potable tap water</td>
</tr>
<tr>
<td>Enrollment</td>
<td>A binary dummy variable that indicates the year of implementing NCMS in that province; 0 indicates not yet implemented and 1 indicates already implemented</td>
</tr>
<tr>
<td>Income</td>
<td>Average annual after-tax income at provincial level, in Chinese Yuan, adjusted for inflation</td>
</tr>
<tr>
<td>Clinics</td>
<td>The total number of health clinics in rural areas at provincial level</td>
</tr>
<tr>
<td>Population</td>
<td>The total number of registered rural residents, the unit is 10,000 persons</td>
</tr>
</tbody>
</table>

The independent variable in this paper is enrollment. A binary dummy variable that indicates the enrollment status in NCMS. All the years before the enrollment will be given the value of 0 and all the years after enrollment will be 1. Although NCMS is a nationwide public insurance program, the implementation was a gradual process and varied from province to province. Time-varying control variables will be population, clinics, income, and water, which is used as a proxy for health status. Since directly controlling for mortality rates or other health outcomes will have a risk of controlling for post-treatment variables, this study decides to use tap water coverage rate as an alternative measure for health status. Time length for this study ranges from 1980 to 2012, or a total of 33 years. However, due to large missing data, the actual coverage is only about 15 to 17 years from roughly 1995 to 2012.
There are, of course, many assumptions that come with this model. The first assumption is that SUTVA is satisfied. Once a town or a village is selected NCMS is required for its residents. Although the central government keeps stressing voluntary participation, a number of official documents nevertheless reveal that NCMS is in fact a task for local governments with specific coverage rate requirements and deadlines. Therefore, it is reasonable to consider NCMS as a mandatory program, excluding self-selection bias.

A second assumption is strict exogeneity conditional on the unobserved effect, and this requires that potential time-varying unobserved effects that could confound the results are uncorrelated with other regressors in this model. There are two variables that may confound the results but are not included in the model – visits to rural clinics and doctors’ over-prescription behavior. While these two variables may indeed confound the results, it is also very likely that they are post-treatment covariates. In other words, while frequent visits to health providers and the over-prescription of drugs raise OOP, insurance coverage may also encourage people to visit more frequently and doctors to prescribe more drugs. Due to this risk of controlling for post-treatment variables, these variables will be neglected as a limitation of this study.

A third assumption that comes with the fixed effects model is rank condition, which requires regressors to have variations across time and forbids perfect collinearity. Note that clinics and population do have variations. Their time trends are unclear due to large scale – which is necessary due to large variations among provinces.
Moreover, since it is conducted at provincial level, this analysis also assumes that over time local governments' capacities do not vary across provinces. For instance, if there are provinces that are politically more influential and such power affects the chances for them to be enrolled in NCMS, this would then create provincial level selection bias. Therefore, this paper assumes that no province has particular power to influence central government's decision in selecting enrollment areas.

**National Level Analysis**

Aside from provincial level analysis, this thesis also conducts analysis at national level and adopts the difference-in-difference (DID) method.
*National* refers to the analysis that uses national averages for all the rural areas combined and all the urban areas combined. The resulting dataset has two observations per year – the rural sector and the urban sector, and each sector has the same number of covariates, which are national average values of the rural areas and urban areas separately. It hypothesizes that the implementation of NCMS nationwide will increase rural residents’ OOP, and the formal model is given as followed:

\[
OOP_{it} = \alpha_i + \tau \text{Treatment}_{it}\text{Postperiod}_{it} + \delta \text{Postperiod}_{it} + \gamma \text{Treatment}_{it} + \beta_1 \text{Population}_{it} + \beta_2 \text{Clinics}_{it} + \beta_3 \text{Income}_{it} + \varepsilon_{it}.
\]

\(\alpha_i\) is unobserved time-invariant effects and \(\varepsilon_{it}\) is the time-variant error term.

The causal variable \((\tau)\) is the coefficient of the interaction term of *treatment* and *postperiod*. The control variables are *income*, *ins*, and *population*. Other available variables that could potentially be controlled but this study chooses not to control for are: different types of mortality rates, visits to healthcare institutions, and national health expenditures, all of which have a risk of being post-treatment covariates; moreover, this study could also potentially control for the number of doctors and number of beds, yet both of them are already related to the number of healthcare institutions.

A list of variables in this model with their definitions are shown in the table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>From 1980 to 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment</strong></td>
<td>A binary variable that assigns 1 to rural areas and 0 to urban areas</td>
</tr>
<tr>
<td><strong>OOP</strong></td>
<td>Average annual out-of-pocket medical expenses at national level</td>
</tr>
<tr>
<td><strong>Postperiod</strong></td>
<td>A binary variable that assigns 0 to years before 2006 and 1 to 2006 and subsequent years</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td>Average annual after-tax income at national level, in Chinese Yuan, adjusted for inflation</td>
</tr>
<tr>
<td><strong>Ins</strong></td>
<td>The number of health institutions (hospitals in cities and clinics in towns and villages) at national level</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Population</strong></td>
<td>Total number of total population at national level, the unit is 10,000 persons</td>
</tr>
</tbody>
</table>

The quantity of interest is national average OOP but with a focus on the differences. Theoretically, the analysis will first take the difference between urban residents’ OOP before and after NCMS and then the difference between rural residents’ OOP before and after NCMS, and finally take the difference between the two differences. This national level analysis covers years from 1996 to 2014. The year that divides the data into pre-treatment and post-treatment sections is 2006, selected according to Health [2006] No. 13 which implies that by 2006 NCMS has covered more than 50% of the towns and villages in China.

The assumptions that come with the DID model are: 1) SUTVA, 2) random assignment, and 3) parallel trends. Since this analysis uses panel data, the design allows for unit-level, in this context rural and urban level, unobserved confounders as long as they are time-invariant. Since SUTVA has been proved to be satisfied, this section will focus on the other three assumptions.

The assumption of random assignment, in this context, requires that the selection of towns and villages into NCMS is random. However, this may not be true, since the gradual enrollment at national level is more likely an outcome of careful consideration. The central government may consider a region’s economic development, income level, as well as diversity. Hence, the study relies on Conditional Ignorability and Common Support to satisfy this random assignment assumption. Formally it is written as,

\[ \{Y_i(0), Y_i(1)\} \perp D_i | X_i = x, for any x \in X. \]
This expression indicates that the treatment is random if conditioning on the value $X_i = x$. In other words, although treatment is not random, holding $X_i = x$, constant, the assignment of treatment is random. In context, villages and towns that have similar level of income, population, and number of clinics have equal chance of being selected into NCMS.

Random assignment also relies on Common Support, which is formally written as,

$$0 < p_r(D_i = 1 | X_i = x) < 1, \text{ for any } x \in X.$$

It indicates that, conditioning on $X_i = x$, each unit’s probability of getting the treatment is from 0 to 1. In context, this means that holding control variables such as income level, population, and number of clinics constant, no towns or villages will be 100% selected or 100% not selected.

The final assumption concerns parallel trends, and it requires that the difference between the treated group’s pre-treatment and post-treatment values had it not received treatment should be the same as the difference between the control group’s pre-treatment and post-treatment values. Formally, it is written as,

$$E[Y_{i1}(0) - Y_{i0}(0) | G_i = 1] = E[Y_{i1}(0) - Y_{i0}(0) | G_i = 0].$$

In context, it assumes that the trends of urban and rural OOP would be parallel had there not been NCMS. Since this assumption cannot be directly proved, a graph demonstrating two trends are shown below, and from the graph two trends before 2006 seem generally parallel. The red line without dots is a simulated trend for rural OOP by subtracting the average difference between urban and rural before 2006 from the urban OOP in the post-treatment years (2006 ~ 2014). This line to some degree demonstrates the counterfactual scenario where NCMS had not been implemented, and shows the urban trend and the rural trend were parallel to each other.
The parallel trend assumption is also more plausible when controlling for pre-treatment covariates, and can be written as,

\[ E[Y_{i1}(0)-Y_{i0}(0) | G_i=1, X_i = x] = E[Y_{i1}(0)-Y_{i0}(0) | G_i=0, X_i = x]. \]

In this case even if the parallel trend cannot be directly seen, it arguably exists conditionally within strata.

This national level analysis has clear advantages compared to the provincial level analysis. As mentioned previously, the central government did not make NCMS cover the whole nation at once; instead the expansion was a gradual process and full coverage was achieved in 2008. However, as the central government added more and more places into the program, it used towns and villages as basic units rather than provinces. In other words, the treatment is assigned at village level with additional consideration on provincial coverage. This points to a critical disadvantage of the provincial level analysis, as a province is considered as “NCMS implemented” even if only a few towns and villages had been covered. Thus with an additional
national level analysis, this paper provides a much clearer picture of NCMS's impact on rural areas compared with their urban components.

In summary, there will be two analyses – one conducted at provincial level, analyzing provincial average rural OOP and its relationship to NCMS enrollment, and the other at national level, analyzing national average rural OOP with respect to national average urban OOP since 2006.

Qualitative Analysis

The qualitative part of this study traces the historical process of institutional layering as well as policy feedback effects. It will aim to present solid evidence describing the mechanisms behind the trend of the OOP and the self-reinforcing nature of the healthcare system.

For the institutional layering section, the study will develop a timeline indicating when and how each layer was added to NCMS and what the consequences were of those additions. It will also use official documents to describe the competition among the departments for their own interests, presenting qualitative evidence of how a fragmented system has hindered the reform efforts and the process of central government making relevant compromises.

As for the policy feedback section, this study will identify both the feed and the back. It will, with the focus on rural areas, disentangle policies and their effects and trace the sequential chain reactions that have made the system self-reinforcing. To achieve this goal, this section will examine both official documents and present relevant data showing the resistance from hospitals and doctors and how that resistance came into being.
Chapter V Results and Interpretation

This chapter presents the results of two statistical analyses, both of which hypothesize that OOP increased following the implementation of the NCMS.

**Provincial Level Analysis**

Using fixed effects, this analysis presents the following results with robust standard errors clustered at both time (year) and unit (province) level. OOP, population, and income are logged due to an originally skewed distribution.

Table 3

<table>
<thead>
<tr>
<th></th>
<th>(1) Ln(OOP)</th>
<th>(2) Ln(OOP)</th>
<th>(3) Ln(OOP)</th>
<th>(4) Ln(OOP)</th>
<th>(5) Ln(OOP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>1.449***</td>
<td>1.455***</td>
<td>0.891***</td>
<td>0.493***</td>
<td>0.107***</td>
</tr>
<tr>
<td></td>
<td>(0.062)</td>
<td>(0.067)</td>
<td>(0.084)</td>
<td>(0.065)</td>
<td>(0.033)</td>
</tr>
<tr>
<td>Ln(Population)</td>
<td>0.660</td>
<td>-0.857</td>
<td>-0.947*</td>
<td>-0.279</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.439)</td>
<td>(0.708)</td>
<td>(0.527)</td>
<td>(0.228)</td>
<td></td>
</tr>
<tr>
<td>Clinics</td>
<td>-0.0003***</td>
<td>-0.0002**</td>
<td>-0.00004</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>0.018***</td>
<td>-0.004**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.002)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(Income)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.370***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.075)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observations</th>
<th>555</th>
<th>552</th>
<th>408</th>
<th>332</th>
<th>332</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2</td>
<td>0.568</td>
<td>0.575</td>
<td>0.583</td>
<td>0.699</td>
<td>0.902</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.535</td>
<td>0.541</td>
<td>0.534</td>
<td>0.626</td>
<td>0.804</td>
</tr>
<tr>
<td>F Statistic</td>
<td>687.739***</td>
<td>351.741***</td>
<td>173.952***</td>
<td>172.765***</td>
<td>542.190***</td>
</tr>
</tbody>
</table>
As we can see, F statistics are all significant at the 0.01 level, indicating that the models are valid. *Enrollment* is a consistently significant predictor of *OOP* and the sign is consistently positive, although the coefficient decreases as the model adds covariates. When controlled for population, number of rural clinics, tap water accessibility and income, the coefficient before *enrollment* is 0.107, and since *enrollment* is a binary variable, this figure is the difference in the expected means of the log of OOP between rural areas of the provinces enrolled in NCMS and provinces not enrolled. As \( (1 - \exp(0.107) \times 100 = 11\% \), it is reasonable to state that switching from the status of not yet enrolled in NCMS to the status of enrolled, rural OOP is expected to increase about 11%.

For provinces that have the same enrollment status and are similar in population, the number of clinics, and tap water coverage, every one percent increase in annual disposable income is also associated with a 1.37 percent increase in the rural average OOP, and this is a great increase on residents' financial burden. But when income is not controlled, the impact of NCMS enrollment on OOP is even greater, indicating that although the higher income provinces have higher OOP, among the provinces that have similar levels of average after-tax income, the ones that have implemented the NCMS have slightly higher average OOP, holding all other covariates constant. Moreover, tap water coverage rate is negatively associated with OOP and is significant at the 0.05 level. This result shows that, holding enrollment status, population, clinics, and income level constant, the higher the percentage of the population that has access to tap water – thus the better health condition – the lower the OOP. Every one-unit increase in tap water coverage rate is associated with a 0.004 percent decrease in average provincial OOP, and the standard error is 0.002. This result is quite intuitive, since tap water accessibility is used as a proxy for public health conditions.
In addition, a placebo test is performed as well to check the robustness of the results. In the Table 4 below, enrollment has been manually changed to four years earlier (t* = t - 4). For instance, if Province A was added to the NCMS in 2003, the enrollment year in the placebo test is 1999. This is to see if the positive association shown in table 3 is truly brought by the implementation of NCMS.

In the results shown below, enrollment is also consistently significant except for the last model when ln(income) is controlled. In the formula (5) below, the sign of enrollment is switched to negative and the significance level disappears. Hence, it is reasonable to argue that models (1) to (4) in table 3 do not demonstrate true causality, while model (5) demonstrates the true causal effect.

Table 4

<table>
<thead>
<tr>
<th></th>
<th>(1) Ln(OOP)</th>
<th>(2) Ln(OOP)</th>
<th>(3) Ln(OOP)</th>
<th>(4) Ln(OOP)</th>
<th>(5) Ln(OOP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>1.571***</td>
<td>1.572***</td>
<td>0.973***</td>
<td>0.468***</td>
<td>-0.052</td>
</tr>
<tr>
<td></td>
<td>(0.057)</td>
<td>(0.58)</td>
<td>(0.106)</td>
<td>(0.126)</td>
<td>(0.059)</td>
</tr>
<tr>
<td>Ln(Population)</td>
<td>0.156</td>
<td>-0.982</td>
<td>-1.168**</td>
<td>-0.353</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.395)</td>
<td>(0.638)</td>
<td>(0.520)</td>
<td>(0.231)</td>
<td></td>
</tr>
<tr>
<td>Clinics</td>
<td>-0.0004***</td>
<td>-0.0003**</td>
<td>-0.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>0.022***</td>
<td>-0.004**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.002)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(Income)</td>
<td>1.495**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>555</td>
<td>552</td>
<td>408</td>
<td>332</td>
<td>332</td>
</tr>
<tr>
<td>R2</td>
<td>0.635</td>
<td>0.636</td>
<td>0.518</td>
<td>0.637</td>
<td>0.898</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.599</td>
<td>0.598</td>
<td>0.475</td>
<td>0.570</td>
<td>0.801</td>
</tr>
<tr>
<td>F Statistic</td>
<td>910.578***</td>
<td>455.099***</td>
<td>134.031***</td>
<td>130.227***</td>
<td>521.721***</td>
</tr>
</tbody>
</table>
National Level Analysis

Using the difference-in-difference method, this analysis compares national average rural OOP with national average urban OOP and their change after 2006. As mentioned previously, the year 2006 is special in that by that time, the NCMS had already been extended to more than 50% of national villages and towns. Unlike the provincial analysis selection into NCMS uses towns and villages as the real unit. Therefore, this national level analysis offers additional information and provides a clearer picture of the relationship between the urban and rural components before and after NCMS implementation. All the covariates except for dummy variables in this model are logged because the analysis is conducted at the national level and therefore in this study, percentage changes are more useful than unit changes.

Table 5

<table>
<thead>
<tr>
<th></th>
<th>Ln(OOP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>1.398***</td>
</tr>
<tr>
<td></td>
<td>(0.204)</td>
</tr>
<tr>
<td>Postperiod</td>
<td>-0.332***</td>
</tr>
<tr>
<td></td>
<td>(0.076)</td>
</tr>
<tr>
<td>Ln(Population)</td>
<td>1.336***</td>
</tr>
<tr>
<td></td>
<td>(0.258)</td>
</tr>
<tr>
<td>Ln(Ins)</td>
<td>-2.183***</td>
</tr>
<tr>
<td></td>
<td>(0.292)</td>
</tr>
<tr>
<td>Ln(Income)</td>
<td>1.396***</td>
</tr>
<tr>
<td></td>
<td>(0.069)</td>
</tr>
<tr>
<td>Treatment:Postperiod</td>
<td>0.252**</td>
</tr>
<tr>
<td></td>
<td>(0.108)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.547</td>
</tr>
<tr>
<td></td>
<td>(2.018)</td>
</tr>
<tr>
<td>Observations</td>
<td>38</td>
</tr>
<tr>
<td>R2</td>
<td>0.991</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.990</td>
</tr>
<tr>
<td>Residual Std.Error</td>
<td>0.084(df=31)</td>
</tr>
<tr>
<td>F Statistic</td>
<td>587.410***</td>
</tr>
</tbody>
</table>
The results above have robust standard errors clustered at year level. The results demonstrate that after 2006, OOP on average increased \((1-\exp(0.252))\times 100 = 28.7\) percent; significant at the 0.05 level. This is a greater increase compared with the 11 percent from the provincial level analysis. The graphs below with logged OOP exemptly a similar relationship. In Graph 5 a red line without dots is simulated as the counterfactual of rural OOP in the post-treatment period that is parallel to the urban OOP. The graph shows that 50% coverage of NCMS nationwide has clearly narrowed the gap between the rural and urban sectors, resulting in rural residents’ OOP spending increasing at a faster rate.
The most common explanation behind the rising OOP is that people have increased their utilization of healthcare services. The data show that NCMS enrollment may have encouraged rural residents to seek healthcare more frequently, but most of the increased utilization is not at rural clinics but, rather, at urban hospitals.

According to three National Health Service Surveys (1998, 2003, 2008), distance has become less important to rural residents when choosing healthcare service locations. From 1998 to 2008, the importance of distance decreased nearly 20%. Price has never been an important consideration. Moreover, rural clinics are losing popularity, while urban hospitals have become the first choice for many rural residents, with a more than 10% increase from 1998 to 2008. The NCMS has, however, changed rural residents' healthcare preferences. From 1998 to 2008, the importance of distance decreased significantly. Yet within that period, from 2003 to 2008 (corresponding to the implementation of the NCMS), the importance of distance jumped from 49% to 58%, while remaining below 1998 levels. On the other hand, even as residents pay more attention to distance to health facilities, the percentage of people choosing rural clinics decreased
from 2003 to 2008, indicating that they may be travelling to the closest urban hospitals rather than the closest rural clinics.

Graph 6

Another piece of evidence for the argument that NCMS increases rural residents' utilization of urban healthcare resources is, as the graph shows below, the declining number of rural clinics nationwide and, correspondingly, rural doctors. As a result, if the rising costs are due to more frequent utilization of services, rural residents must be utilizing urban hospitals more, where the reimbursement rate is much lower, further explaining the increasing OOP. It is very unlikely that, with the decreasing number of clinics, the utilization rate could suddenly skyrocket to such an extent that OOP increases.
Previous paragraphs concentrated on the first explanation – increased utilization – of the rising OOP in face of the implementation of NCMS. Aside from increased utilization, a second explanation of the rising OOP comes from over-prescription. As mentioned in Chapter 3, over-prescription is a widespread phenomenon in China. As more rural residents are covered by NCMS, doctors may tend to prescribe more drugs to obtain more profits.

Discussion

This chapter has confirmed the implication of the 2009 reform (Healthy China 2020). The reform’s key goal is to lower OOP and as the statistical analysis has shown, since the implementation of NCMS rural residents’ OOP has indeed increased.

These two explanations of the rising OOP – increased utilization and over-prescription – are the two key approaches in the healthcare reform launched by the central government in 2009 to lower people’s medical expenses. To combat rising OOP, the central government decided to initiate a major reform encouraging rural residents to seek the closest healthcare providers and
forbidding hospitals from making profits from drug sales. Now that the reform has been ongoing for seven years, its effectiveness remains very limited. On the one hand, few doctors are willing to work at rural clinics, making it hard to attract patients; on the other hand, the zero-profit drug policy has a key compromise – although the policy has greatly lowered drug prices it allows hospitals to increase service and diagnostic fees, compensating the loss of profits on drugs. This thesis proposes that the reasons behind the reform’s limited effectiveness lie in institutional layering and the policy feedback effects that are making the system path dependent and self-reinforcing.
Chapter VI Institutional Layering

This chapter discusses the history and mechanisms behind several “layers” of the NCMS. Below is a brief timeline demonstrating the layering process.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>January 10th, the NCMS was established under General Office [2003] No.3 Opinions on Establishing the New Rural Cooperative Medical Scheme and was assigned to the Department of Health. November 18th, the Department of Civil Affairs joined the NCMS with the extra component Medical Rescue</td>
</tr>
<tr>
<td>2004</td>
<td>The Department of Finance issued Finance [2004] No.96 Opinions on Establishing NCMS Venture Capital Fund, authorizing NCMS funds to be used for investment by the Department of Finance and the Department of Health.</td>
</tr>
<tr>
<td>2005</td>
<td>The Insurance Regulatory Commission issued Insurance Commission [2005] No.95 Opinions on (Commercial) Insurance Industry’s Participation in NCMS Pilot Programs and urged all insurance companies to realize the importance of the Commission’s potential role in NCMS. This effort, however, did not have actual impact.</td>
</tr>
<tr>
<td>2009</td>
<td>On March 17th, the Central Government issued Central Government [2009] No.6 Opinions on Reforming the Healthcare System, laying the framework for a decade-long healthcare reform effort with a focus on lowering OOP.</td>
</tr>
</tbody>
</table>

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10 See 3
11 See 4
12 财社[2004]96号 财政部、卫生部关于建立新型农村合作医疗风险基金的意见
13 保监发[2005]95号 中国保险监督管理委员会关于完善保险业参与新型农村合作医疗试点工作的指导意见
14 中发[2009]6号 中共中央、国务院关于深化医药卫生体制改革的意见

38
In May, The Insurance Regulatory Commission issued *Insurance Commission [2009] No. 71 Opinions on Absorbing Reform Instructions and (Commercial) Insurance Industry’s Active Participation in Constructing the National Healthcare System*, asking that the National Institute of Health coordinate with other departments in managing the NCMS.

**2010** In June, the Department of Health issued *Health [2010] No. 53 Opinions on Starting the Pilot Program of Serious Illness Rescue to Rural Children*, adding a new component run by the Department of Civil Affairs to the NCMS – *Serious Illness Rescue*.

In July, several Departments drafted the *NCMS Management Regulations* and the majority agreed upon the leadership of the Department of Health. The Department of Social Security voted against this decision.

**2012** The Insurance Regulatory Commission finally gained access to NCMS funds when the Development and Reform Committee issued *Reform [2012] No. 2605 Guidance on Starting the Serious Disease Insurance in Urban and Rural Areas*, adding an extra component to the NCMS called *Serious Disease Insurance* managed by the Insurance Regulatory Commission.

**2013** In March, the People’s Congress passed *State Council Structural Reform Plan*. The central government then started national structural reform, combining and abolishing a number of Departments and Bureaus. The bill suggests that the NCMS be incorporated with two other urban public health insurances as the third major component of Chinese healthcare system. The bill also suggests the Department of Social Security manage the new healthcare system, comprised of three public insurances, but this decision is at local government’s discretion.


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15 保监发[2009] 71 号 中国保险监督管理委员会关于保险业深入贯彻医改意见、积极参与多层次医疗保障体系建设意见

16 卫农卫发[2010] 53 号 卫生部、民政部关于开展提高农村儿童重大疾病医疗保障水平试点工作的意见

17 发改社会[2012] 2605 号 关于开展城乡居民大病保险工作的指导意见

18 国办发[2014] 24 号 国务院办公厅关于印发深化医药卫生体制改革 2014 年重点工作任务的通知
Structural reform efforts almost complete. 15 of the 31 mainland provinces have transitioned NCMS management from the Health and Family Planning Committee to the Provincial Department of Social Security. Shaanxi Province completed the incorporation but assigned healthcare to the Health and Family Planning Committee. Other remaining provinces have NCMS controlled by both the Committee and the Department of Social Security.

Institutional layering severely hinders the efficiency of the policy-making process, and today’s NCMS is a product of institutional layering. Its basic framework was established in 2003 and managed by the Department of Health (now the Health and Family Planning Committee), but soon several other departments began fighting to take part in this lucrative program. Some departments hoped to participate in the NCMS because they wanted to have a share in the central funding. Other departments were added by the existing bureaucracy, sometimes in response to reform efforts or internal considerations. Hence, the NCMS is now a “collaboration” among more than ten Departments and Bureaus. This thesis argues that, institutional layering has severely hindered efforts to reform the NCMS, and that the obstructions due to layering partly explain the continuously rising OOP in rural areas.

The Department of Health\(^{19}\) and the Department of Social Security

The Department of Health (DoH) has played the leading role since the NCMS’s implementation. Although the NCMS is becoming increasingly fragmented, the DoH consistently leads the program and is responsible for the coordination among several departments.

\(^{19}\) Renamed Health and Family Planning Committee in 2014
However, the DoH did not accept the leadership position willingly. Initially, the total individual contributions were only 30 Yuan per year despite the fact that many rural residents were in poor health due to an aging population and decaying healthcare infrastructure. Clearly, implementing the NCMS was not an easy task, nor was it lucrative. According to the introduction section of the *NCMS Management Regulations*, the DoH accepted responsibility for the NCMS only after the Department of Social Security (DSS)'s refusal and persuasion from the central government. There is more evidence pointing to the same conclusion – as the NCMS has become increasingly lucrative, DSS has wanted desperately to take back control, and the competition between these two departments has resulted in a stalemate, complicating inter-departmental coordination.

The Department of Social Security (DSS) manages a wide range of welfare programs in China, including the pension system, unemployment assistance, minimum wage rules, as well as two types of urban public health insurance, which, together with NCMS, are the three major components of the Chinese public healthcare system. Due to the DSS’s role in managing public health insurance for urban workers (those employed under legal contracts) and urban residents (unemployed or temporarily employed), it is quite natural to think that the NCMS should be given to the DSS. This is also the main argument that the DSS put forward when voting against the *NCMS Management Regulations* in 2010, contesting the leadership position of the DoH. This process was discussed in the introduction section of the *Regulations*.

However, if the DSS believes that the NCMS should be assigned to the same department that manages other types of public insurance, why did they not propose this at the beginning? The DSS waited for seven years to make the proposal for the first time, and during those seven years, the NCMS has achieved full coverage and, according to the introduction section of the
*Regulations*, has an annual fund of 94.435 billion Yuan (about 14 billion US dollars) with an average surplus of around 220 million Yuan every year (about 33 million US dollars). According to *Finance [2004] No.96 Opinions on Establishing NCMS Venture Capital Fund*, NCMS funds can be used for investment and shall be managed by the Department of Finance as well as whichever department is in charge of NCMS. Although *Opinions* strictly forbids the responsible department from using the funds for private gain, the huge amount of money from the NCMS still provides a solid and reliable cash flow. Aside from using the money for investment, the responsible department also receives state funding from the central government, as the NCMS is a public insurance program. These features make the NCMS increasingly profitable as the coverage expands, resulting in the fierce competition between the DoH and the DSS.

The DSS has so far made two major attempts to take control of the program. The first one was in 2010 during the conference discussing the *Regulations*. The DSS contended that the NCMS was not mature enough to be written as separate laws. Instead, it should be part of the *Social Insurance Law*, which the DSS writes and manages. The DSS also argued that the NCMS should be continued as an inseparable part of the Chinese healthcare system and should therefore be combined with the two types of urban health insurance. Yet the DoH, as the conference moderator, proposed that the NCMS management rules be written as regulations rather than law. Whether or not the NCMS should be developed into a law, they argued, cannot be decided by the DSS; instead, it should be the decision of the State Council.

Another attempt occurred in 2013 when the DSS directly petitioned the State Council to assume control over the NCMS. In March, the People’s Congress passed *State Council Structural Reform Plan* which directed that the NCMS be incorporated with urban public insurance. As a direct result, several departments were combined together, abolished or renamed;
for instance, the DoH combined with the Population and Family Planning Committee to form the Health and Family Planning Committee. Nevertheless, the NCMS remained under the authority of the Health and Family Planning Committee in 17 of the 31 provinces. Among them Shaanxi Province voted against giving the NCMS to the Department of Social Security. Shaanxi instead decided to combine three types of public insurance under the authority of the Health and Family Planning Committee. Moreover, even if some provincial governments decided to move NCMS, some city or township Health and Family Planning Committees still refused to cooperate, resulting in different institutional structures within one province.

The result of the competition between the DoH and the DSS has been to add complexity to the system. Instead of unifying the program under the leadership of the DSS, the DSS has instead become another “layer” of the NCMS bureaucracy. According to the theory of policy feedback, these competing interests usually result in the superimposition of new layers of bureaucracy onto the old framework. Until the issue is fully resolved, the DSS and the Health and Family Planning Committee can be expected to add still more layers to the system as they continue to struggle for total authority.

*Insurance Regulatory Commission*

The story of the Insurance Regulatory Commission (IRC) exemplifies how new layers can be born out of resistance to change the current program characteristics.

The IRC manages the industry of commercial insurance in China and has always been an outsider of the public insurance program. Unlike the DSS, the IRC has wanted to join the NCMS ever since 2005, when the Commission first issued *Insurance Commission [2005] No.95*, which urged all insurance companies to realize that it is important for the IRC to be a participant in the
NCMS. The document maintains that incorporating commercial insurance into the NCMS could lower the government’s financial burden and risk, and could utilize more social resources to ensure that the NCMS can be successfully implemented. The IRC further asks insurance companies to make their resources available to local governments and relevant Departments. This marks the IRC’s initial attempt to join NCMS.

Four years later, in 2009, the IRC made another attempt to join. It issued Insurance Commission [2009] No. 71, asking insurance companies to focus on designing commercial insurances that are complementary with the NCMS. Moreover, the document stated that if possible, insurance companies should seek support from local governments and aim at obtaining roles in managing public health insurance programs. This document signals the IRC’s continued efforts to increase its roll in the NCMS. At that time, NCMS had already achieved full coverage, and, as mentioned earlier, was quite lucrative.

Yet as an outsider to public insurance, the IRC had a more difficult time than other departments in gaining a stake in the NCMS. Unlike the Department of Finance, which joined smoothly by managing the investment fund; or the Department of Agriculture, which joined at the beginning due to the rural nature of the NCMS; or the Chinese Medicine Bureau, which has a role in every healthcare-related program, the IRC was a complete outsider to the area of public insurance. If it ever wanted to successfully join NCMS, it had to create something new.

As a result, the IRC, in 2012, proposed an additional component be added to the NCMS – Serious Disease Insurance. The IRC suggested that this insurance be managed by commercial insurance companies and financed by allocating some part of the funds from annual contributions. If local NCMS funds proved insufficient, local governments would be allowed to increase required individual contributions in the following year. In other words, the IRC
designed this additional insurance to be a mandatory component of NCMS and, in some provinces, it requires extra contributions.

The IRC explained that this insurance will give patients extra reimbursement on top of the current reimbursement level when the total treatment cost reaches a threshold. This extra component alleviates not only the government’s burden when making medical reimbursements but also patients’ burden when encountering serious diseases. This proposal won support from the Development and Reform Committee, which issued Reform [2012] No.2605, backing up the IRC’s desire to share NCMS’s benefits. The Development and Reform Committee, an institution influential to healthcare policy, clearly provided strong institutional support for the IRC. As a result, using NCMS funds for purchasing services and reimbursing medical costs now requires additional ratification from the IRC, creating an extra bureaucratic process.

The Department of Civil Affairs

As its name indicates, the Department of Civil Affairs (DCA) manages all kinds of affairs related to citizens’ daily life, with responsibilities ranging from marriage registration to poverty assistance. Therefore, it had an easier time than the IRC in finding a way to join the NCMS power structure.

Inspired by its responsibility to assist low-income families, the DCA decided to join the NCMS by offering extra financial support to low-income NCMS enrollees. On November 18th, 2003, only ten months after the NCMS had been created, the DCA issued Civil Affairs [2003] No.158 Opinions on Initiating Medical Rescue to Rural Residents and proposed that this Medical Rescue program aid NCMS’s initial implementation. The DCA suggested that it would offer cash assistance in a lump sum to low-income rural residents with poor health conditions. For towns
and villages that already have NCMS implemented, the DCA would coordinate with NCMS-registered healthcare providers to give cash assistance to eligible residents; for those who are not yet covered by the NCMS, the DCA will coordinate with local governments to complete the task. In 2005, the DCA issued another document – *Civil Affairs [2005] No.121 On Accelerating Rural Medical Rescue*, asking for greater coverage, higher payments, and greater efficiency.

Yet the DCA did not stop there. In 2010, the DCA started another new program offering additional assistance to rural children who have heart and blood diseases. This program began under *Health [2010] No.53* and offers eligible NCMS enrollees younger than 14 an extra 20% reimbursement of medical costs. This extra assistance is on top of the original NCMS reimbursement rate, raising the total compensation level to 90%. Hence, by 2010, the DCA had developed an important niche in the NCMS leadership structure, covering two components. For this reason, most documents and bills issued after 2010 list the DCA as participating organizations.

*Other Participants*

In fact, there are many more organizations participating in the NCMS than those already mentioned. The DoH is against separating the NCMS into so many branches, as a fragmented system not only limits the amount of funding that each Department receives from the central government but also complicates the coordination. For instance, each additional component will result in several more delegates present at NCMS policy-making meetings, making the process less manageable and reform difficult to implement. The central government faces problems due to the layering as well.
Why did institutional layering occur? As the literature review chapter suggested, in this context it is often because interest groups outside possess competing motives yet they can neither initiate a wholesale reform of the current system nor establish a new framework. In consequence, they choose to add additional layers to the preexisting system which already has a strong population base.

However, there is an additional factor relevant to the NCMS. In *General Office [2004]* No.3, the State Council decided to establish a leadership group comprised of delegates from the Departments of Health, Finance, Agriculture, Civil Affairs, Food Safety and Accounting, as well as the Development and Reform Committee and the Chinese Medicine Bureau. This group is under the control of the DoH and its main responsibility is to design detailed NCMS policies. State Council hoped that opinions from various Departments could help the NCMS improve its efficiency and effectiveness. After all, the NCMS, as the successor to the CMS, is tasked with the difficult mission of actively improving rural health outcomes. This characteristic makes it different from urban public health insurance. Yet the State Council failed to realize that the inclusion of so many collaborators would eventually lead to a situation where each of them competes against the others for funding and influence.

**Discussion**

There have been three main effects of institutional layering on the NCMS.

First of all, institutional layering reduces effectiveness because people need to go through a longer bureaucratic process to claim their benefits. The *Serious Disease Insurance*, initiated by the Insurance Regulatory Commission, for instance, is undertaken by private insurance
companies. According to the bill *Reform [2012] No.2605*, local governments have the authority to pick contractors from open tenders, and different provinces are allowed to have different private contractors for this commercial insurance component of NCMS.

This additional layer of bureaucracy creates an extra procedure before patients can claim benefits, as compensation from this commercial insurance is not automatically refunded to individual accounts. Rather, patients need to submit bills and proofs to whichever private insurance company undertakes the *Serious Disease Insurance* for further reimbursement. Indeed, some would argue that the participation of private contractors may increase competition and thus lower the price, but as a public insurance, NCMS has everything set by the government. Consequently, although this component was probably added as a reform measure to lower OOP, in fact it increased the bureaucratic burden and unnecessary procedures for enrollees to claim their benefits.

Secondly, the layering lowers high level reform and bureaucratic efficiency, as each new policy requires collaboration between several Departments and Bureaus. For instance, in *General Office [2014] No.24*, which laid out the keys tasks for healthcare reform in 2014, each task required cooperation from several Departments. The table that lists some of the key tasks in 2014 is shown below. The table shows that each step of the reform needs consent and cooperation from many branches of the government. This situation clearly complicates the decision and policy-making processes in the reform and lowers overall efficiency, which may partly explain why OOP keeps increasing in face of reform efforts.

<table>
<thead>
<tr>
<th>Key Tasks</th>
<th>Participating Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Designing strategies to encourage rural residents to seek the closest care provider

Designing doctors’ multi-institution practice policies

Making plans for increasing employment at township hospitals

Drafting regulations for the participation of the commercial insurance industry

<table>
<thead>
<tr>
<th>Designing strategies to encourage rural residents to seek the closest care provider</th>
<th>Health and Family Planning Committee, Department of Social Security, Development and Reform Committee, Chinese Medicine Bureau, Department of Civil Affairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designing doctors’ multi-institution practice policies</td>
<td>Health and Family Planning Committee, Department of Social Security, Development and Reform Committee, Chinese Medicine Bureau</td>
</tr>
<tr>
<td>Making plans for increasing employment at township hospitals</td>
<td>Health and Family Planning Committee, Department of Social Security, Department of Finance, Department of Education, Chinese Medicine Bureau, Department of Civil Affairs</td>
</tr>
<tr>
<td>Drafting regulations for the participation of the commercial insurance industry</td>
<td>Insurance Regulatory Commission, Department of Social Security, Health and Family Planning Committee</td>
</tr>
</tbody>
</table>

Finally, adding layers has the potential to create more veto players in the program, resulting in inefficiencies in designing reform strategies (Hacker, 2005; Kay, 1999; Steinmo and Watts, 1995; Tsebelis, 1995). This problem exists because as the number of participating Departments in the NCMS increases, a decision from the central government that satisfies one Department may anger another, making reform difficult.

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20 This policy allows doctors to work at multiple healthcare institutions. Previously, each doctor is linked to only one institution. The central government hopes that this policy could raise doctors’ income and compensates the loss from the zero-profit drug policy.
Chapter VII Policy Feedback

The previous chapter explains that, due to institutional layering, the efficiency of the policy-making process has been severely hindered and bureaucratic burdens have increased. Yet even after a new policy has been introduced after long discussion, the effectiveness of that policy encounters further hindrances. In fact, the reform goal has changed several times from 2009 to 2015, from “lowering OOP” to “lowering the annual growth rate of OOP” and eventually to “ensuring that residents’ OOP will not increase too much after the reform.” This chapter argues that, the key reason that the 2009 reform has so far failed to lower rural OOP is due to a series of policy feedback effects.

This chapter discusses two major chains of feedback effects that have obstructed reform efforts – the first example was “persistent” in that it resisted change and derailed reform efforts, whereas the second “failed” in that it was eventually resolved. Through comparison, this chapter describes how NCMS implementation has led to several feedback effects, and explains why some feedback effects have persisted while others have been overcome.

The “Persistent” feedback effect

The new wage system for doctors, introduced in the 1980s, has created resistance to reform efforts to lower OOP. In the early years of China’s market reforms, public hospitals previously funded by the government were required to become largely responsible for their own survival and profit-making. Due to reform efforts, doctors’ wages became tied to hospital profits, which relied on drug sales. Doctors wages subsequently increased dramatically. Gradually, they have gotten used to the new income level and naturally resisted the zero-profit drug policy
(which requires doctors to sell medications at cost) which came with Central Government [2009] No.6 Opinions on Reforming the Healthcare System. In this situation, previous policies to reform the public hospital system and doctors’ wages have become significant barriers to the effectiveness of later policies. With hospitals and doctors’ strong resistance, the central government has been forced to make several compromises, greatly impeding reform efforts.

The “Feed”

The starting point of this policy feedback effect can be traced back to 1979, immediately after the central government’s decision to initiate market reforms. On April 28th of that year, the Department of Health, Department of Finance and the Bureau of National Labor (today’s Department of Social Security) together issued the Notice on Strengthening Public Hospitals’ Economic Management Pilot Programs. The Notice began efforts to reform the old, 100% government-funded hospital funding system and replace it with a new, market-based system. The new system established under the Notice offers only limited funding to public hospitals (including rural clinics) annually, depending on the size of the hospital. The central government is also no longer responsible for the wages of doctors and staff, nor is it responsible for purchasing large equipment. Overall, the Notice encourages hospitals to use a partially-liberalized system for healthcare services.

The reasons for this huge adjustment were written in the Report on the Solutions to Public Hospital Financial Bankruptcy, which was published by the Department of Health and forwarded by the State Council in 1981. The Report points out that due to limited government funding for healthcare, most public hospitals and rural clinics were experiencing serious budget shortfalls. Since 1958 there had been three medical service fee adjustments. While patient OOP was greatly reduced, public hospitals’ and the central government’s financial burdens both
increased tremendously. As a result, many rural clinics were dilapidated and in the danger of collapse. Some did not even have bed sheets. All the national public hospitals combined could only accept 250 million inpatient admissions, while the annual demand was more than 500 million. Considering the rate of national economic development, the Report argued that these financial problems could not be solved by the State alone.

After the two-year pilot program, in 1981 the Department of Health published Temporary Regulations on Public Hospitals’ Economic Management, introducing the new system to the whole nation. The Regulations required that public hospitals should retain their non-profit and welfare character but should also be responsible for their own survival.

The Mechanism

This type of policy feedback makes the system self-reinforcing by strengthening the power of the interest group that supports the system and resists any attempts to modify it. The interest group in this context is the group of medical professionals.

The story goes back to the 1970s. The reform of 1979 gave rise to the problem of over-prescription, which has persisted for over thirty years. Over-prescription is an issue not limited to China. Yet in China, this phenomenon is particularly serious. Doctors rely on these drug sales for their livelihoods, not just “extra” income. Without drug sale profits, their basic wages barely reach local averages. In Guangzhou, economically the third largest city in China located near Hong Kong, the median wage for doctors ranks 201 among 473 types of jobs in 2012; the average upper 25% ranks 253, lower than the average level. The data come from Guangzhou Labor Yearbook 2012 which only records doctors’ official wages. In other words, drug sale profits, given to doctors in the form of annual bonuses, are excluded. Due to data limitations,
exactly what percentage of doctors’ total income come from drug sales is unknown. However, through long-term field work with doctors, Fan (2007) came to the conclusion that the official salary accounts for less than 50% of total income. Assuming that the median income recorded in *Guangzhou Labor Yearbook 2012* is only 50% of doctors’ total income, their actual rank among 473 types of jobs would be 9 instead of 201. This example shows the importance of over-prescription to doctors in China.

In the more than 30 years since the introduction of the new system, doctors have gradually gotten used to the adjusted income level as well as the reliance on drug sale for income, and the result of this reliance is the strong resistance from both doctors and hospital leaders to any attempt to abolish this system. Policy-making conferences, where delegates representing hospitals and doctors are present, are the most direct means for healthcare professionals to demonstrate this resistance, as many healthcare-related decisions require collaboration between the central government and medical professionals.

A second possible channel is to express concerns to the central government through local governments, since many hospital leaders in fact have dual positions—they are both leaders of the hospital as well as governmental officials managing health-related affairs. This is the same for township hospitals and rural clinics as well, where leaders also have positions in township governments. Data on rural township governments are not available, but urban data may still reflect rural situations. In Beijing, for instance, 7 of the 13 healthcare-related governmental officials are also leaders of large public hospitals. In Guangdong, a province in the south located near Hong Kong, 3 of the 17 have dual positions. In Gansu, an economically less-developed province in the middle of China, has 5 out of 21. In Xinjiang, a province in the west that is economically underdeveloped, has 1 out of 11. This political connection seems a feasible way to
demonstrate resistance, since local officials, when submitting opinions to the central government, will inevitably consider their own interests as hospital leaders.

_The “Back”_

Ever since the central government decided to link doctors’ income to drug sale profits, it has been difficult to cut down this profit-making channel. Due to strong resistance, the 2009 reform goals have been compromised several times in the past seven years.

There have been a number of issued documents targeting the 2009 reform, and policy compromises are identifiable through the changes in the documents from year to year. In 2009, _Central Government [2009] No.6 Opinions on Reforming the Healthcare System_ was issued, marking the beginning of the reform. In the document, the reform goal is clearly stated at the very beginning – “to make it easier for patients to utilize medical resources as well as pay for the cost of health services.” The document points out that, although China has made impressive achievements in healthcare since the market reforms of 1978, two key problems still persist in today’s healthcare system – unequal distribution of health resources, which made it difficult for rural residents to seek care, as well as the fast increasing OOP, which makes healthcare unaffordable to a substantial portion of the population. In other words, the key target in 2009 was to focus on expanding medical resources, especially to increase employment of medical professionals in rural areas, and to lower patients’ OOP. The document laid out a timeline for each specific target. For instance, it stipulates that by 2011 rural residents will have an easier time seeking health services and by the same year, average OOP in both rural and urban areas will be significantly reduced; and by 2020, every citizen will have access to affordable healthcare.
Soon afterwards, the State Council issued *Central Government [2009] No.12 Plans to Implement Healthcare Reform 2009 to 2011* to complement the decisions made earlier. This document compels public hospitals and rural clinics to implement the zero-profit drug policy, which requires them to sell drugs at cost. Moreover, doctors’ wages are no longer allowed to be linked to drug sale profits. The central government hopes that by implementing these policies and by increasing healthcare spending, OOP can be successfully reduced.

Yet one year later, the Department of Health, together with other five Departments, issued *Health [2010] No.20 Instructions on Reforming Public Hospitals Through Pilot Programs*\(^{21}\). This document made a key compromise regarding the decision made in 2009. Previously, public hospitals were required to implement the zero-profit drug policy and cutoff the link between drug sales and doctors’ bonuses. The central government believed that the extra income from over-prescription was not doctors’ legal income and was the key factor that increases OOP. However, in 2010, possibly after rounds of negotiations, the central government began to allow hospitals to raise service fees to partially compensate the profit loss. The limit of that increase remains unclear.

Three years later, the Department of Health issued *Health [2012] No.53 Notice on the Arrangements Concerning Public Hospital Reform in 2012*\(^{22}\), in which the goal of lowering OOP was replaced by “cutting down the irrational increase of patients’ OOP.” The term “irrational”, however, has not been clearly defined.

In the same year, *General Office [2012] No.33 Opinions on the Pilot Program to Reform Township Hospitals* was issued with specific instructions on profit loss compensation. It

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\(^{21}\) 卫医管发（2010）20号 关于印发公立医院改革试点指导意见的通知
\(^{22}\) 卫医管发[2012]53号 关于做好2012年公立医院改革工作的通知
stipulates that the loss of profits from the sale of drugs will be compensated in two ways – increasing governmental funding and further increasing service fees, including registration fees, nursing fees, diagnostic tests fees, and surgery fees. According to a number of documents issued locally, the average strategy nationwide is that, 80% of the loss will be compensated through raising service fees while 20% through increasing governmental funding. In consequence, total medical expenses are to remain unchanged.

In 2014, the General Office issued General Office [2014] No. 24 Notice on Printing Healthcare Reform Key Tasks in 2014. In this document, the central government instructs that each province has the authority to determine the percentage increase of the service fees\textsuperscript{23}. Moreover, it points out that the goal of the reform is to control the growth rate of patients’ OOP. Apparently, the previously stated goal of lowering OOP was no longer in force.

Leaders from the national Health and Family Planning Committee confirmed this outcome. On August 6\textsuperscript{th}, 2015 during the press conference, they responded to the journalists’ questions concerning lowering OOP. According to the official records of that conference published on the Committee’s website, the leaders of the Committee confirmed that the drug sale profits lost due to reforms will be compensated through increasing service fees, which will be partially reimbursed through public insurance, so that patients’ final OOP will not increase substantially. They further explained that, “the total amount remains unchanged, but we have reformed the structure and under this new structure doctors will no longer prescribe too many unnecessary drugs.” The goal of the reform was no longer to lower OOP or to control the growth rate, but rather to make sure that OOP will not increase further.

\textsuperscript{23} From a number of documents issued locally, the average strategy nationwide is that, 80% of the loss will be compensated through raising service fees while 20% through increasing governmental funding.
In the past seven years, the reform goal gradually deviated from its original direction, and this was due to a strong policy feedback effect. The policy in 1979 changed public hospitals’ nonprofit character as well as doctors’ behavior and the new policy that offers doctors generous bonuses further strengthens both their financial and political power. The new characteristics as well as the new income level give new power to medical professionals who then become obstructions ahead of any attempt to abolish their profit-making model. Consequently, the reform effort to lower OOP has ceased.

The “Failed” feedback effect:

Sometimes policy feedback may also fail to generate enough resistance to influence subsequent policies. The State Commission Office for Public Sector Reform (SCOPSR), for instance, controls the personnel quotas for all publicly owned workplaces, such as Departments, Bureaus, Committees, public corporations, as well as public hospitals. In order to work under the quota system, potential new workers must wait until someone inside the quota system leaves; once employed within the quota, the employee enjoys all the benefits for life.

The SCOPSR controls the number of workers that each workplace is allowed to have under government budget. Employees hired outside the quota system must be funded using the workplace’s own budget, and their contracts usually have to be renewed annually. Personnel employed under the quota, on the contrary, are equivalent to professors with tenure. In order to meet the second goal of the 2009 reform (Healthy China 2020) – to help rural residents seek healthcare more easily –, the national Department of Health initiated a series of strategies, such as increasing employment at township hospitals and providing free education to medical students who are willing to work at rural clinics for at least three years after graduation. These measures,
however, met resistance from SCOPSR, which was unwilling to increase the quota for medical professionals. Eventually, in 2015, the Health and Family Planning Committee established a new system under which every doctor must be employed under renewable contract, essentially removing doctors from the quota system.

The Feed

On December 16th, 1978, the Department of Health issued *Health [1978] No.1689 Notice on Publishing Public Hospital Quota Regulations*\(^{24}\), which affected the SCOPSR. The *Regulations* assigned personnel quotas to all public hospitals including rural clinics according to their size, as measured by the number of beds. For instance, for hospitals with fewer than 300 beds, the ratio of bed to staff should be 1:1.3-1.4. From 300 to 500 beds, the ratio should be 1:1.4-1.5. For more than 500 beds, the ratio should be 1:1.6 to 1.7. The *Regulations* also determined the appropriate composition of hospital staff. For instance, it stipulated that administrative staff should comprise 28% to 30% of total employment, and the remaining 70% to 72% should be doctors, nurses, and other skilled staff, among which doctors should account for 25%, nurses 50%, and pharmaceutical staff 8%. The *Regulations* have been modified several times since 1978, but the quota system has remained relatively unchanged and is still effective as of 2016. SCOPSR continues to ratify all hospital staff increase requests despite the fact that, today, many public hospitals have professionals and staff who are employed outside the quota. For instance, Jiusan Society, one of the eight political parties besides the communist party in China, submitted the *Opinion to Adjust Health [1978] No.1689* in 2014, urging the central government to reform the quota system. The *Opinion* mentions that in Inner Mongolia, public

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\(^{24}\) (78) 卫医字第 1689 号 卫生部关于发布《综合医院组织编制原则试行草案》的通知
hospitals have in total exceeded the employment quota by 7.88%, and the three major cities in that province have all exceeded the quota by 20%. Yet the decision to increase employment at both township hospitals and rural clinics requires SCOPSR approval.

The Mechanism

SCOPSR resists reform efforts by refusing to increase employment quotas, which continue to hold great influence in the job market. The failure to increase the quotas then directly affects rural residents’ healthcare preferences. Since the quota system attracts employment by offering benefits as government employees, not enough quota leads to unattractive job posts and thus not enough job applicants; without qualified doctors, rural residents tend to choose urban hospitals rather than rural clinics, despite long travel times and higher OOP. Every year the Health and Family Committee in each province needs to negotiate with SCOPSR regarding employing medical students within quota at rural clinics. The frequent negotiation has severely hindered the program’s efficiency.

The table below presents 2016 data on Dingdandingxiang – the program that offers free education to medical students who are willing to work at rural clinics after graduation (provinces that have not yet implemented the program are excluded). The data show that some students break the contract after graduation and refuse to go to the countryside. Breaking the contract requires paying back four years’ tuitions fees and other expenses and will lead to a strong negative report on one’s credit file. Yet there are still students who prefer these outcomes to working at rural clinics. Their major alternative choice is often to seek employment opportunities at large urban hospitals where they have a greater chance of being employed under the quota, which is determined by the size of the hospital. Originally, the quota system could be used as an attraction to the students in this program. Through guaranteeing quota employment, students may
choose rural clinics over urban hospitals in the end. Yet this strategy, for some reasons, fails to obtain cooperation from SCOPSR, which believes that the 1979 standard should not be changed. According to policy feedback theories, the 1979 policy affects the 2009 reform because the policy has limited state capacities.

Due to data limitations, only a rough correlation could be performed, but the negative correlation still sheds light on the possibility of the quota’s potential impact on students’ job decisions. Moreover, according to the Health and Family Planning Commission officials who provided the data, Guizhou is the only province that experiences little to no breach of contract within the program, and it also happens to be the only province that has guaranteed 100% quota employment since the program’s initiation. The quota system can definitely exert impact on reform efforts.

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Percentage of Students Employed within the Quota</th>
<th>Percentage of Students Who Broke the Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hebei</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Shanxi</td>
<td>50%</td>
<td>15%</td>
</tr>
<tr>
<td>Inner Mongolia</td>
<td>52%</td>
<td>1%</td>
</tr>
<tr>
<td>Liaoning</td>
<td>86%</td>
<td>21%</td>
</tr>
<tr>
<td>Jilin</td>
<td>96%</td>
<td>4%</td>
</tr>
<tr>
<td>Heilongjiang</td>
<td>81%</td>
<td>12%</td>
</tr>
<tr>
<td>Anhui</td>
<td>100%</td>
<td>8%</td>
</tr>
<tr>
<td>Jiangxi</td>
<td>85%</td>
<td>2%</td>
</tr>
<tr>
<td>Henan</td>
<td>29%</td>
<td>4%</td>
</tr>
<tr>
<td>Hubei</td>
<td>43%</td>
<td>8%</td>
</tr>
<tr>
<td>Hunan</td>
<td>30%</td>
<td>8%</td>
</tr>
</tbody>
</table>

These data are not publically available and were obtained through personal relationships.
<table>
<thead>
<tr>
<th>Province</th>
<th>% Employed</th>
<th>% Married</th>
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**Graph 8**

**Free Education Program 2016**

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*The Back*

With the goal of increasing the capabilities of rural clinics and decreasing the burden on township and urban hospitals, the central government issued *Health [2009] No. 6* and determined to increase total employment at rural clinics across the board, especially for primary care doctors. SCOPSR regulations assigned personnel quotas to hospitals based on bed count. Therefore, the
reform goal clearly conflicted with SCOPSR regulations by mandating rural clinics increase employment without regard for total bed count. The SCOPSR, its powers officially unaltered, might have presented a formidable barrier to reform efforts. For example, SCOPSR regulations determined regional employment quotas in addition to quotas for individual hospitals. The Health and Family Planning Committee’s decision to increase rural employment could have forced the SCOPSR to require urban and township hospitals to reduce employment.

Yet the SCOPSR ultimately fell in line with the government reform efforts. In 2016, the Health and Family Planning Committee issued *Health [2016] No.6 Healthcare Key Tasks in 2016*. The Committee removed the existing personnel quotas for public hospitals and implemented a new system under which hospitals no longer require approval from SCOPSR when hiring staff; instead hospitals only need to register new employees at SCOPSR. Additionally, all current public hospital employees are to be employed under renewable contracts, to avoid discriminating against new employee. The change is probably due to two considerations. First, as mentioned earlier, the 2009 reform aims to increase employment at rural clinics, and the old quota system conflicts with this goal. Although the system could attract young medical students to pursue their career in the countryside, the need to negotiate not only lowers efficiency but also creates unexpected waste of resources – the Committee spends money on medical education but does not know how many students will eventually break the contract. Second, all doctors are now allowed to practice at multiple healthcare institutions and to sign contracts with different employers. In this case, the quota system is restricting the flow of human resources. Both reasons make it necessary to reform the SCOPSR’s role in healthcare. Although the document does not mandate changes to the wages of employees hired under government

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contract, it is very likely that without SCOPSR quota benefits, doctors’ wages will be entirely funded by individual hospitals.

In the end, the SCOPSR lost its power to determine hospital personnel quotas, a power which it had retained for almost 40 years, and the 2009 reform goal of reallocating medical resources remains intact. Due to the opaque political process, nobody knows exactly why the SCOPSR is willing to make such a compromise, but very likely it submitted before the central government’s order.

However, the decision to abolish the quota system in the healthcare sector has provided an example as well as an excuse to further clear the hindrances of SCOPSR in future reforms. For more than 40 years, SCOPSR has hindered the efforts of many other reforms, but it is very likely that its power will be greatly weakened as it loses power over all the medical professionals. From this perspective although the feedback of SCOPSR to the 2009 reform has failed, the policy to abolish it has nevertheless succeeded and will probably remain influential to future reforms in other sectors.

Discussion

When does policy feedback occur and when does it fail to occur? Why did doctors and hospitals successfully resist the reform to reduce their current profits, while the SCOPSR failed to retain its power that it had enjoyed for almost 40 years? Patashnik (2009) suggests that in democratic settings, there are three explanations when the feedback effect fails to arise: weak policy design, which states that the initial policy was too weak to create a new momentum, inadequate or conflicting institutional supports, which occurs when the state or the specific
institution is not strong enough to sustain the policy effect, and poor timing, which refers to policies that are inappropriate in terms of the governing norms at that time. In context, the 2009 reform is related to the second factor but it also demonstrates a new condition -- the condition when the central government is willing to make compromises in an undemocratic setting.

Patashnik uses the example of Reconstruction to illustrate how inadequate military support led to the policy’s failure to help African Americans establish political power. Yet in the case of Chinese rural healthcare, strong state action succeeding in dismantling a firmly entrenched bureaucratic power structure.

The SCOPSR relinquished much of its influence in the Chinese healthcare system out of deference to strong institutional order. The SCOPSR is a branch of the central government and enjoys roughly the same political status as the Health and Family Planning Committee. Despite their nominal equality, the SCOPSR has long held strong influence over other institutions, as all personnel changes require its approval. Therefore, without a clear and firm push from the central government, the SCOPSR would have been loath to step back. The central government recognized this and took firm action in order to facilitate the reform process, which took precedence over bureaucratic convention. Patashnik’s examples demonstrate that without sufficient institutional support, reform efforts are likely to fail in the face of strong resistance from feedback effects. In this example, strong institutional support behind the Health and Family Planning Committee overcame that resistance.

It seems that in undemocratic settings, policy feedback effects can be stopped easily and at the discretion of the central government, but the reality is more complicated. In the first example, doctors and hospitals successfully fought to maintain certain aspects of the status quo (their channels for profitmaking and extra income), forcing the central government to modify its
reform goals. Arguably, this is because the compromise is beneficial to the central government as well. Public hospitals participate in the policy-making process and many hospital leaders are themselves government officials. If the central government made a firm effort, it could force hospitals to accept zero-profit policies and close any loopholes, but it chose instead to come to a compromise, likely because it served their own interests. The compromise to increase service fees while eliminating profits from drug sales allows doctors to maintain their current income levels without substantial further supplementation from the central government. Before the compromise, goal of the reform effort had been to lower patient OOP by implementing zero-profit drug policies, with the loss to physicians’ salaries covered by government funding. After the compromise, however, 80% of the income losses are to be covered by service fee increases. This results in a win-win situation, where the central government can claim to have eliminated a problem based on popular demand, and doctors can substantially maintain their current income levels. This despite the obvious fact that the new service fee increases may well result in the over-usage of hospital services such as diagnostic tests. In contrast, removing the quota system from public hospitals changed all medical professionals’ employment status from “with tenure” to “with renewable contracts”, an outcome that is unequivocal and uncompromising. This outcome corresponded to the reform goals of improving the quality of rural healthcare, and presented few new budgetary burdens on the central government.

From these two examples, it is apparent that in non-democratic settings, the central government is able to overcome policy feedback effects, but will only choose to do so if the outcome is not overly expensive or detrimental to its interests. Reform goals are formulated with the interests public in mind, as exemplified by the zero-profit drug policies, but may only be accomplished if the desired outcomes come at a reasonable cost.
Chapter VIII Conclusion

By using fixed effect and difference-in-difference methods on aggregate data supplemented by qualitative analysis, this thesis has shown that: 1) rural OOP has increased since the implementation of NCMS; 2) this result is in accordance with the goal of Healthy China 2020, a comprehensive reform launched by the central government in 2009; 3) in order to achieve the goal to lower patients’ OOP, the 2009 reform targets at reducing drug prices through the zero-profit drug policy and encouraging rural residents utilize services at local clinics through increasing rural medical employment; 4) yet due to institutional layering, reform efforts lack efficiency, as each policy needs collaboration among several institutional veto players; and 5) policy feedback effects further hinder the effectiveness of the reform policies but if the cost of bearing the feedback effects outweighs the cost to make compromises, the central government has the capacity to cut off the feedback and this is different from observations in democratic settings.

With the theories of institutional layering and policy feedback, this thesis has uncovered the deeper political factors that are generating the resistances to the reform, making new contributions in addition to the statistical factors proposed by scholars outside the political science field. The institutional layering perspective has explained why the healthcare sector in China appears to be cost-inefficient as some scholars have pointed out, while the policy feedback theory helps to understand why large-scale reform measures such as the zero-profit drug policy fail to achieve the designated goal to reduce OOP.

This study, however, has several limitations. First of all, due to data availability the statistical analysis is limited. Had more data at village and township level become available, this study could go further to analyze the impact of NCMS at a more specific level. Secondly, due to
time and space the analysis on institutional layering as well as policy feedback remains qualitative, while quantitative analysis may better confirm the causality of the mechanisms. Hopefully, future studies will expand the knowledge and overcome these limitations.
Reference


doi:10.1016/j.jhealeco.2008.10.007


doi:10.1093/heapol/czt111


Appendix

List of Official Documents:

Central Government [2009] No.6 Opinions on Reforming the Healthcare System
Civil Affairs [2003] No.158 Opinions on Initiating Medical Rescue to Rural Residents
Civil Affairs [2005] No.121 On Accelerating Rural Medical Rescue
Finance [2004] No.96 Opinions on Establishing NCMS Venture Capital Fund
General Office [2003] No.3 Opinions on Establishing the New Rural Cooperative Medical Scheme
General Office [2004] No.3 Suggestions on the Pilot Programs of NCMS
General Office [2012] No.33 Opinions on the Pilot Program to Reform Township Hospital
Health [1978] No.1689 Notice on Publishing Public Hospital Quota Regulation
Health [2006] No. 13 On Further Accelerating the Pilot Programs of NCMS
Health [2010] No.20 Instructions on Reforming Public Hospitals Through Pilot Programs
Health [2010] No.53 Opinions on Starting the Pilot Program of Serious Illness Rescue to Rural Children
Health [2012] No.53 Notice on the Arrangements Concerning Public Hospital Reform in 2012
Health [2016] No.16 Notice of NCMS’s Arrangements in 2016
Health [2016] No.6 Healthcare Key Tasks in 2016
Insurance Commission [2005] No.95 Opinions on (Commercial) Insurance Industry’s Participation in NCMS Pilot Programs
Insurance Commission [2009] No.71 Opinions on Absorbing Reform Instructions and (Commercial) Insurance Industry’s Active Participation in Constructing the National Healthcare System
Reform [2012] No.2605 Guidance on Starting the Serious Disease Insurance in Urban and Rural Areas

National Yearbooks:

Provincial Yearbooks:


**City Yearbook:**